U.K. ASTRONOMY

Funder Rejects RGO Rescue Plan

A business plan drawn up by the staff of the Royal Greenwich Observatory (RGO) to privatize their institution and thus save it from closure was rejected last week by the RGO's funder, the Particle Physics and Astronomy Research Council. PPARC said that the plan was too risky and costly, and that it threatened to turn the RGO into an unwelcome competitor for the new Astronomy Technology Centre (ATC), which PPARC is setting up in Edinburgh. The decision almost certainly means that the RGO will cease to exist in anything resembling its current form. "We are very disappointed indeed," says RGO director Jasper Wall. Martin Rees of Cambridge University, Britain's Astronomer Royal, says he has lost confidence in PPARC's decision-making.

Currently, both the RGO and the Royal Observatory, Edinburgh (ROE), provide technological support for Britain's ground-based astronomy program. But faced with a dwindling budget, PPARC has wanted to cut back on both observatories once construction of the twin 8-meter Gemini telescopes, in which the United Kingdom is an international partner, nears completion. To do this, PPARC announced earlier this year that the RGO would be closed and its technological capabilities, which are mainly in telescope design, would be transferred to the new ATC based at the ROE (*Science*, 13 June, p. 1641). The move was expected to save $4.1 million annually for the first 4 years, and $6.8 million annually thereafter.

To try to save the RGO, the staff proposed setting up a not-for-profit company which would receive about half its revenue from PPARC for providing astronomical services, such as data archiving, not transferred to Edinburgh. A third would come from establishing a business to build small, robotically controlled telescopes for the international market in collaboration with John Moores University in Liverpool. And the remainder would be provided by PPARC grants for astronomical research. PPARC was also asked to invest $2.2 million to set up the company, but RGO staff estimated that it would save more than that by not having to pay for redundancies and broken contracts.

RGO

End of the road? Britain's most ancient observatory may soon cease to exist.

Two committees set up by PPARC to look into the plan expressed concern about its financial viability and the element of competition it would pose to the ATC. The RGO would have retained some of its capacity to design telescopes and build charge-coupled device instruments, but PPARC's chief executive, Ken Pounds says, "we would be retaining some of the technological activity in Cambridge that we want in Edinburgh." The $2.2 million payment was also deemed unacceptable.

The RGO has not given up and is seeking sponsorship or support from others. If that fails, it will cease to exist as a major institution, although its name might live on. Pounds says it might be linked in some way with astronomy research at Cambridge University, where the RGO is now, or it might be attached to a new museum for the public understanding of science in Greenwich. But the latter would be very unattractive to RGO staff, says Wall: This would be "theme parks instead of real work."

–Judy Redfearn

Judy Redfearn is a science writer in Bristol, U.K.

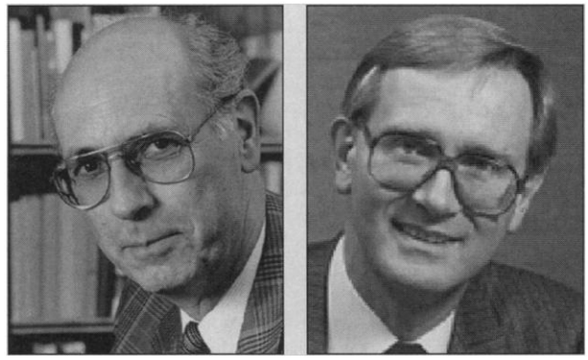
GERMANY

Panel Proposes Ways to Combat Fraud

MUNICH—Germany's main granting agency has taken a tentative step toward a more systemic approach to the problem of scientific fraud by floating a set of proposals developed by an international panel. The proposals, released this week, recommend ways for universities and research institutions to investigate alleged misconduct and foster ethical conduct, as well as to suggest that grants be denied to organizations that do not adopt effective procedures.

The proposals are the work of a 13-member "Self-Control in Science" panel created by the Deutsche Forschungsgemeinschaft (DFG), the country's main granting agency for basic research. The panel was formed in the wake of the country's most notorious scientific scandal in the postwar era, a case involving alleged falsifications in publications by two university professors.

DFG President Wolfgang Frühwald said that he "had not expected that this group would end up so united in its approach to such difficult issues." Frühwald anticipates "a vigorous discussion" on the idea of denying grants to universities that do not adopt satisfactory procedures when the DFG's governing body, the Senat, debates the panel's recommendations early in 1998. One question is whether the DFG has the legal authority to deny grants based on such criteria.



Common line. DFG's Wolfgang Frühwald *(left)* and Max Planck's Hubert Markl are both promoting measures to tackle fraud.

The panel, which met only twice, took a first stab at several issues that have confounded inquiries in other countries, notably the United States. Among its 16 recommendations are:

- German universities and scientific institutions should name outside ombudsmen to hear "whistle-blower" complaints;
- Researchers and scientific publications should tighten co-authorship standards, eliminating "honorary co-authorships;"
- Primary research data used as the basis for publications should be preserved for at least 10 years; and
- Quantitative measures such as "impact factors" should not take precedence over qualitative assessments in decisions on grants and hirings.

At the same time, the panel rejected the notion that Germany set up a separate government bureaucracy to investigate misconduct, as was done for U.S. biomedical research through the Office of Research Integrity, to carry out investigations that are not resolved by the institution. "No one supported that concept," says Frühwald.

Frühwald formed the panel last summer after two German biomedical researchers—Ulm University professor Friedhelm Herrmann and former Lübeck University professor Marion Brach—were accused of falsifying or manipulating data in some three dozen publi-

cations resulting from research at universities and a national research center. Herrmann, who denies committing or knowing of any falsifications, has been barred from DFG advisory boards and temporarily suspended from the university while he fights the state science ministry's disciplinary proceedings. Brach, who had admitted to falsifying data in "two or three cases," lost her professorship at Lübeck.

Meanwhile last month, Germany's most prestigious scientific organization, the Munich-based Max Planck Society—which operates 73 basic research institutes—adopted its own new regulations on handling misconduct cases. Max Planck will set up a new standing committee, headed by an outsider, that will investigate any misconduct complaints and recommend sanctions, which will range from a warning, to dismissal. The final decision on sanctions will be made by the Max Planck president.

"I hope universities or other institutions will look closely at our new rules and perhaps use them as an example," says Max Planck President Hubert Markl. "Scientific misconduct is never wanted and never expected. But when it happens, you are apt to do things wrong if you haven't developed procedures on how to handle it." In addition to these new procedures, Markl has asked the Max Planck scientific council to develop a new educational program that will "help sharpen the awareness" of ethics issues at institutes.

The DFG also would like its panel's recommendations to reach a wider audience. It plans to send them to international science organizations, including the European Heads of Research Councils group, the European Science Foundation, and the scientific section of the G-8 organization of industrialized nations. "We hope each nation's scientific institutions [will] make use of these recommendations to examine their own rules," says Frühwald.

The only U.S.-based scientist on the DFG panel was Lennart Philipson, director of New York University's Skirball Institute of Biomolecular Medicine and a former director of Heidelberg's European Molecular Biology Laboratory. "It is healthy for the DFG, the Max Planck Society, and, ultimately, the German universities, to develop clear rules on how to deal with such issues," he said, adding that he particularly applauds the idea of an ombudsman. "Because the hierarchy at universities and at research institutes in Germany is so strong, it is extremely important to have neutral boards to examine such problems."

–Robert Koenig

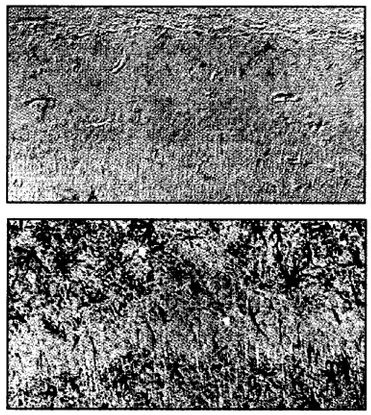
Robert Koenig is a writer in Bern, Switzerland.

NEURODEGENERATIVE DISEASE

B Cells May Propagate Prions

No one knows exactly what causes "mad cow disease" and related neurodegenerative conditions, such as Creutzfeldt-Jakob disease (CJD) in humans. But this uncertainty hasn't kept researchers from wondering how the agents that cause these diseases spread from the site of infection to the brain. New work by neuropathologist Adriano Aguzzi of the University of Zurich in Switzerland and his colleagues now suggests that B cells, a type of immune cell carried in the blood, play an important role in this propagation.

In this week's issue of *Nature*, the Aguzzi team reports that mice lacking B cells are resistant to infection with scrapie, a sheep condition similar to mad cow disease, when they are inoculated with infectious material in areas outside the brain. If B cells are necessary for the disease to propagate, the authors reason, they may also carry the infectious agent.



AGUZZI *ET AL./NATURE* **390**, P. 687 (1997)

Blocked. Brains of B cell–deficient mice *(top)* look healthy, but controls *(bottom)* show signs of scrapie.

In Britain, where 20 young people have already died from a new variant of CJD, possibly originating in meat and other products from cattle infected with mad cow disease, the finding has sparked fears about the safety of donated blood. Experts on the diseases say that no case of CJD in humans has ever been linked to blood transfusions. But the news—which Aguzzi presented at a closed meeting in November—has prompted calls for hemophiliacs in Britain to receive blood clotting factors made by recombinant DNA technology instead of prepared from the pooled blood of many donors. It has also led to suggestions that blood banks should remove white blood cells from donors' blood.

Nailing down how the agents that cause CJD and scrapie travel through the body has been difficult because researchers don't know exactly what to look for. Many believe that the agents are misfolded proteins called prions that propagate themselves, while others think an as yet unidentified slow-acting virus is to blame. But scientists showed as long ago as the 1970s that a wide variety of immune tissues can be infective, especially tonsils, thymus, lymph nodes, and spleen, when injected into animals' brains.

To try to pin down what particular component of the immune system carries the agent, the Aguzzi team tried to infect a number of mouse strains that had been engineered to lack specific immune cells or molecules. They found that mice lacking T cells or the immune-system protein interferon γ were infected as easily as normal mice, but mice that had no B cells were resistant. Out of 27 such mice, none developed symptoms of scrapie after more than a year (up to 534 days), although at least four of them did show evidence of scrapie in their brains. All other mice developed scrapie within 8 months.

Other researchers do not find the results particularly surprising. They note that the tissues previously shown to be infective are rich in B cells. More recent, unpublished work by neuroscientist Paul Brown of the National Institute of Neurological Disorders and Stroke in Bethesda, Maryland, and Robert Rohwer of the Molecular Neurovirology Unit at the Veteran's Administration Medical Center in Baltimore shows that both white blood cells and plasma from infected animals can transmit disease. And at a number of meetings Rohwer has reported that he and his colleagues have infected at least one hamster—out of 22 tested—with scrapie through a transfusion.

The researchers caution, though, that the results only show that blood-borne transmission is possible in the laboratory, and say nothing about the likelihood of it in humans or animals. They point out that no human case of CJD has been traced to a blood transfusion. There is a "tremendous amount of epidemiology that all speaks against the possibility of blood-borne transmission of the agent," Aguzzi says. Rohwer points out, however, that while those results apply to classic CJD, with which "we have been living since the very first transfusion," the situation may be different for the U.K.'s new CJD variant.

There's at least one indication that the immune system could play a bigger role in transmitting the new variant. While doctors have never spotted abnormal prion proteins in the tonsils of patients with classic CJD, in new variant patients, tonsils are "full of abnormal proteins," Aguzzi says.

Aguzzi suspects that the B cells in tonsils carry the prions. But it is not clear whether all B cells harbor the infectious agent, or if only a subset do so. Says Aguzzi, "There is still a tremendous amount of work to be done." That's surely one of the only things on which all researchers in the field can agree.

–Gretchen Vogel