

An Agenda for Our Science?

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BioScience

Organisms from Molecules to the Environment

American Institute of Biological Sciences

An Agenda for Our Science?

Biologists of all stripes may be grateful for the powerful support the National Research Council, the operating arm of the National Academies, has recently given to a new interagency biological research program. In its study *A New Biology for the 21st Century* (www.nap.edu/catalog.php?record_id=12764), the council concludes that biology has reached an inflection point that could allow rapid progress in multiple biological fields. The program it envisages would involve better coordination and integration of research, as well as substantial new financial support.

The "New Biology," the report says, has the potential to deliver "remarkable and far-reaching" benefits addressing critical challenges—notably, food production, protection of the environment, renewable energy, and improvement of human health. Solutions in these areas are "within reach" and will emerge from the growing capacity to understand, predict, and influence the responses and capabilities of complex biological systems. As an example, the report describes prospects for combining accelerated "genetically informed" plant breeding with research on plant development, systematics, and ecology. Such an integrated approach could yield improved crops capable of feeding a growing human population in the face of a rising sea level and changing temperatures and rainfall patterns. Individualized, more effective health care is also highlighted as an achievable benefit. However, the enabling technologies are not yet at hand in either case.

The sense that biology has enormous potential will not be new to those working in the discipline, but the council's assessment goes further than previous surveys in its willingness to link the solutions to urgent problems with improved research support and dissemination of results across the spectrum of biology. The group is also clear about the obstacles: insufficient resources, poor public recognition of the capabilities now emerging, and institutional barriers. Value is being lost, it says, because government-supported research efforts are not well integrated. Presenting the report at a press conference in September, Keith Yamamoto, chair of the National Research Council's Board on Life Sciences, said that the peer-review mechanisms funding agencies currently employ may be too constraining.

A New Biology for the 21st Century, which was sponsored by the National Institutes of Health, the National Science Foundation, and the Department of Energy, also points to barriers in the academic world that prevent innovators from receiving professional credit for work spanning traditional science and engineering departments. Priority should be given to new information technologies that will facilitate the sharing of often-heterogeneous data, the report says. The report also urges the development of interdisciplinary curricula. (*BioScience*, as it always has, welcomes manuscript submissions resulting from interdisciplinary research.)

The 10-year interagency effort in New Biology that the council proposes would build on existing efforts throughout the government. Although the group declines to put a price tag on the proposal, comparisons it discusses indicate that the cost would be more than a billion dollars annually. The White House's Office of Science and Technology Policy has been briefed.

The report will remind practicing biologists, as well as those who make decisions about research funding, of their responsibilities and their power. There may be an opportunity to make concrete plans: The report advises that "the time to move forward is now."

TIMOTHY M. BEARDSLEY

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