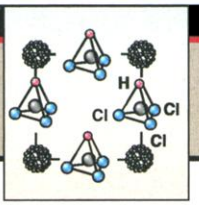

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ASTRONOMY

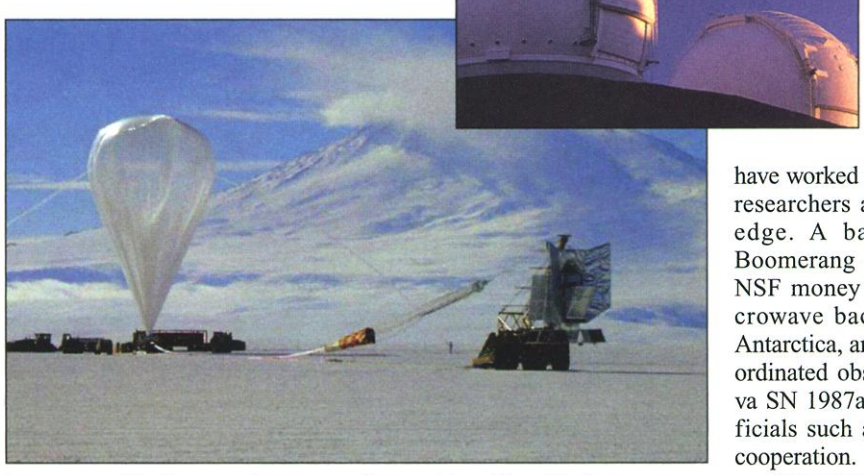
Academy Panel Opposes U.S. Funding Shake-Up

A blue-ribbon panel has rejected a White House suggestion that U.S. astronomy programs be consolidated within NASA. *Science* has learned that the panel's report, due out next week, will instead suggest greater collaboration among federal agencies and other stakeholders as the way to preserve U.S. supremacy in the field.

The 11-member panel from the National Research Council (NRC) of the National Academies, dominated by university astronomers and led by retired aerospace executive Norm Augustine, was set up in April at the request of the White House Office of Management and Budget (OMB). Its charge stems from long-simmering concerns about whether the National Science Foundation's (NSF's) budget can support a growing list of facilities, coupled with a dramatic rise in NASA funding for space-based research. There are also fears that critical areas, from astrophysical theory to balloon research, are falling victim to a lack of cooperation between the two agencies. "The trends are worrisome," OMB examiner Marcus Peacock told the panel in June, "and could be detrimental to the overall health of the field."

But OMB's idea of consolidating U.S. astronomy funding within NASA has been panned, sources say. Instead, the report is expected to suggest that astronomers be given a larger voice in advising NSF's mathematics and physical sciences directorate, that NSF and NASA work more closely together, and that both agencies coordinate with other U.S. groups, including the Department of Energy (DOE) and private institutions. Although Augustine declined to discuss specifics, he said that the panel received a strong message from the community that "better coordination would be helpful. … The key issue is how to accomplish this in a constructive fashion." Adds one astronomer, "We need a fundamental culture change. And somebody has to crack the whip."

The landscape of U.S. astronomy has changed dramatically in the past 2 decades. Once a minor player, NASA now accounts for nearly three-quarters of individual research grants in astronomy. Nearly 30% of all small grants in astronomy now go to research related to the Hubble Space Telescope, for example. During the same period, private funding to build ground-based telescopes has increased significantly.



Icy partnership. New panel recommends more joint efforts like Boomerang, a NASA-NSF balloon project in Antarctica, and links to private-sector facilities like the Keck Foundation's twin Hawaii telescopes (*inset*).

NSF has been unable to keep pace with that rapid growth, with astronomy's share of its overall budget declining from 6% in the 1970s to 5% today. As a result, "funds for the independent observatories are at subsistence levels," warned Joseph Miller, director of the University of California observatories, in testimony to the panel. "Without significantly more [money], U.S. leadership … will rapidly decline." Riccardo Giacconi, head of Associated Universities Inc. in Washington, D.C., and former director-general of the European Southern Observatory, agrees. "The U.S. has dominated optical astronomy since 1945, and only now are Japan and Europe challenging that supremacy," he says, arguing that it is time for U.S. institutions to work together.

The division of labor between NSF and NASA also has created some gaps. Work on astrophysical theory to interpret space-based observations receives little support from NASA because it's not related to a particular mission. And NSF managers focus on ground-based data. Scientists who gather data from balloons soaring as high as the upper atmosphere have also been left hanging, despite a call for greater funding in the NRC's influential 2000 decadal report. Balloon missions return so much less data than NASA's massive observatories that they get slighted by NASA, which oversees the effort, says Jonathan Grindlay, an astronomer at the Smithsonian Astrophysical Observatory in Cambridge, Massachusetts: "This orphan program is slipping into the backwater."

NASA and NSF have worked together in some areas, researchers are quick to acknowledge. A balloon effort called Boomerang combined NASA and NSF money to gather cosmic microwave background data above Antarctica, and the two agencies coordinated observations of Supernova SN 1987a. But White House officials such as Peacock want more cooperation.

Astronomers told the panel that there are good reasons for preserving both programs. "The NSF and NASA cultures are incompatible," says Maria Riecke, a researcher at the University of Arizona in Tucson. NSF's hands-off, research-driven academic approach contrasts sharply with NASA's industrial and top-down philosophy, say she and other researchers, who add that two funding pots allow for greater creativity. "It's a great benefit for U.S. science to have a discipline supported by more than one federal agency," adds Robert Eisenstein, head of math and physical sciences at NSF. "We approach things differently [than NASA], but those differences are healthy."

Although the panel recognizes the value

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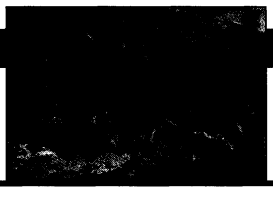

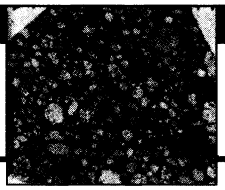

of diversity, it nevertheless will recommend that all the players—DOE and private groups as well as NSF and NASA—cooperate formally, perhaps through a joint advisory committee. "The idea is to set up a process that the agencies will buy into," says one researcher. Once the report is out, however, it will be up to White House officials to crack the whip to implement those recommendations. **–ANDREW LAWLER**

STEM CELL LINES

NIH's List of 64 Leaves Questions

The National Institutes of Health (NIH) has publicly posted the names of 10 companies or research groups in possession of 64 human embryonic stem (ES) cell lines that the U.S. government says meet its new criteria for federal funding. But many are in early stages, and scientists suspect that far fewer will prove to be of research quality.

The names were posted on 27 August following a whirlwind week of consultations, by phone and in person, with what NIH officials call "the derivers." And there are some surprises. One is a San Diego, California, company, CyThera, set up less than 2 years ago, that claims to have nine ES cell lines. Researchers there are trying to develop pancreatic islet cells for treatment of diabetes. "We're not at the point of providing materials yet for researchers," says company co-founder Jonathan Jones of Northwestern Medical School in Chicago.

Another surprise came from India, where NIH located two groups. The first is at Reliance Life Sciences in Mumbai, which makes new blood products; the other is at the National Center for Biological Sciences in Bangalore. Reliance earlier hesitated to confirm having any human ES cell lines; after NIH posted its list, a spokesperson told *Science* that it was company policy to wait until NIH had publicized the lines.

In a statement issued with the list, NIH reported that all 64 lines—which must have been derived before 9 p.m. on 9 August—"show characteristics of stem cell morphology." NIH said the lines have undergone several population doublings, and most have demonstrated all the protein markers "known to be associated with human embryonic stem cells."

But observers believe that NIH has established a low threshold of acceptability. For example, Göteberg University in Sweden is listed as having 19 lines. But researcher Peter Eriksson had earlier stated that he only had five, adding later that 12 colonies were less than 3 months old and not yet ready to be called cell lines.

NIH has promised to supplement the list with more extensive information on the scientific quality of the cells—including details on how they were cultivated, growth characteristics, and evidence of pluripotency (their ability to grow into any of the more than 200 human tissue types). But it won't be involved in accessibility issues. "Once they're posted, NIH is basically out of it in terms of brokering," says Judith Greenberg, who's in charge of setting up the stem cell registry.

The ramifications of the Bush policy will likely become clearer at an all-day hearing on 5 September called by Senator Edward M. Kennedy (D–MA), chair of the Senate Committee on Health, Education, Labor and Pensions. But so far, the biomedical community seems happy with how NIH has handled the issue. "I have to say I think they've done a wonderful job," says Tony Mazzaschi of the Association of American Medical Colleges.

–CONSTANCE HOLDEN

NUMBER OF EXISTING STEM CELL LINES REPORTED TO NIH

Source	number of lines
BresaGen Inc., Athens, Georgia	4
CyThera Inc., San Diego, California	9
Karolinska Institute, Stockholm, Sweden	5
Monash University, Melbourne, Australia	6
National Center for Biological Sciences, Bangalore, India	3
Reliance Life Sciences, Mumbai, India	7
Technion–Israel Institute of Technology, Haifa	4
University of California, San Francisco	2
Göteborg University, Göteborg, Sweden	19
Wisconsin Alumni Research Foundation, Madison	5

SOUCE: NIH

HUMAN SUBJECTS

Court Rebukes Hopkins For Lead Paint Study

Maryland's top appeals court last week issued a scathing indictment of a study run by an affiliate of Johns Hopkins University involving children exposed to lead-based paint in their homes. The ruling, which compared the study to the infamous Tuskegee syphilis experiments, dealt another blow to Hopkins, which is already under fire for its oversight of human subjects research. Federal officials are now investigating. Stunned health researchers say the ruling could restrict the enrollment of children in nontherapeutic studies.

The court's decision centers on a study in the mid-1990s to determine the effectiveness of different levels of lead abatement from homes in Baltimore. Two mothers in the study, run by the Kennedy Krieger Institute, filed suit, complaining that they weren't completely informed of the risks and were denied prompt information about high lead levels in their children's blood and homes. Lower courts dismissed the case, but on 16 August, the appeals court ruled that it should go to trial. The study was "inappropriate," the appeals decision says, adding that the Johns Hopkins ethics board that reviewed it "abdicated [its] responsibility" to protect subjects. This is the latest of several problems with trials at Hopkins, including the death this spring of a volunteer in an asthma study and controversy over a cancer drug trial it sponsored in India (*Science*, 10 August, p. 1024).

The lead investigator of the lead paint study, Marc Farfel, and a Kennedy Krieger official vehemently defend the research, although they note that the facts cannot be fully examined until the case goes to trial. "This was ethical [research]," says Kennedy Krieger president Gary Goldstein. The Department of Health and Human Services' Office for Human Research Protections is now investigating the study, says HHS spokesperson Bill Heal.

Kennedy Krieger launched the "Repair and Maintenance Study" with a $200,000 grant from the Environmental Protection Agency. The study aimed to evaluate cheaper alternatives to the $20,000 per house needed for full lead abatement. The investigators helped landlords apply for grants and loans for lead paint cleanup strategies. Some of the 108 homes were occupied