and collaborations; we really want them to continue," says one official from the Ministry of Health, which is helping to draft the regulations. "Yet we don't like to be a loser or simply a gene supplier [to the industrialized world]."

That viewpoint has many supporters in China's scientific community. "International collaborations using genetic resources in China should be based on the principles of equality and mutual benefit, should be covered by formal agreement or contract, and should get approval from the Chinese government," says hemopathologist Chen Zhu, secretariat of the Chinese Human Genome Project and a vocal supporter of the need for regulations. Chen's lab at the Shanghai Second Medical University is supported in part by the New York–based Samuel Waxman Research Foundation, and Chen also works with Waxman, head of the cell differentiation lab at Mount Sinai Medical Center in New York City on cancer therapies.

Xu remains optimistic. He says that his group is preparing an application to submit to the Ministry of Health and that government officials have told him that his project will be reviewed before the regulations are finalized—which should allow him to resume the export of blood samples. Encouraged, Xu says he is organizing a conference in Boston next spring to discuss human genetics and the new regulations. It will be sponsored by the North American Chinese Science and Technology Association and will feature many Chinese scientists, including Chen Zhu. Xu says that the Ministry of Health has promised to help with the invitations and may even participate in the meeting.

It's not hard to understand Xu's optimism. Despite the temporary disruption to some of their projects, Chinese scientists say the pending regulations are an essential part of a healthy relationship with global partners. "If the present situation is allowed to continue," says Chen Zhu, "then not only will China lose her genetic resources, but also international collaborations like mine would be severely affected. The interests of both sides can only be better protected by the new regulations."

–Li Hui and Wang Jue

Li Hui and Wang Jue write for China Features *in Beijing.*

SYNCHROTRON RESEARCH

Panel Sets Out Cuts Under Tight Budget

An advisory panel to the Department of Energy (DOE) last week laid out a painful set of choices to fit a burgeoning field into a tight budget. If DOE doesn't get a substantial increase for the operation and upgrade of four big synchrotrons—an increase the panel says would be justified, but most consider unlikely—it should put the squeeze on the $100 million Advanced Light Source (ALS) at Lawrence Berkeley National Laboratory in California. Researchers say this prescription—which came from a panel led by Massachusetts Institute of Technology science dean Robert Birgeneau, and was first reported in *Science* 2 weeks ago (3 October, p. 25)—could jeopardize the future of the 4-year-old facility. "We asked for tough recommendations," says Pat Dehmer, the director of DOE's Office of Basic Energy Sciences (BES). "We got them, and now we have to live with them."

DOE asked the Birgeneau panel earlier this year to help it plot the future of a field that has won a near tripling of support in the last decade to a current $171 million. It's a field that has attracted thousands of materials scientists, physicists, biologists, and environmental scientists, who use beams of x-rays, ultraviolet (UV) light, and infrared photons to probe matter on the atomic and molecular scale, often gleaning insights that cannot be obtained by any other method. These researchers have been flocking to the four facilities DOE currently funds: the National Synchrotron Light Source (NSLS) at Brookhaven National Laboratory in Upton, New York, and Stanford's Synchrotron Radiation Laboratory (SSRL)—both of which are more than a decade old—plus the new Advanced Photon Source (APS) at Argonne National Laboratory outside Chicago and the ALS.

In its report, which was endorsed on 9 October by an advisory committee to BES, the Birgeneau panel says DOE should request an 11% increase in next year's budget for the four facilities, to $188.5 million. The extremely high caliber of the science being done at all four makes spending the extra money "fully justified," says the report's executive summary, the only part released last week. Nobody in the field is likely to object to those recommendations. But few expect that Congress would go along. "I don't think that's feasible or likely," says ALS director Brian Kincaid. The rest of the report is far more controversial.

The panel says that if DOE doesn't get such an increase, it should give highest priority to fully funding the operating budgets of SSRL, NSLS, and APS, along with an extra $3 million for NSLS for technical support for visiting scientists. Also listed as a top priority is $3 million for ongoing R&D on a fourth-generation x-ray facility. Next in line is $11 million to make initial developments on new beamlines at APS and to upgrade existing ones at NSLS. And the panel's third choice is ALS's operating budget of $35 million.

The panel also made a pitch for $27 million a year, for 3 years, to convert the older NSLS and SSRL machines into third-generation sources. Some of the money, it suggested, might come from other agencies, such as the National Institutes of Health and the National Science Foundation, that support investigators who work at the DOE synchrotrons. If those agencies are loath to contribute, the panel said DOE should dip into its own pocket before funding the ALS operating budget. The implication: If DOE's synchrotron budget is flat, funds for ALS would essentially dry up for those 3 years.

That possibility doesn't sit well with ALS users. "If they follow this recommendation, that would be a total disaster," says Brian Tonner, who heads the surface science program at the University of Wisconsin, Milwaukee. He points out that the ALS produces high-brilliance light beams of UV and soft x-ray photons, which are ideally suited for studying materials' surfaces and probing the magnetic and electronic structure of materials. And it's the only third-generation U.S. site for such experiments, adds Jim Tobin, a magnetics expert at Lawrence Livermore National Laboratory in Livermore, California.

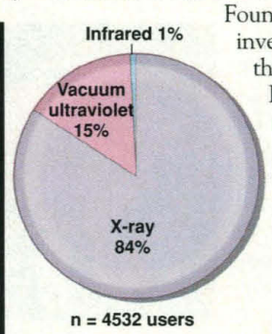
Panel members say they based ALS's low ranking more on the relative value of its contri-

DIVIDING UP THE SYNCHROTRON PIE

Priority	Cost (millions per year)
1) Operating funds for SSRL, NSLS, APS, and R&D for fourth-generation x-ray source	$142.5
2) Development of new beamlines at APS and upgrades at NSLS	$11
3) Convert SSRL and NSLS to third-generation sources*	$27 (for 3 years only)
4) ALS operating funds	$35

* Should be funded from outside DOE's synchrotron budget.

SOURCE: BIRGENEAU PANEL



SOURCE: LINDA HORTON/ORNL

Shedding light. Panel says DOE's budget priorities should reflect the science being done on the machines.

bution and its high operating cost than on the quality of its research. Says panel vice chair and Stanford University physicist Zhixun Shen: "The question was what is the most cost-effective way to make the biggest scientific impact." The facility's $33 million operating budget is 50% larger than that of SSRL, but it has fewer than half the users. The report also notes that "important scientific issues which require UV radiation have decreased in number [since 1984] compared to those which require hard x-rays." ALS's Kincaid acknowledges that "there's no standing body of applications that can be easily capitalized on" for using the ALS's soft x-ray and UV photons. "But that's why the ALS was built, to get into this area," he says.

Asked whether ALS should be re-engineered to provide the harder x-rays that are in higher demand, Birgeneau says he believes that would be a mistake. "There is important science to do in the UV and soft x-ray range," he says. But in divvying up the money, "the panel was presented with more compelling scientific cases by facilities in the hard x-ray range."

Observers say that the Birgeneau report is a gutsy attempt to set priorities, and that the effort is worth it even if it makes enemies. "I do think that priorities have to be set," says Wim Hol, who heads the biomolecular structure center at the University of Washington, Seattle. Andrew Sessler, president-elect of the American Physical Society, agrees: "It's much better to have scientists involved in setting these priorities than politicians. But you can question whether the choices are wise. I never expected that the priorities would put ALS at the bottom."

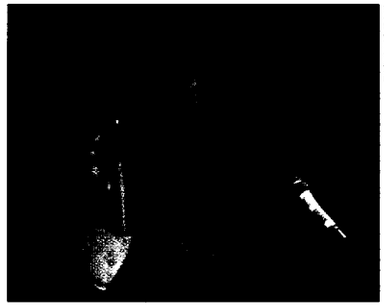
Rather than sounding a death knell for ALS, say Kincaid and others, the report gives DOE ammunition to lobby the Administration and Congress for greater support for all synchrotrons. "I think it provides a very good basis on which to argue to OMB [the Office of Management and Budget] that this is a budget that we need to think about [increasing]," agrees Martha Krebs, director of DOE's Office of Energy Research. But in the absence of extra money, the panel has provided a rare example of scientists setting some painful priorities.

–Robert F. Service

ALTERNATIVE MEDICINE

Senate Hears Testimony Supporting OAM

This fall once seemed to be shaping up as a make-or-break period for the Office of Alternative Medicine (OAM), the National Institutes of Health's (NIH's) controversial outfit for testing unconventional therapies. OAM's critics, who include several prominent scientists, have mounted a letter-writing campaign accusing the office of lending credibility to quackery and calling on Congress to eliminate it (*Science*, 11 July, p. 169). Its supporters, led by Iowa's senior senator, Tom Harkin (D), are pushing vigorously in the opposite direction: OAM, they say, should get a 10-fold budget increase and be elevated to the status of a full-fledged NIH center. Neither camp is likely to get its wish, however.



RICK KOZAK

Bee pollen devotee. Senator Harkin has proposed independent, expanded OAM.

Senate staffers say NIH's 1998 budget, currently hung up in a House-Senate conference committee, will probably include a sum for OAM somewhere between the $7.4 million the House allotted and the $13 million Senate appropriation. This year, the office received just under $12 million. And the notion of elevating OAM's status doesn't appear to be catching fire politically—at least to judge from a hearing on the topic held last week by a key Senate subcommittee.

Former heart surgeon William Frist (R–TN), chair of the Labor and Human Resources subcommittee on Public Health and Safety, called the hearing to explore issues likely to come up in the NIH reauthorization bill, which will be drafted this fall. Committee member Harkin, a major force behind the creation of the OAM in 1992, was there to argue for his proposal to remove OAM from the Office of the NIH Director, where it currently resides, and turn it into an independent center with the power to form its own peer-review panels and distribute grants.

Two scientists testified in favor of Harkin's proposal. Internist and assistant professor of medicine David Eisenberg of Harvard Medical School in Boston, who is a member of OAM's scientific advisory board, noted that an estimated 61 million Americans use alternative therapies ranging from herbal treatments to hypnosis, spending as much as $14 billion each year. James Gordon, a professor of psychiatry and family medicine at Georgetown University School of Medicine, added that as many as 70% of cancer patients seek some form of alternative therapy. Those figures, said Harkin—who credits bee pollen with curing his allergies—are reason enough to focus more research in an area "where the public has been voting with their pocketbooks all along."

If an independent center were given $125 million to $200 million a year, Eisenberg said, "some of the best scientific investigators would step forward" to research alternative therapies. The public needs good science to sort the worthless and dangerous from the potentially helpful, he told the subcommittee, and "we have to get it the old-fashioned way: Buy it."

But a third member of the panel, immunologist Robert Rich of Baylor College of Medicine in Houston, representing the Association of American Medical Colleges, said creation of a separate center would double administrative costs and might actually hinder research. He argued that the current arrangement, in which the office can support grants through existing institutes, takes advantage of those institutes' expertise in particular diseases. For example, he noted that OAM director Wayne Jonas (who was not at the hearing) has praised a cooperative new study by OAM, the National Institute of Mental Health, and the Office of Dietary Supplements on the use of St. John's wort for clinical depression (see p. 391). A separate center, he said, would emphasize the gap between so-called alternative and conventional therapies. "That dichotomy is wrong," he said. "The dichotomy is between good science and bad science."

Because Frist hadn't offered any opinions on OAM, its supporters and critics were eager to gauge his reaction to Harkin's proposal. Although attentive, Frist seemed unpersuaded. He noted that because alternative medicine encompasses such a broad range of treatments, he "sensed a fear" that peer review at an independent center "would not demand the same rigorous science as is demanded historically by the institutes that are in existence."

Robert Park of the American Physical Society, a longtime critic of OAM, said he was pleased with the hearing. He and six other scientists, including Nobel laureates Paul Berg, a Stanford University biochemist, and Jerome Friedman, a Massachusetts Institute of Technology physicist, wrote a letter to Frist last week expressing support for efforts to investigate alternative therapies "provided that the research is held to rigorous scientific standards, is suitably peer-reviewed, and is fairly administered." But, the letter adds, "to elevate OAM to the status of a National Center without first examining its strengths and weaknesses would risk amplifying existing problems." Park predicts that Frist will listen. "My reading," he says, "is that for the time being, the center concept is dead."

–Gretchen Vogel