program. "Now it's up to us to figure out how to split up this money," says DOE's Steven Black, who oversees both programs.

Congress rejected the Administration's plan to prune DOE's $173 million Material Protection Control and Accounting (MPCA) program, which helps Russia safeguard its nuclear materials. But House and Senate negotiators rejected an effort by Representative Chet Edwards (D–TX) to add $131 million to it. Calling the decision "irresponsible and dangerous," Edwards and others hope to snare some money for MPCA from the $40 billion antiterrorism package that Congress approved last month but has not yet decided how to spend.

–DAVID MALAKOFF AND ROBERT KOENIG

RUSSIAN SCIENCE

Government Spurns Human Genome Effort

MOSCOW—As most nations rush to mine the riches of the human genome, Russia is moving to eviscerate its 12-year-old National Human Genome Program (NHGP). *Science* has learned that the science ministry plans to strip the NHGP of its special funding status and fold the money into a general pot for basic research. Beyond imposing a 50% cut in direct spending on genome research, the move will affect millions of dollars in other research activities that the genome program helped to manage.

The NHGP was the brainchild of Alexander Bayev, a molecular biologist at the Engelhardt Institute of Molecular Biology in Moscow who persuaded Mikhail Gorbachev to establish a national genome program in 1988. The fledgling effort received about $20 million a year over the next 2 years, on par with the U.S. program. Funding ebbed, however, after the Soviet Union's dissolution, a decline that accelerated with Bayev's death in 1994. Still, NHGP researchers pioneered hybridization sequencing. And dozens of Russians are involved in genome-related U.S. bioinformatics projects, says an official at the National Institutes of Health in Bethesda, Maryland. "Despite a shortage of resources, they have made use of their financing very effectively," says Valery Soyfer, a molecular biologist at George Mason University in Fairfax, Virginia, and an expert on the history of Russian genetics.

The new cuts, which end a block grant to the NHGP, threaten to derail projects involving approximately 400 researchers. The NHGP's funds will now be part of a "special purpose" program at the science ministry covering 120 basic research areas. However, only a handful of topics—including tumor genomics and genome software development—cover core areas within the genome program. Each topic will be supported by a single project, with total spending on genome-related research not to exceed $180,000 in 2002. The ministry will appoint its own panel to choose meritorious projects.

"No one formally closed the NHGP or dismissed the council," says the Engelhardt's Lev Kisselev, NHGP council head. "But we will no longer choose grantees, and we cannot decide whether the funding will go to a worthwhile project or not." Ministry officials did not respond to requests for comment.

Scientists rue what they see as the imminent demise of a program that maintained a sense of community for Russian genome researchers, sponsored workshops, and supported projects in key areas such as bioinformatics and population genetics. If the program were to die, says Evgeny Sverdlov of the Institute of Molecular Genetics in Moscow, "the infrastructure will die, and that will be very bad."

–VLADIMIR POKROVSKY AND ANDREY ALLAKHVERDOV

Vladimir Pokrovsky and Andrey Allakhverdov are writers in Moscow. With reporting by Richard Stone.

GENOMICS RESEARCH FUNDING
(SELECTED PROGRAMS; $ MILLIONS)

Program	1998	1999	2000
National Human Genome Research Institute (U.S.)	210.9	270.7	326.4
Wellcome Trust (U.K.)	61.3	103.5	121.4
Science and Technology Agency (Japan)	38.9	77.9	115.4
European Commission	23.5	104.6	108.5
U.S. Department of Energy	85.0	89.8	88.9
German Human Genome Project	19.0	20.2	79.0
Knut and Alice Wallenberg Foundation (Sweden)	5.0	11.0	35.0
Centre National de Séquençage, Genoscope (France)	4.5	7.4	9.0
Russian National Human Genome Program	2.8	5.4	8.3
Ministry of Science and Technology (China)	3.6	8.5	6.6

GENOME SEQUENCING

Insects Rank Low Among Genome Priorities

ARLINGTON, VIRGINIA—Insects get no respect, at least from the U.S. agencies that support genome sequencing. That was the grim news here last week at the Comparative Insect Genomics Workshop, sponsored by the U.S. Department of Agriculture (USDA), where entomologists interested in genomics argued for deciphering the genomes of several insect groups. Not only are insects the most diverse creatures on Earth, but they also cause more than $26 billion in damage annually to crops and livestock.

Funding buzz. Currently, there's little support for sequencing insect genomes.

The USDA, however, can't afford to do anything about this. "Animal genomes are on the radar screen, but insect genomes are not," says entomologist Mary Purcell-Miramontes of the USDA Cooperative State Research, Education and Extension Service. And that seems to be the case throughout the federal government.

Only two insects, both biomedically important, have gotten the nod. The genome of the fruit fly *Drosophila melanogaster*, long studied by geneticists, was deciphered in March 2000 (*Science*, 24 March 2000, p. 2181). This year, work began on the malaria mosquito *Anopheles gambiae*. But proposals to study the genetic makeup of other insect species have yet to get funding, even though entomologists say such research could lead to new ways to fight pests and protect pollinators.

For instance, Gene Robinson of the University of Illinois, Urbana-Champaign, has marshaled support among insect researchers to sequence the honeybee genome. Honeybees are critical for the pollination of many crops, he explains, and some of its relatives are useful in biocontrol. The entomologists think the project warrants the estimated $6 million price tag. But no one is biting, yet.

The same is true for the 530-million-base

CREDITS: (LEFT TO RIGHT) SOURCE: STANFORD UNIVERSITY; SCOTT T. SMITH/CORBIS

genome of the silkworm *Bombyx mori*, which may shed light on pest moths and butterflies. An international consortium was formed 3 months ago, and Kazuei Mita of the National Institute of Agrobiological Sciences in Tsukuba, Japan, has done some preliminary work on the genome, but funding is not yet forthcoming.

The USDA's internal research arm, the Agricultural Research Service (ARS), budgets some $60 million for agricultural genomes. But about two-thirds of that goes toward protecting genetic diversity important for agriculture. Most of the remaining money goes to genomics research on domestic animals and crop plants, says Leland Ellis, ARS program leader for genomics and bioinformatics: "Right now there is zero for insect genomes."

Other federal agencies also come up short. The Department of Energy has decided to focus on organisms involved in energy production, bioremediation, or carbon sequestration, says DOE's Ari Patrinos—and insects don't fit the bill. Likewise, the National Science Foundation, which over the past 4 years has spent $215 million on plant genomics, won't tackle insects, warns NSF's Chris Cullis: "We'll not be able to fund the sequencing of an aphid no matter what damage they are doing [to plants]." The National Human Genome Research Institute (NHGRI) plans to sequence the genome of a sister species of *Drosophila*. But, says NHGRI director Francis Collins, "unless it applies to human health, NHGRI is not likely to get involved."

To improve the funding situation, the entomology community needs to pull together and garner the support of farm commodity groups much the way the National Corn Growers Association worked to get funding for plant sequencing (*Science*, 23 October 1998, p. 652), says Ellis. Otherwise, says Purcell-Miramontes, "very little is going to happen."

–ELIZABETH PENNISI

ITALIAN RESEARCH

Mirage of Big Budget Boost Evaporates

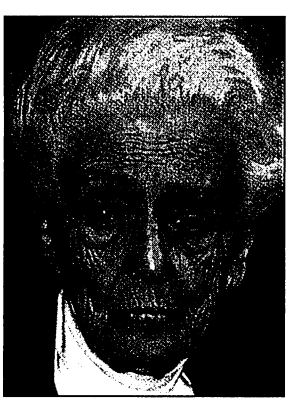
CAMBRIDGE, U.K.—Italian scientists are up in arms over government plans to drastically scale back a promised increase in science funding in 2002. More than 5000 researchers have signed a petition opposing legislation before Parliament that would eliminate all but $200 million of a scheduled $900 million boost. The new budget "will simply ruin the possibilities for Italian scientists," argues Nobelist Rita Levi-Montalcini, former director of the Institute of Cell Biology in Rome.

Scientists had expected to receive $8.2 billion in 2002, up 12% over this year's spending. But that promise was made by Giuliano Amato, whose government was replaced after elections last May. The new administration, headed by Silvio Berlusconi, has made science one of the biggest losers in a review of its predecessor's spending plans. The government puts a positive spin on the change, noting that it doesn't shrink current levels. "There will be no cuts for universities and research" next year, says Guido Possa, vice minister at the Ministry of Education, Universities, and Research.

Italian scientists are unimpressed. In the newspaper *La Repubblica*, Levi-Montalcini last week accused Berlusconi of "betrayal." "They don't care," adds Renato Dulbecco, an Italian-born Nobel laureate at the Salk Institute for Biological Studies in La Jolla, California. The new budget numbers, he says, will have an immediate effect in preventing the country's National Research Council (CNR) from replacing researchers who retire from its staff.

Italy can ill afford such policies, say scientists. The country's research spending stands at 1% of the gross national product, compared to the European average of 2.2%, according to a petition from the Italian Association of Doctoral Students protesting the 2002 budget. The group warns of a "lost generation" of young talent driven away by poor funding.

> **The 2002 budget will "ruin the possibilities for Italian scientists."**
>
> —Rita Levi-Montalcini



Funding isn't the only issue that has scientists fuming. One member of Parliament, Marcello Pacini, has proposed privatizing the CNR, arguing that the private sector would do a better job of supporting research. Scientists are hoping to knock down such an idea before it finds its way into legislation. Dismantling central planning, insists CNR president Lucio Bianco, would spark a crisis in Italian research.

Despite their protests, scientists aren't optimistic about their chances. Indeed, many regard the budget retrenchment as a fait accompli, predicting its passage later this month without significant changes. "It is difficult to think of hope," Dulbecco says.

–BEN SHOUSE

SOCIAL PSYCHOLOGY

Reality TV Puts Group Behavior to the Test

CAMBRIDGE, U.K.—Two British scientists are preparing to take advantage of the popularity of "reality TV" to recreate a notorious psychology experiment in which students played the roles of prisoners and guards. Skeptics, including the researcher who designed the original experiment at Stanford University in 1971, fear that the BBC production could rerun the abuses that brought it to a halt after 6 days. But the researchers say that the show offers an excellent opportunity to answer pressing questions about the psychology of racism, oppression, and terrorism.

The Stanford experiment, conducted by psychologist Philip Zimbardo, took place in the basement of the psychology building, which had been converted to look like a jail. Immersed in the situation, the 9 prisoners and 9 guards quickly internalized their assigned roles, the guards becoming brutal and the prisoners at first rebellious and then utterly compliant. Even the researchers acted more like wardens than scientists, suspecting that the prisoners were faking anxiety to gain early release and helping the guards thwart a rumored jailbreak. The experiment, planned to run for 14 days, was stopped after a colleague objected to its brutality.

The study demonstrated the influence of group pressure on individual behavior. Other experiments during the 1970s confirmed the power of social context. In one, subjects stayed in a room that was filling up with smoke because others seemed unconcerned; in another, they obeyed a lab-coated scientist's orders to deliver what they thought was an electric shock to a human subject. The specter of these disturbing experiments has prevented further realistic, large-scale tests of group psychology.

Then along came reality TV, which puts people in artificial situations for sheer entertainment value. Stephen Reicher of the University of St. Andrews, U.K., and Alex Haslam of the University of Exeter, U.K., accepted an offer to create a show with a stronger experimental basis. "This is a piece of science being filmed," says Reicher, who with Haslam will select 15 people to be as-

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