an overall picture of communicable diseases in India. Kant speculates that the theft might have been an inside job, because the burglars knew exactly which computers to target and because the resale value of the hard disks is negligible. Police have no suspects in the case, which is under investigation.

ICMR officials say they have no idea how the thieves might use the data, although Kant suggests that his unit might have been targeted for harassment by "jealous" competitors. Director-General Nirmal Kumar Ganguly says that "no sensitive data have been lost," but building security has been tightened considerably since the theft. "Even my bags are now searched when I leave the office every day," he notes. **–PALLAVA BAGLA**

U.K. SCIENCE BUDGET

Gene Jocks, Data Crunchers Hit Jackpot

LONDON—Unveiling its science spending plan for the next 3 years, the U.K. government last week announced major new investments in three key areas: tracking disease genes, leveraging the Internet for data analysis, and supporting emerging industries such as nanotechnology and bioengineering. Although these programs cut across a range of disciplines funded by the U.K.'s science councils (see table), the government also bestowed a long-anticipated gift on astronomers: membership in the European Southern Observatory (ESO), which will give U.K. researchers access to the world's largest optical telescope.

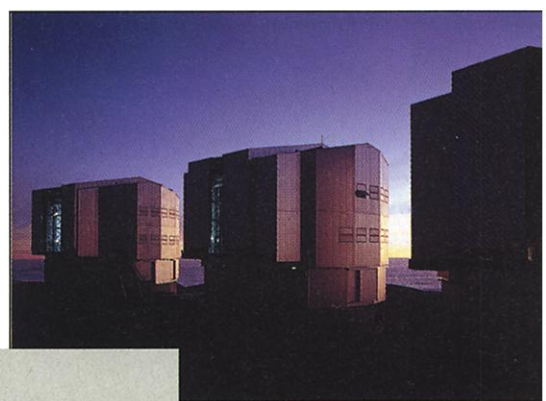
From 2001 to 2004, the U.K. government will pour $8.2 billion into science, $1 billion more than the science budget for the last 3 years—a 7% increase after adjustments for inflation. The biggest winner is genomics. It will feature as its centerpiece the U.K. Population Biomedical Collection, a project in which several centers will take DNA samples from half a million volunteers, then chart each person's medical condition and lifestyle over the coming years. The effort should allow researchers to hunt down genes linked to chronic illnesses such as cancer and heart disease. "The collection promises to be one of the most exciting scientific initiatives of recent times," says Sir George Radda, chief executive of the Medical Research Council.

Also capturing a large share of new funding are projects that aim to digest once-unfathomable amounts of data, an area the U.K. government calls "e-science." Epitomizing the challenge is the Large Hadron Collider (LHC), a proton accelerator scheduled to come on line at CERN, the European particle physics laboratory near Geneva, in 2005. Each of the LHC's four detector experiments, which will probe the nature of matter and the origins and evolution of the universe, are expected to churn out more than 1 petabyte (1 quadrillion bytes) of data—equivalent to a mile-high stack of CD-ROMS—every second. Much of the $137 million in new funding will go to DATAGRID, a pan-European project based at CERN to develop shared databases.

Climate change research, too, will benefit from this database approach. Besides getting a $10 million infusion for climate modeling, the Natural Environment Research Council (NERC) will fund projects aimed at determining whether the British Isles are on the brink of a rapid cooldown. Thanks to the Gulf Stream, part of the so-called conveyor belt in the Atlantic Ocean that brings warm water northward and cold water southward, northwestern Europe is currently 5° to 10°C warmer, on average, than other regions at these high latitudes. Some scientists believe that global warming might destabilize the conveyor belt. If so, the conveyor belt could weaken or turn off some time in the next century—as it appears to have done in the past—and that could trigger much icier conditions in northwestern Europe. In response to that threat, NERC will spend at least $15 million over the next 5 years on studies of the North Atlantic aiming to assess the likelihood of a conveyor breakdown and the impact that would have on the United Kingdom. Says a NERC spokesperson, "We hope that this program will act as a trigger to enable other countries to get funding for research in this field."

Astronomers have special reason to celebrate this week: Pending final negotiations, starting in 2002 they will have access to all ESO facilities, including the vaunted Large Millimeter Array and the Very Large Telescope, both situated in the Atacama Desert in Chile. They will also get in on the planning of ESO's proposed next-generation ground-based scopes, dishes about 50 meters in diameter that would form a facility called the Overwhelmingly Large Telescope, or OWL. "This is excellent news," says Mike Edmunds of the University of Wales, Cardiff, who chairs the Particle Physics and Astronomy Research Council's (PPARC's) astronomy vision panel. PPARC's decision to cast its lot with ESO shows that whereas U.K. politicians are bitterly divided over how tightly they should yoke Britain's economy to the European Union's, scientists themselves are no isolationists. "Entry to the ESO is consistent with the trend towards global cooperation," notes Luke Georghiou, a science policy expert at Manchester University.

But the commitment to ESO—$14 million a year for the next decade—could entail sacrifices at home, because PPARC's budget rise likely won't cover the entire ESO bill. "The main worry is what could be cut domestically to pay for it," says Georghiou. A PPARC spokesperson discounted rumors that ponying up ESO dues would force the closure of the Jodrell Bank Observatory in Cheshire and its venerable Lovell radio tele-



CREDIT: (PHOTO) EUROPEAN SOUTHERN OBSERVATORY

Chile reception. U.K. spending plan will give astronomers access to ESO's Very Large Telescope.

SOME BIG WINNERS IN U.K. SCIENCE, 2001–04

Research Council	Project	Funding ($ millions; next 3 years)
Medical Research Council	Genomics, including U.K. Population Biomedical Collection	74
Engineering and Physical Sciences Research Council	Bioinformatics (genome program)	18
	e-science: engineering applications	24
Particle Physics and Astronomy Research Council	European Southern Observatory	42
	e-science: data processing for LHC and ASTROGRID virtual observatory	37
Natural Environment Research Council	Rapid climate change in northwestern Europe	9
	e-science: climate and oceanographic modeling	10
Biotechnology and Biological Sciences Research Council	Genomics: gene function, research, and structural biology	46
	Bioinformatics	11

scope now being refurbished under a grant from the U.K.–Wellcome Trust Joint Infrastructure Initiative. But he declined to comment on where the savings might come from.

One budget item that the government left untouched is academic paychecks. "The level of pay for university researchers remains the biggest outstanding problem," says Georghiou. "It has fallen well behind other professions, making recruitment of the best talent increasingly hard." But even if the take-home pay isn't great, at least scientists in genomics and Internet databases, for instance, should have a fair shot at snaring some additional cash to keep their labs in top form.

–JOHN PICKRELL

John Pickrell is a science writer in London.

MAD COW DISEASE

New Recruits for French Prion Research

PARIS—As panic over "mad cow disease" engulfs France and threatens to spread to other countries in Western Europe, French research minister Roger-Gérard Schwartzenberg last week unveiled detailed plans for spending $27 million the government has earmarked for prion disease research in 2001. Next year's budget for studying prions —infectious, abnormal proteins linked to bovine spongiform encephalopathy (BSE) and its human form, variant Creutzfeldt-Jakob disease (vCJD)—will triple France's current prion research spending.

Earlier this month, both Spain and Germany reported their first BSE cases, sparking fears of a major Europe-wide epidemic. In France, meanwhile, the sharp jump in BSE cases this year prompted the government to respond with a whopping increase for prion research (*Science*, 17 November, p. 1273). Some of the new cash will be spent to recruit 100 researchers and technicians in 2001, including 25 postdocs, to add to the 240 scientists now working full- or part-time on prion diseases in France, Schwartzenberg said at a 23 November press conference. Another 20 researchers will be recruited in 2002 and 2003. "It is good we will be able to pay" researchers and technicians, says immunologist Jean-Yves Cesbron of Joseph Fourier University in Grenoble, but the extra resources have come "a bit late." Cesbron wonders where the postdocs will be found and is worried that the French prion research effort will be too dispersed. "Very few laboratories working in this area have critical mass," he says.

The cash infusion also will be used to expand current research efforts (see table) and fund entirely new projects, such as work at the University of Montpellier using lemurs to study how prions cause disease in primates. A major focus will be animal models for prion diseases, including transgenic mice, cattle, and sheep. The beefed-up research effort catapults France to nearly the same level as the United Kingdom—the country the hardest hit by both BSE and vCJD—in prion research spending. The U.K. government spends about $34.4 million a year, with an additional $1.4 million coming from the Wellcome Trust charity. France is now "well placed compared to other European countries," Schwartzenberg said. Although the spending boost comes hard on the heels of what the French press has called the country's budding "national psychosis" over BSE, Schwartzenberg played down suggestions that the panic itself fueled the increase. This is "not the principal" reason, he said. "We are convinced that the increase in the number of [BSE] cases ... justifies a greater research effort." **–BARBARA CASASSUS**

Barbara Casassus is a freelance writer in Paris.

FRENCH PRION RESEARCH HIGHLIGHTS*

Prion detection tests for animals and humans:	$4.5 million
Basic research on prions and disease pathology:	$9 million
Epidemiology and therapeutics:	$3.8 million
Destruction of animal-based feedstuffs:	$513,000

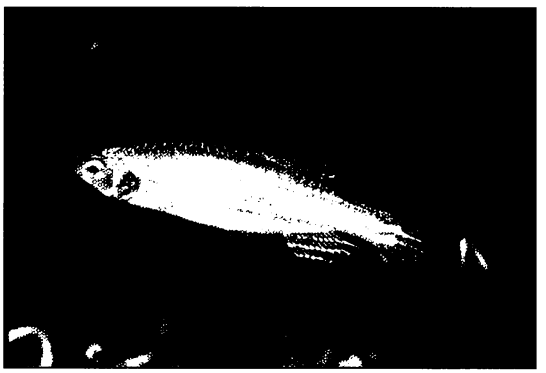
* Does not include salaries.

GENOMICS

Sanger Will Sequence Zebrafish Genome

As the international human genome project nears completion, the Sanger Centre in Cambridge, U.K., has settled on a new effort to keep its sequencing machines humming: the genome of the zebrafish, a model organism much loved by developmental geneticists. After nearly 4 years of lobbying biomedical funding agencies (*Science*, 14 February 1997, p. 923), scientists who study the 4-centimeter *Danio rerio* are delighted. "It's just such a dream," says Leonard Zon of Children's Hospital in Boston, who studies the development of blood cells in the zebrafish and who with Nobel Prize–winner Christiane Nüsslein-Volhard and others was a strong advocate for the sequencing project.

Developmental biologists value *Danio rerio* for its transparent embryos, which allow easy viewing of a developing vertebrate nervous system, heart, and other organs. Researchers typically expose male fish to DNA-altering chemicals and then breed the fish to create embryos carrying a range of mutations. This enables them to examine the mutants for intriguing characteristics, such as brittle bones or faulty digestive systems, and from there to find the defective genes (*Science*, 19 May, p. 1160). Although the mouse genome now being sequenced by two groups—a public-private consortium and Celera Genomics in Rockville, Maryland—will help scientists assign functions to many human genes, having the full DNA sequence of a more distantly related vertebrate will uncover additional gene functions that are missed in human-mouse comparisons, says developmental geneticist Marnie Halpern of the Carnegie Institution of Washington in Baltimore.



Next up. The zebrafish, prized by aquarium keepers and developmental biologists, will have its genome sequenced by the Sanger Centre.

The Sanger Centre gave its unofficial endorsement to the project earlier this year (*Science*, 5 May, p. 787), but the research team, led by Jane Rogers and Richard Durban, worked out the details only last month. The Wellcome Trust announced on 21 November that it would fund the effort, spending more than $7 million for the first year of the 3-year project.

Sanger scientists will use the shotgun technique, fracturing the entire zebrafish genome into smaller pieces, sequencing each one, and reassembling them in order with the aid of sophisticated computer programs. A first draft of the sequence could be done by fall 2001, Rogers says, with the finishing touches completed by 2004.

Rumors a few months ago that Celera might launch a zebrafish sequencing project had researchers worried that the Sanger Centre might drop the project and data would not be as freely available. Researchers intensified their lobbying. But Celera's Mark Adams says they have no plans to sequence the zebrafish and are glad Sanger is doing so.

Recent advances, such as the creation of improved genetic maps, have already shortened the time it takes to identify the genes responsible for the intriguing mutations in zebrafish. But the entire 1.8-billion-base-pair sequence will speed the job considerably, Zon says: "This will really set the field on fire."

–GRETCHEN VOGEL