amateur collector in 1997 on the Isle of Wight, off the southern coast of England. Although isolated bones of primitive tyrannosaurs had been reported before, this 5-meter-long skeleton beats them hands down. It's about 40% complete and includes the front half of the skull. In the April issue of *Cretaceous Research*, a group from the University of Portsmouth, United Kingdom, and the Museum of Isle of Wight Geology describes several features that link *Eotyrannus* with tyrannosaurs, such as fused nasal bones and teeth with a "D"-shaped cross section. Other traits are much more primitive, and it has long arms and hands like *Velociraptor*—just as the tyrannoraptor theory predicts. "This is one of the first specimens to confirm that," says team member Darren Naish of the University of Portsmouth.

The new specimen will help clarify how tyrannosaur traits evolved, says paleontologist Tom Holtz of the University of Maryland, College Park, who gave the tyrannoraptor hypothesis its name. For example, *Eotyrannus* implies that the advanced biting style of the tyrannosaurs evolved in a predator that could still grab with its arms. As for the tyrannoraptor idea, Holtz says *Eotyrannus* "is great confirmation." –ERIK STOKSTAD

ANIMAL RESEARCH

Charles River Labs to Care for NIH Chimps

After a yearlong search, the National Institutes of Health (NIH) has found a new caretaker for nearly 300 chimpanzees once used in medical research. The decision is a mixed blessing for animal activists. They had long accused the animals' current caretaker, the Coulston Foundation of Alamogordo, New Mexico, of unsafe and negligent veterinary practices, but they had hoped the chimps would be released to a retirement sanctuary. And they were especially upset by a separate NIH decision to purchase 14 young chimpanzees from Coulston for possible research.

As *Science* went to press, NIH was set to sign a 10-year, $42.8 million contract with Charles River Laboratories, a company based in Wilmington, Massachusetts. The corporation would assume care for 286 NIH-owned chimpanzees at the Holloman Air Force Base in New Mexico, most of them infected with HIV or hepatitis in NIH protocols. "This isn't an official sanctuary, but the idea is that at this facility, [chimpanzees] will be cared for, given social enrichment, and allowed to live out their natural lives," says Charles River senior vice president Dennis Shaughnessy about the colony. No experiments will be conducted at Holloman, says Judith Vaitukaitis, director of NIH's National Center for Research Resources, although

High priced? NIH is reportedly planning to buy 14 young chimpanzees for $30,000 each.

NIH-funded scientists interested in conducting research on the chimps may arrange for animals to be transported to other sites.

Animal-welfare groups have complained loudly about the privately owned Coulston Foundation, charging that it provides inadequate veterinary care and keeps its animals in unsafe conditions. The foundation has denied those charges. In 1999, Coulston settled one investigation by the U.S. Department of Agriculture (USDA) into animal welfare violations (*Science*, 10 September 1999, p. 1649) by agreeing to give up 300 of the approximately 600 chimpanzees the foundation owned.

NIH acquired 288 Coulston chimps last May and since then has conducted several unsuccessful searches for a caretaker. Coulston put in a bid, but NIH rejected its application (*Science*, 13 October 2000, p. 247). The USDA still has an open investigation on Coulston, and two of the NIH-owned animals have died in the last year. Animal-welfare groups have claimed that the deaths were due to negligence, whereas Coulston spokesperson Donald McKinney says that the animals died of routine health complications.

Linda Brent, president of Chimp Haven, an organization in San Antonio, Texas, that hopes to build retirement sanctuaries for former research chimpanzees, says finding an alternative provider was a positive interim step. "I am hopeful that in the future [the chimpanzees] will be able to be moved out and fully retired," she says.

Indeed, NIH is reluctantly moving forward to set up a system of retirement sanctuaries. Last month, it requested that interested organizations describe their ability to care for at least 75 chimpanzees as part of the so-called CHIMP Act, which President Clinton signed into law last December (*Science*, 22 December 2000, p. 2233). The law requires NIH to set up a system of retirement facilities for animals no longer needed in research. At least two organizations, Chimp Haven and Primarily Primates, also in San Antonio, filed the required statement by the 15 May deadline.

ScienceScope

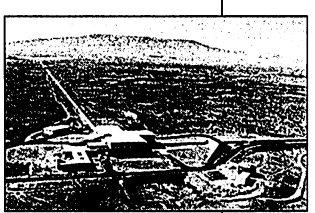
Measuring Up What good is a painfully detailed review of a research agency's activities if it's ignored by the politicians who draw up the agency's budget? That's what a National Academy of Sciences (NAS) panel asks in a new report on a 1993 law aimed at making the federal government more efficient.

The Government Performance and Results Act (GPRA) requires each agency to set annual goals, define how it plans to achieve them, and then measure the outcome. For years, researchers have worried that the act would trivialize federally funded research by forcing agencies to show a short-term payoff from basic research. Now they have a new fear—that agency officials are wasting time preparing reports that lawmakers don't read.

The annual GPRA reports "have not been used for a political purpose, which is the ultimate goal," says Enriqueta Bond. Bond co-chairs the NAS panel that looked at how five leading research agencies deal with the act, which kicked in a few years ago. A White House budget official agrees, adding that "the measures used by most agencies aren't particularly helpful" in setting funding levels.

The annual exercise does help the agency evaluate research quality and relevance, according to the academy panel, but falls short in deciding if the work is world-class. Still, the burden of preparing the reports may soon outweigh the benefit, Bond warns, unless policy-makers start paying more attention.

Quake-Proof LIGO has been shaken and rattled, but it is nearly ready to roll again. On 28 February, a magnitude-6.8 earthquake struck Washington state and took a toll on the Laser Interferometer Gravitational-Wave Observatory in Hanford (right), a sensitive detector designed to detect the warping of space-time by gravitational waves (*Science*, 21 April 2000, p. 420). The shaking knocked equipment out of alignment and damaged some mirror attachments, says site chief Fred Raab, derailing a scheduled joint observation session with a twin facility in Louisiana. But repairs should be completed by the end of the month, and the project is still on track to begin its gravitational-wave search next year.



Contributors: Andrew Lawler, Charles Seife, Jeffrey Mervis

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NIH's planned purchase of 14 young, uninfected chimps from Coulston for nearly $30,000 each is a less happy development for activists. Vaitukaitis says her office was concerned that the animals, among those still owned by Coulston, "would be sold to the entertainment business" if NIH didn't act. She says it is not yet clear where the young chimps, ranging in age from 1 to 2 years, will live, but they will be available for research if the need arises.

Animal activists complain that NIH is "adding more babies into a supply" that already exceeds demand, says Chris Heyde of the Society for Animal Protective Legislation in Washington, D.C. For its part, McKinney says that the company has no plans to sell its animals to the entertainment industry but would try to sell them to other research laboratories if NIH didn't buy them.

–GRETCHEN VOGEL

RUSSIAN UNIVERSITIES

Centers of Excellence Get Big U.S. Boost

CAMBRIDGE, U.K.—A unique experiment to improve Russian science has won a ringing endorsement: Two heavyweight U.S. foundations are plowing $12.5 million into an effort to create scientific oases in Russia's impoverished university system. The funding boost more than doubles the budget of the fledgling Basic Research and Higher Education (BRHE) Program, allowing it to expand from eight to 16 centers across the country.

BRHE's aim is to help break down the firewall between the Russian Academy of Sciences' institutes—where much of the country's best research is carried out—and the universities, which tend to lack world-class scientists. Toward that end, the program gives university-based centers 3-year, $1.05 million grants for purchasing major equipment and supplies, with the stipulation that the center collaborate with academy researchers. These are huge amounts—as much as 20% of a recipient university's annual budget. A key to sustaining the centers is to involve young scientists; this the BRHE ensures by mandating that 10% of center funds be distributed as grants to scientists who have received a Ph.D. or the Russian equivalent within the past 6 years.

BRHE debuted in 1998 with a 1-year pilot project: a center for scanning probe microscopy at Nizhny Novgorod State University, 400 kilometers east of Moscow (*Science*, 29 May 1998, p. 1336). BRHE has since expanded to seven more universities, from a center on nonlinear dynamics in Saratov, southeast of Moscow, to a marine biology center in Vladivostok, in Russia's Far East. One goal of the peer-reviewed program has been to beef up science outside Moscow and St. Petersburg; universities from these two powerhouses have been prohibited from competing for BRHE funds.

The initiative has also required the Russian federal government and local authorities to pony up half the funding for each center. The fact that Russia has come up with every ruble it has pledged "tells us that we're responding to a need that's real," says Gerson Sher, president of the Civilian Research and Development Foundation, an Arlington, Virginia–based nonprofit that runs BRHE with Russia's Ministry of Education. The eight centers are blossoming, adds Marjorie Senechal, a mathematician at Smith College in Northampton, Massachusetts, who attended a conference in Nizhny Novgorod last September to review the program's progress.

The new money announced last month—$11.5 million over 5 years from the John D. and Catherine T. MacArthur Foundation and $1 million over 2 years from the Carnegie Corp. of New York—will allow the BRHE to give 2-year extensions to some existing centers as well as add four centers in the Russian provinces. The new funding will also open up the peer-reviewed competition to Moscow and St. Petersburg, each of which will get two centers. The first winners will be announced in November, with another four centers to be chosen in 2002.

The BRHE's rising fortunes should help dispel the gloom that some scientists in Russia are feeling over the impending demise of another major Western effort: the 7-year-old International Soros Science Education Program, which has, among other things, provided stipends to 3750 university professors, high school teachers, and students in Russia, Ukraine, Belarus, and Georgia. The billionaire financier George Soros, who has sunk $109.5 million of his own fortune into the program, has said that this is the last year he will support it. Georgia's president, Eduard Shevardnadze, and others are lobbying Soros in the hopes he will change his mind.

–RICHARD STONE

THE ELITE EIGHT

University	Specialty
Nizhny Novgorod State	Scanning probe microscopy
Krasnoyarsk State	Environmental technologies
Far Eastern State	Marine biology
Rostov State Kuban State Taganrog State Univ. of Radio Engineering	Ecological modeling and geophysics
Ural State	Advanced materials
Saratov State	Nonlinear dynamics and biophysics
Kazan State	Advanced materials
Novosibirsk State	Molecular design

Half of the sweet 16. Eight new Russian centers will join the existing BRHE units, above, over the next 2 years.

GENOMICS

New Genomes Shed Light on Complex Cells

COLD SPRING HARBOR, NEW YORK—Biologists have long wondered what genes separate the men from the boys—that is, the complex eukaryotes from the more primitive prokaryotes. Now they are beginning to find out, thanks to new work deciphering the genome sequences of higher organisms.

At a genome sequencing and biology meeting last week,* researchers announced that they have decoded the genetic complement of a second yeast and are in the midst of sequencing two fungi. Already, these three new genome sequences are shedding light on what it takes to be a eukaryotic cell, says Paul Nurse, director of the Imperial Cancer Research Fund in London. By determining which genes these varied organisms have in common and removing those that are also shared by prokaryotes, he and his colleagues have identified the subset of genes that make possible more complex cell functioning.

Yeast, fungi, and all multicellular organisms—from plants to humans—are eukaryotes, with complex cells that have discrete subunits, such as the nucleus and mitochondria, to help with various tasks. For decades, cell biologists have studied yeast, simple, one-celled organisms, for insights into how they and more complex eukaryotes work. Toward that end, in 1996, the yeast research community decoded the genome of the budding yeast, *Saccharomyces cerevisiae*.

Now a European consortium of 12 labs led by the Sanger Centre in Hinxton, United Kingdom, has sequenced and analyzed the 14-million-base genome of *Schizosaccharomyces pombe*, also known as fission yeast. The team has even determined three-quarters of the bases in a hard-to-sequence region, called the centromere, that is critical to the proper replication and separation of chromosomes during cell division—a feat few other groups have accomplished on any genome.

* Genome Sequencing and Biology was held in Cold Spring Harbor, New York, 9 to 13 May.