• **NASA:** The space agency's stagnant budget—which has hovered around $13.6 billion for the past few years—would finally rise if Clinton gets his way. "There are a lot of smiles here," says one NASA manager. Nearly half of the $650 million boost would be spent on science efforts, including a major new initiative to study the sun. The bulk of the remainder would go to a space launch effort designed to come up with a replacement for the 20-year-old space shuttle system.

Administration insiders credit Clinton's chief of staff, John Podesta, for raising the visibility of science and technology spending within the White House. "This will be viewed as an age of great investment in science and great investment in NIH, and I think we're doing it all within the fiscally prudent policies the president brought to town," Podesta told reporters on 16 January. And they credit Lane with keeping the pressure on. "In his quiet way, Neal Lane made it his mission" to win across-the-board increases for basic science rather than just for NIH, says one White House staffer. Both Lane and Colwell have been pushing hard for such a balance, and they were joined by Office of Management and Budget officials. Gore and his staff focused on a boost for NIH, Administration officials add.

The reaction on Capitol Hill was markedly different from the scathing reviews of Clinton's previous budget requests. "I am confident that together we can make fundamental research and development a real priority," declared Representative James Sensenbrenner (R–WI), chair of the House Science Committee, although he added that science priorities should not be wrapped in "a larger government spending spree." Representative Nick Smith (R–MI), who chairs the House basic research subcommittee, says he supports the proposed increases as long as they are compatible "with other priorities like strengthening Social Security, paying down the debt, and providing tax relief for working families."

Substantial increases may be easier to win this year, because Republican and Democratic leaders have tacitly agreed that a booming economy will allow them to bury the 1997 balanced budget agreement, which set strict spending caps. And a similarly bipartisan agreement that the rosy economy is due in large part to research appears to be emerging. "If you can afford it," Lane told reporters before Clinton's speech, "you want to increase the federal investment in R&D, because the payoff to the whole country is so high."

In his Caltech speech, Clinton foresaw "an era of unparalleled promise—fueled by curiosity, powered by technology, driven by science." R&D advocates hope to turn those lofty words into hard cash in the months ahead. **–ANDREW LAWLER**

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PATENTS

Company Gets Rights to Cloned Human Embryos

A U.S. company has received two British patents that appear to grant it commercial rights to human embryos created by cloning. The precedent-setting patents, issued last week on the cloning method that produced Dolly the sheep, have sparked protests from groups concerned about the ethics of biotechnology patents, especially those covering human genes or cells.

The British government is "the first government in the world that has issued patent protection on a human being at any stage in development," claims author-activist Jeremy Rifkin of the Foundation on Economic Trends in Washington, D.C. He said he will challenge the patent, arguing that British law forbids giving someone property rights to a human even at the blastocyst stage. The patent, he says, is "breathtaking and profoundly unsettling."

Protected. New patents cover the techniques that produced Dolly and other clones.

The patent gives California-based Geron Corp. exclusive rights to "a reconstituted animal embryo prepared by transferring the nucleus of a quiescent diploid donor cell into a suitable recipient cell" up to and including the blastocyst stage. That claim includes human embryos, says David Earp, Geron's vice president of intellectual property. Last summer, Geron bought Roslin Bio-med, the commercial arm of the government-funded Roslin Institute outside Edinburgh, Scotland, where Dolly was born in 1996.

The application process was fairly smooth, says attorney Nick Bassil of the London firm Kilburn and Strode, which represented Roslin and Geron. He says the patent office allowed the claim because it is consistent with recommendations from the U.K. Human Fertilisation and Embryology Authority and the Human Genetics Advisory Commission that cloning technology be permitted on human embryos for the development of treatments for disease. The government has imposed a moratorium on any such experiments, however, while an expert advisory group reviews that recommendation. U.K. patent office spokesperson Brian Caswell says European Union directives forbid patents on human cloning, but he suggests that the patent was allowed because it only covers embryos in "the very early stages of development" that would not result in a live birth. "The exercise of any invention would have to be in accordance with the law," he adds.

Geron, a biotechnology company which has also supported much of the work on human embryonic stem cells, hopes to develop so-called "therapeutic cloning" to treat human diseases. The process would involve transferring the nucleus of a patient's skin, muscle, or other cell that has been made "quiescent," or nondividing, to an egg cell to create an embryo. The embryo would be allowed to develop for a few days and then harvested for its stem cells, which would be used to treat the patient.

The patent surprised others in the cloning field, including commercial competitors. Michael West, president and CEO of the Massachusetts-based Advanced Cell Technology, says the claim is "extremely broad." "If Geron is right and its claim is to a human embryo, then to my knowledge it's the first time that anyone has claimed ownership of a human embryo," West says. Advanced Cell Technology received a U.S. patent on nuclear transfer from nonquiescent cells last year, but the patent covers only nonhuman mammalian species.

Earp says Geron has received word from the U.S. patent office that its claims have been allowed, and he expects the patent in the next few months. However, the U.S. patent office has been reluctant in the past to issue patents covering human material, and the company's U.S. application only covers cloning of nonhuman mammals. Although Earp says Geron also plans to pursue therapeutic cloning in the United States, he says the company "is pursuing a different strategy" to protect its commercial claims.

–GRETCHEN VOGEL