Clinton proposes $2.8 billion increase in science funding

San Diego

President Bill Clinton has proposed a $675 million boost to the US National Science Foundation's (NSF's) annual research budget — the largest increase ever. The money forms part of a $2.8 billion increase in the overall US research budget.

Clinton announced his plan for increases in his administration's 'Twenty-first Century Research Fund' in a speech at the California Institute of Technology in Pasadena last week. Some US scientists see this as evidence that the White House has heeded people such as NSF director Rita Colwell, who have sought more investment in basic scientific research.

The fund includes an additional $1 billion for the National Institutes of Health (NIH), whose budget stands at nearly $18 billion. Scientists were encouraged by the proposed increase, but cautioned that it is less than they hope the agency will receive. It is not on track to double the research budget, as some science leaders want.

The Association of American Medical Colleges and the Federation of Societies for Experimental Biology (FASEB) are both seeking a $2.7 billion increase in the NIH budget. This is designed to double the NIH budget within a five-year period which began two years ago.

"This is a fine initial proposal," says David Kaufman, a pathology professor at the University of North Carolina and FASEB president. Last year Clinton proposed only a $300 million increase in the NIH budget.

Clinton's proposal includes a $497 million National Nanotechnology Initiative (see *Nature* **400**, 95; 1999), along with a $600 million increase for research into information technology.

White House officials say the nanotechnology project would double federal spending on this research. The president's proposal calls for participation from the NSF, NIH, the Departments of Defense, Commerce and Energy, and the space agency NASA.

Rita Colwell says that the record dollar increase for the NSF "will give us the capacity to make strong across-the-board investments in science and engineering research and education". The foundation currently has an annual budget of $3.9 billion.

Science leaders see the timing, focus and location of Clinton's initiatives for the fiscal year 2001 as significant. He made the announcement close to important centres in biotechnology and information technology, on the way to Democratic fund-raising events in a state that is crucial for this year's presidential election.

AP

Driving force: Clinton characterizes science and technology as "the engine of economic growth".

Unusually, the research budget was announced separately from other budgetary plans. Clinton's speech highlighted the connection between research and the economic boom. "The first thing I want to underscore, in the clearest possible way, is that science and technology have become the engine of economic growth," he said.

"The president has indicated that funding university research is a top priority," says Mike Lubell, a physicist at the City College of New York, and spokesman for the American Physical Society. "That is a very strong statement for the future."

But although the NSF is to get twice as much as its previous largest increase, Lubell noted that, on a national scale, research funding still lags behind the heyday of the 1960s. Then, the federal research budget, as a percentage of gross national product, was twice what is now proposed. "One could argue that the prior investment paid off tremendously," says Lubell.

Republicans in the House of Representatives have questioned how Clinton's proposal will be funded, given his previous record. Two years ago, an increase in the research budget was predicated on an increase in tobacco tax that did not become law. And last year, Republicans criticized research budget increases for being funded by 'gimmicky' increases in taxes and fees.

James Sensenbrenner, the Republican chairman of the House Science Committee, said he was cautiously optimistic. But he added that he couldn't determine whether the proposal means a higher priority for science until details of the president's entire budget are revealed.

"I am hopeful that these encouraging words reflect the administration's actual priorities, and are not merely promises within the context of an across-the-board government spending spree," comments Sensenbrenner.

Rex Dalton

Yale hopes a $500 million boost will raise research profile

Washington

Yale University is to spend $500 million over the next six to eight years on constructing and renovating its science and engineering facilities, in an effort to boost its reputation in these disciplines.

Private colleges across the United States are spending hundreds of millions of dollars on science and engineering buildings as they compete for students and research funding. "These schools are all vying for excellence," says Peter Smith, director of public affairs at the Association of American Universities. "In science and engineering, excellence requires facilities."

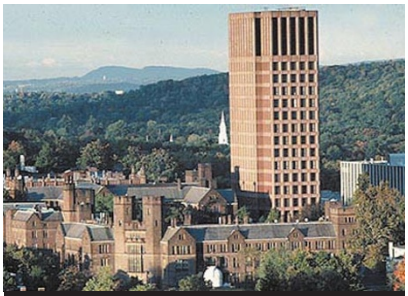
That may be especially true for Yale. Its president, Richard Levin, admits its reputation — excellent in the humanities — is weaker in science and engineering.

Yale already has some of the strongest science departments in the United States. The National Research Council ranked Yale's research doctorate programmes thirteenth in physics, twelfth in chemistry and tenth in cell biology among participating institutions in its 1995 report *Research-Doctorate Programs in the United States*. But the university did less well in engineering. The report ranks Yale's chemical engineering programme at position 32.5 and its electrical engineering at 30.5.

Whether the reputation is fair or not, the building campaign is an attempt to correct that perception, says Levin. New and improved buildings can attract better faculty, he adds.

The building programme may also represent a scheme to address years of deferred maintenance. The university began renovating campus buildings a decade ago, but has left its science buildings largely untouched. Some $300 million will go towards renovating existing facilities; the remaining $200 million will pay for five new buildings.

By spending a large sum of money



STEVE DUNWELL

Rising high: Yale's Kline Biology Tower.

© 2000 Macmillan Magazines Ltd

now, rather than smaller amounts on maintenance and renovation over the past decade, Yale is playing "a bit of catch-up" says Jeremiah Ostriker, provost of Princeton University. "I think they realized it was a necessity."

He adds that Yale will be able to compete in most areas of science. But catching up with some universities in engineering research may be more difficult. According to figures from the National Science Foundation, Johns Hopkins University spent $213 million on engineering research and development in the financial year 1996; Yale spent $6.6 million.

Princeton is investing $200 million in construction, with about 60 per cent of it going towards new buildings, and a further $100 million on faculty endowments and instrumentation, including $55 million to set up a new genomics centre by 2002. Harvard University is to spend $200 million on science and engineering building and renovation over the next five years.

David Baltimore, president of the California Institute of Technology, says there is "a national trend" of universities constructing science buildings. The institute will spend $100 million on a new biology building starting in the spring: the building will cost $40 million, with the rest going on instrumentation, renovation and faculty endowments.

The US economy seems to be fuelling some of the building boom, with computer-industry entrepreneurs playing a major role. The Massachusetts Institute of Technology, for example, has begun fund-raising for a computer-science and artificial-intelligence complex. It has already received pledges worth $45 million from two donors, including $25 million from Bill Gates, the chairman of Microsoft. **Paul Smaglik**

NIH cancer researchers to get free access to 'OncoMouse'

Washington

After four years of negotiations between the US National Institutes of Health (NIH) and the pharmaceuticals company DuPont, NIH-funded scientists now have free use of the 'OncoMouse', a transgenic animal technology used to create mice that develop tumours.

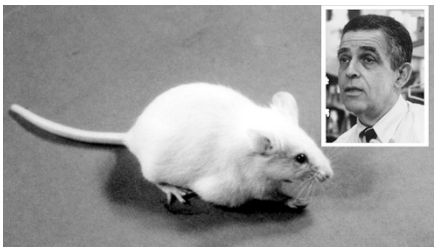
OncoMouse is the second research tool that the company has made public in the past two years. The deals are a victory for scientists who have argued that broadly applicable techniques should be available without strings to not-for-profit researchers.

As a condition for the use of both tools, DuPont originally required licences, demanded 'reach-through' rights on any inventions resulting from their use, and placed limits on breeding and redistributing animals that were altered with them.

But the NIH and DuPont set the precedent for the OncoMouse agreement with a 1998 agreement eliminating such terms for not-for-profit research using Cre-*lox*, a technology that allows researchers to remove genes from specific cells and tissues (see *Nature* **394,** 819; 1998).

The OncoMouse and Cre-*lox* agreements are very similar. Both also adhere to the NIH's principles for sharing research tools (see *Nature* **403,** 10; 2000). Together they are "signposts for how similar problems might be solved", says Harold Varmus, president of the Memorial Sloan-Kettering Cancer Center in New York. Varmus helped negotiate with DuPont while he was NIH director, a position he held until the end of last year.

Varmus stresses that both agreements distinguish between products, such as restriction enzymes, that are "consumable", and



HARVARD UNIV.

Public mouse: the NIH–DuPont deal has lifted a cloud of fear. Inset: Leder, OncoMouse creator.

techniques to make "things that replicate". Before the OncoMouse agreement, some cancer researchers operated under that distinction anyway, using the technique to develop cancer mouse models even though they had no licences or signed agreements with DuPont — a situation Varmus describes as "uncomfortable".

Those researchers feared that they were inadvertently infringing the patent, says Maria Freire, director of NIH's Office of Technology Transfer. She believes this agreement will lift that cloud of fear.

Both the deals differentiate between commercial and not-for-profit research. Commercially funded scientists must pay DuPont if they want to use either technique. But non-profit researchers, who can freely exchange animals altered with either technology, must alert DuPont if they distribute such animals to a commercial company.

The wider availability of the technique will allow more and better mouse models of cancer, says Phil Leder, a Harvard University researcher who developed the technology. "Cancer-prone mice are used in many research settings," he says. "This can only mean they can be more accessible." **Paul Smaglik**

Canadian biomedical collaboration keeps on growing

Montreal

The Medical Research Council of Canada (MRC) and the country's research-based pharmaceutical companies have announced significant increases for the second phase of a joint research programme, which has quadrupled in size since its introduction in 1993.

The collaboration's budget has risen from Can$10 million (US$7 million) at most each year at its beginning to more than Can$40 million today.

Phase I has generated Can$237 million for health research. The second five-year phase will introduce several new and improved programmes, and the proportion of funding by the partners will change.

For training and salary awards, the MRC contributed Can$1 for every Can$4 from industry in the first phase; each will contribute half the cost in the second phase. In funding operating grants, the MRC also contributed Can$1 for every Can$4 from industry, but its second-phase contribution will be Can$2 for every Can$1 from industry.

New operating fellowship awards of up to Can$49,000 a year for three years will be available for scientists in clinical investigation and interdisciplinary research, plus up to Can$30,000 in research allowances in the first year. University–industry research chairs will also be created, at a cost of up to Can$140,000 a year plus operating funds.

Funding ratios for clinical trials have been left at Can$1 from MRC to Can$4 from industry. But provision will be made for 'add-on studies' to allow additional research, with infrastructure costs being absorbed by the larger study.

Marc Lepage, a spokesman for the MRC, says that, although it is impossible to estimate the total amount that the second phase of the programme will generate, the MRC would be "very disappointed" if they "only made $237 million". **David Spurgeon**

© 2000 Macmillan Magazines Ltd