



# SCIENCE & TECHNOLOGY IN CONGRESS

MEDICARE ■ TRANSPORTATION ■ BIOTECHNOLOGY ■ SCIENCE EDUCATION ■ NATIONAL SECURITY ■ COMMUNICATION

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## Quiet Year for Science and Technology

Most of the predictions for the President's agenda in the State of the Union address seemed to point towards modest gains for the science and technology community. Even the presence of Dr. Rita Colwell, Director of the National Science Foundation, in the First Lady's box, did not diminish that expectation. President Clinton outlined an ambitious agenda that would tackle the problems of Social Security, Medicare, and Education. The science and technology community, with perhaps their greatest victory last year in the form of massive budgetary increases, was left to search for much smaller consolation prizes in the 77-minute speech.

The President began his speech stressing the strength of the U.S. economy that has experienced a period of unparalleled economic growth. New jobs are being created, wage increases are outpacing inflation, welfare participants are decreasing, more Americans are buying homes, and unemployment is low. Most importantly, the U.S. government registered a budget surplus for the first time in over 30 years. The surplus was \$70 billion last year and

the President proclaimed that the government is on course for surpluses over the next 25 years.

As a result, President Clinton's major policy highlights all involved ways on spending the upcoming surpluses. His proposals included a plan to invest most of the surplus to save Social Security, proposing that 15 percent of the surplus go towards stabilizing Medicare and increasing the military budget over the next six years. Other substantial initiatives include creating a Patient's Bill of Rights, a four-point plan to improve public education, raising the minimum wage, and the creation of the American Private Investment Corporation.

With respect to the science and technology community, the President made no groundbreaking strides but it was evident that science was interwoven throughout the address. Clinton justified a new plan for public education by pointing out that "while our fourth-graders out performed their peers in other countries in math and science, our eighth-graders are around average, and our

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## Circular Revision Targets Research Data

Lost in the free-for-all of last year's final budget deliberation was language that requires that the mechanism for making information public be changed. The amendment, introduced by Senator Richard Shelby (R-AL) and approved by the Administration, was inserted in the Treasury, General Government, and Civil Service section of the bill, now Public Law 105-277. It requests that the "Director of OMB amends Section-.36 of OMB Circular A-110 to require Federal awarding agencies to ensure that all data produced under an award will be made available to the public through the procedures established under the Freedom of Information Act [FOIA]." On February 4, 1999, the OMB filed a proposed revision in the Federal Register implementing the change.

At first glance, the language did not appear controversial, especially when one considers that

the underpinning of advancements in scientific research is based on the sharing of information in support of the peer review process. However, many individuals and institutions within the science

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# The Kyoto Protocol--A Bunch of Hot Air?

One of the key issues facing the 106<sup>th</sup> Congress will be the implementation of the Kyoto Protocol. The Protocol is now over a year old, yet it is still awaiting ratification before it can be put into effect. The United States came one step closer to ratifying the treaty last December when the Administration signed the treaty and now Congress need only pass a law to officially ratify the protocol. However, there is widespread opposition towards the Kyoto Protocol in the United States and its passage through Congress seems unlikely. In light of the complexity of this issue, *Science & Technology in Congress* will be running a series of articles covering the Kyoto Protocol. The first article will focus on the science behind the Kyoto Protocol. Future articles will focus on the economics and politics of Kyoto.

The science of climate change is by no means a consensus among the world's scientists. It is, however, safe to say that a majority of scientists believe that the earth's climate is undergoing a gradual increase of global mean temperature and the cause can be attributed to increased manmade production of certain gases. Specifically, the blame is placed on six "greenhouse gases" whose role is to absorb latent solar radiation released by the Earth. These gases, Carbon Dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), Nitrous Oxide (N<sub>2</sub>O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulfur Hexafluoride (SF<sub>6</sub>), are all found in the troposphere, the closest layer of the atmosphere to the earth, and help sustain life on the planet by keeping the atmosphere and surface warm.

CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O occur naturally and are manmade. HFCs, PFCs, and SF<sub>6</sub> are only manmade. The most conclusive study of the effect of these gases has been done with concern to CO<sub>2</sub>. About 700 billion tons of CO<sub>2</sub> are cycled through the atmosphere and it is generally believed that the amount of CO<sub>2</sub> produced naturally is equal to the amount absorbed naturally via foliage, the oceans, and the earth. However, manmade production of CO<sub>2</sub> accounts for approximately 24 billion tons of CO<sub>2</sub>, stemming mainly from fossil fuel use. Studies show that only half the amount of manmade CO<sub>2</sub> is being absorbed and the concentration of CO<sub>2</sub> in the atmosphere is 30 percent greater than it was 100 years ago. Also, it is believed that manmade CO<sub>2</sub> emissions can account for about 60 percent of the increase in the global mean temperature. The evidence for the other two naturally occurring gases is less certain since there have been less studies on their natural absorption but it is estimated that

CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O account for about 80 percent of the rise in global mean temperature.

The data on the other remaining gases is less voluminous and the concern surrounding them is their warming potential. Greenhouse gases are targeted for regulation due to their ability to absorb and trap heat. Even though HFCs, PFCs, and SF<sub>6</sub> have a limited presence in the atmosphere they are able to trap greater amounts of heat than CO<sub>2</sub>. One kg of HFCs can trap 1,300 times more heat than one kg of CO<sub>2</sub>, PFCs can trap 9,200 times more, and SF<sub>6</sub> can trap 23,900 times more. Compounding the problem, these gases have long atmospheric shelf lives (PFCs remain in the atmosphere up to 1,000 years). Chlorofluorocarbons (CFCs), used mainly in aerosol sprays and now replaced by HFCs, have been outlawed in the United States since 1996 but the long-term effect on global warming, scientists predict, will not be known for almost another century. Also, some of these gases could potentially offset global warming. For example, cloud formation on SF<sub>6</sub> particles may help deflect solar radiation and thus encourage climate cooling.

The realization that the "greenhouse effect" was accelerating gave rise to the creation of the United Nations Framework Convention on Climate Change (FCCC) in 1992. The FCCC, signed by over 170 nations, *voluntarily* commits its signatories to reducing emissions levels to 1990 levels. However, in

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twelfth-graders rank near the bottom.” A nodding reference to the Third International Math and Science Study released last year. However, while the education policy was comprehensive and addressed many problems, it is yet to be seen how the Administration will tackle the deficiency in math and science education.

The President also proposed a “sustained increase over the next six years” for the Department of Defense (DOD). This translates into a \$12 billion increase for fiscal year (FY) 2000. These funds will primarily go to day-to-day operations of the military and improving salaries in order to retain personnel. Some of the funding will go towards modernization and procurement of new weapons technology.

Clinton also proposed a \$200 million Clean Air Partnership Fund to be administered by the Environmental Protection Agency. According to the background brief for the address, the fund will “direct new resources to state and local governments to provide financing for public and private sector projects that accelerate pollution reductions.” It seems that the fund will mainly involve public-private partnerships for emissions controls and implementation of more environmentally friendly policies. However, one tenet of the fund calls for the fund to “spur technological innovation” which may give hope for further funding in environmental R&D.

Also in the background brief, the NIH will receive a \$320 million dollar increase this year that is roughly a 2 percent increase over last year’s budget. Also, as part of the *Keeping America Secure for the 21<sup>st</sup> Century* initiative, the President has allocated \$43.4 million for R&D to develop a defense against biological weapons, almost a 150 percent increase. The Department of Health and Human Services will receive \$30 million for vaccine research for diseases such as smallpox and anthrax. \$13.4 million will go to the Food and Drug Administration for the review and approval process of any vaccines. The final part of the plan is \$24 million for the NIH for “research on diagnostics, vaccines, antimicrobials, and genomic research.”

The most apparent winner of the science and technology community in the FY 2000 presidential agenda seemed to be the technology sector. The Administration is proposing a 28 percent or \$366 million increase in funding for information technology. The *Information Technology for the 21<sup>st</sup> Century* (IT<sup>2</sup>) initiative was outlined by Vice President Al

Gore at the AAAS Annual meeting. It has three major objectives: supporting programs on long-term information technology research, advocating advanced computing methods for science and engineering that will lead to breakthroughs in other fields of science, and “research on the economic and social implications of the Information Revolution.” The National Science Foundation (NSF) would receive the bulk of IT<sup>2</sup>. Of the \$146 million the NSF would receive, \$100 million goes for applied research, \$36 million to the development of advanced computers, and \$10 million for the societal implications of information technology. The rest of the allocation goes to the following agencies: Department of Defense, \$100 million; Department of Energy, \$70 million; NASA, \$38 million; NIH, \$6 million; and NOAA, \$6 million. In addition, Vice President Gore also announced a proposal that will extend the Research and Experimentation tax credit for one year, until June 30, 2000.

Further information technology initiatives can be found in the President’s *Keeping America Secure for the 21<sup>st</sup> Century* program. Within this program, the President has proposed \$500 million for the *Critical Infrastructure Applied Research Initiative*. These funds would be used to develop better methods to insure the security of computer networks. Also, the President has proposed more funding for the Cyber Corps. The corps addresses the need for more highly skilled computer science experts in government. The program “will use existing personnel flexibilities, scholarship and financial assistance programs, and examine new scholarship programs to retrain, retain, and recruit computer science students.”

Science and technology received its greatest endorsement in FY 1999 through substantial increases in R&D budgets in almost all the relevant agencies, with NIH leading the way with a 14 percent increase. This year, the Administration’s policy initiatives for the science and technology community are not as clear cut and evident. However, a close scrutiny of the President’s agenda reveals that research has a clear presence across the overall policy landscape. Minus the president’s obligation to face massive problems such as Social Security and Medicare, his other initiatives all involve components that point towards greater support for science and technology which only proves that it has now become an indelible component when crafting public policy. ■



1995, the United Nations Intergovernmental Panel on Climate Change (IPCC), an advisory panel composed of scientists, released a report stating that emissions reduction efforts are failing and man-made production of greenhouse gases is having a negative impact on the climate.

The IPCC pointed out that CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O atmospheric concentrations have risen 30 percent, 145 percent, and 15 percent, respectively, since pre-industrial times. As a result, the 20<sup>th</sup> century will register the warmest global mean temperature of any century since 1400 A.D. and records before the 13<sup>th</sup> century are too unreliable to make a comparable determination. Since the late 19<sup>th</sup> century, global mean temperature has risen 0.3-0.6 °C and the global mean sea level has risen 10-25 cm.

If this course is maintained, CO<sub>2</sub> concentrations will be almost doubled, the global mean temperature could rise between 1-3.5 °C, and the global mean sea level could rise by 15-95 cm by 2100. The United Nations Environmental Program predicts that the result of this global warming could produce a significant impact on the environment such as: the rise in sea level would cause flooding of low-lying areas, climatic zones will shift towards the poles by 150-550 km in the mid-latitude region which would cause ecosystems to decline or become extinct, there will be greater regional food shortages, water resources will become more scarce, and the physical infrastructure will be damaged.

The response to these predictions was the Kyoto Protocol. The treaty classified nations as Annex I (industrialized) and non-Annex I (developing) nations. Its aim is to stabilize greenhouse gas concentrations by reducing emissions to or below 1990 emissions levels. Annex I nations have been given a specific percentage in relation to their 1990 emissions levels, the United States must be 7 percent under, that they must reach between 2008 and 2012. Achievement of these goals would rely mainly on the use of new technologies that would target the energy, transportation, and forestry/agriculture sectors. Advancements such as combined cycle power plants, hybrid cars that use a combination of fuel-fired and electrical engines, and new feed mixtures for livestock to reduce methane emissions can all be implemented to help achieve the treaty's goals.

Even though the body of evidence suggesting human impact on the climate has improved through the years, scientists still cannot conclusively link human activity with the rise in temperature. Even the IPCC admits to this fact in their report,

“Our ability to quantify the human influence on global climate change is currently limited because the expected signal is still emerging from the noise of natural variability, and because there are uncertainties in key factors.” The factors that the IPCC refer to are the “long-term natural variability and the time-evolving pattern” of global warming by the greenhouse gases with respect to the presence of other particles such as aerosols and also with respect to land surface changes.

Furthermore, rather than a straight reduction of emissions, nations are permitted to count the emissions absorbed by “carbon sinks,” mainly forests that absorb CO<sub>2</sub>, when measuring emissions levels. The problem is that the absorption rate of sinks cannot be conclusively determined. Another problem spot in the protocol is the exclusion of developing countries. Using IPCC figures, the developing world will account for a majority of all greenhouse gas emissions by 2016 and by 2100 will account for 75 percent of emissions, including 66 percent of CO<sub>2</sub> emissions. Also, the uncertainty in scientific evidence makes the protocol an incomplete treaty. For example, the effect of ozone is still not completely known and hence excluded from the treaty. Ozone is toxic to humans in the lower troposphere, is a greenhouse gas in the upper troposphere, and forms a layer of protection against ultraviolet radiation in the stratosphere, directly above the troposphere, thus causing climate cooling.

It can even be argued that the Protocol's regulations are not enough. Some studies have shown that it would take a 60-80 percent reduction and subsequent stabilization of present-day emissions levels in order to prevent the doubling of pre-industrial CO<sub>2</sub> concentrations levels.

The Kyoto Protocol has become a contentious issue within the realm of U.S. domestic politics. One of the factors leading to the controversy is the fact that the science on climate change is still evolving. Policymakers will have to make decisions based on data that does not provide absolute certainty. The strongest statement that can be given by the IPCC is “the balance of evidence suggests that there is a discernible human influence on global climate.” Nevertheless, the majority of the scientific community believes that global warming has begun and will have a detrimental effect on the environment. A difficult decision faces policymakers, to decide whether or not the Kyoto Protocol is part of the solution to this problem. ■

# Support for Research on Stem Cells Divides



The congressional ban on human embryo research has been in annual appropriation legislation since 1995 to ensure that no federal funds are used for the creation of a human embryo or to support research that would entail the destruction of one. The reality of Dolly, the cloned sheep, reinforced the need for its continuation and to ensure that federal funds are not utilized in cloning research involving human embryos. The ban did not, of course, extend itself to research involving private-sector support and now two groups of privately-funded scientists, at the University of Wisconsin and Johns Hopkins University, successfully isolated and cultured human stem cells. This represents a major step in human biological research and, more importantly, it represents the need for a much greater debate over the definition of a human embryo and whether the research involving human stem cells falls within the federal ban.

The Senate appropriations subcommittee that funds medical research for the National Institutes of Health (NIH) conducted a series of hearings between December and January to debate the scientific, legal, and ethical implications of stem cell research. The hearings, conducted by Subcommittee Chairman Sen. Arlen Specter (R-PA) and Ranking Member Sen. Tom Harkin (D-IA) included representatives from NIH, research universities, the religious community, and ethicists.

The heart of the debate centered on whether a stem cell is an "organism" and therefore falls within the federal restriction. Complicating this debate is the fact that stem cells come in two forms, totipotent and pluripotent. Totipotent stem cells have "the theoretical, and perhaps real, potential to become any kind of cell, and under appropriate conditions, such as implantation in a uterus, could become an entire individual," according to the testimony from Dr. Lawrence Goldstein of the San Diego School of Medicine. Dr. Goldstein further explained that pluripotent stem cells that have been obtained from early stage embryos have only limited potential and "can form only certain kinds of cells, such as muscle, nerve or blood cells, but they cannot form a whole organism."

It is the pluripotent stem cells that biological scientists see as having the greatest potential for major breakthroughs in medical research concerning topics such as Alzheimer's disease, Parkinson's disease, heart disease, spinal cord injury, and diabetes. While the scientific definition of pluripotent

stem cells that separate it from a human embryo may appear clear, the ethical issues surrounding it are still obscure, a fact raised by the National Conference of Catholic Bishops. According to their testimony, obtaining pluripotent stem cells would still require the practice of destroying or harming a human embryo and therefore should remain within the ban.

Balancing the real potential of saving lives and improving the living standard of the general population against the moral and ethical standards that hold society together will be no easy task. On one hand, allowing federal funds to be used to support stem cell research could help to speed the process of medical breakthroughs. On the other, an Orwellian scenario is envisioned by opponents of a change in the interpretation of the federal ban who predict a growing market for stem cells that require a destruction of an embryo.

On January 19, 1999, the Department of Health and Human Services (HHS) which houses NIH released a ruling that concluded that "current law permits federal funds to be used for research utilizing human pluripotent stem cells." In addition, it stated that NIH plans to "move forward in a careful and deliberate fashion to develop rigorous guidelines that address the special ethical, legal, and moral issues surrounding this research. The NIH will not be funding any research using pluripotent stem cells until guidelines are developed and widely disseminated to the research community and an oversight process is in place."

The NIH ruling has not changed existing law and is therefore seen as the status quo with a more refined interpretation. The existing federal ban, however, has been attached to annual authorization and appropriation bills and therefore expires with each fiscal year unless language is reinserted. Whether congressional leaders plan to honor NIH's interpretation is sure to be a hot topic of debate. A letter protesting the NIH decision was sent to the Department of Health and Human Services Secretary Donna Shalala on February 11 and was signed by seventy congressional members including key Republican leaders Rep. Richard K. Armey (R-TX) and Rep. Tom DeLay (R-TX). The letter states that "the memorandum appears to be a carefully worded effort to justify transgressing the law" and it "would be a travesty for this Administration to attempt to unravel this accepted standard." ■



community quickly determined that unintended consequences could result from revisions to Circular A-110, that will have a devastating impact to the future of research. Letters from the Association of American Universities (AAU), the Council on Government Relations (COGR), and most recently from the National Academy of Sciences (NAS) were sent to OMB Director Jacob Lew outlining their concerns.

The changes to the circular apply to federal research grants rather than contracts, and only in the cases where the research was "used by the Federal Government in developing policy or rules." Government contracts actually procure products and services that become a federal record or property of the Federal Government and for the most part remain in the public realm. Research grants, on the other hand, support the development of a product that is in essence the analysis, interpretation and conclusion by the scientist or engineer conducting the research. In these cases, the "product" is not a federal record and is distributed to the general public in the form of peer-reviewed reports and articles published in journals and magazines. The proposed revision to Circular A-110 therefore creates a mechanism whereby a federal agency can obtain data requested through FOIA and once obtained it becomes a federal record.

The sharing of data and the concerns raised by the scientific research community are due to the uncertainty of how the term "all data" will be defined. Data can take many forms, for example statistical tables, written observations in notebooks, and cells. With the increased use of high-performance computers, it can also take the form of computer generated drawings and genetic sequences. The most alarming prospect to researchers is that the confidentiality of medical records could be compromised. However, according to the proposed revision filed in the Federal Register, data that is generated in support of medical research such as personnel and medical files will be exempt.

Another potential consequence of the language and its implementation could impact the private-sector and international community. The U.S. scientific research enterprise is increasingly reliant on the use of partnerships between government, industry, and academia, both domestically and internationally, to support its endeavors. However, according to the Federal Register notice it "shall apply to all Federally funded research, regardless of the level of funding or whether the award recipient is also using non-Federal funds." Therefore, research that is supported through multiple funding sources would not be exempt from a FOIA request. In addition, it is uncertain how foreign

institutions that participate in collaborative research projects will be impacted.

The existing controversy over public access to data originated last year in part over debates surrounding the establishment of federal regulations that utilize scientific data when updating standards and policies. When disagreements arise over the establishment of stricter standards and policies it is natural that policymakers will want full public disclosure of research data. It is for this reason, that the proposed revision applies only to research that is used in establishing policies and regulations. However, an ironic consequence is that while research data supported by federal funds may be obtained through FOIA under this change, research data supported through strictly private sources cannot. If a disagreement exists over the science that is used in establishing a policy or regulation it is only the federally funded research that can be reopened and analyzed, and not private-sector research that may have been used in establishing the rule. In addition, this one-sided rule raises the prospect that a form of intellectual property theft could be legally conducted and has raised the concern of the biotechnology community.

The February 4 Federal Register notice filed by OMB states that it "recognizes that this proposed revision required by Public Law 105-277 raises a number of important issues" and requests that comments be submitted for development of a final revision. Rep. George Brown (D-CA), has already submitted his recommendation through the introduction of a bill (H.R. 88) to repeal the language. Rep. Brown recommends that the slate be wiped clean on the "basis of both the flawed process through which it was adopted and because of the damage it is likely to do to the publicly funded research structure." ■

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*EPA's Progress in Closing Completed Grants and Contracts* (RCED-99-27). The report focused on the EPA's management of grants and contracts when it comes time to end them since there is a massive backlog. The EPA has modernized its grants system and a number of backlogged grants have been closed out, but, many more are awaiting closure and tie up funding.

*Heart Attack Survivors Treated by Cardiologists More Likely to Take Recommended Drugs* (HEHS-99-6). The report is based on a study to determine the frequency that heart attack survivors take cholesterol-lowering drugs and beta-blockers. The study showed that survivors enrolled in Medicare HMO's were more likely to take preventative drugs than those not under regular cardiologist care.

*Key Nuclear Weapons Component Issues Are Unresolved* (RCED-99-1). The report examines the ability of the DOE to create "pits", a component used to start the chain reaction in a nuclear weapon. The DOE is trying to re-establish a production facility for "pits" at the Los Alamos National Laboratory and the report discusses the issues at stake including wide range manufacturing of pits, current and estimated costs, and the manufacturing process.

*The National Academy of Sciences and the Federal Advisory Committee Act* (RCED-99-17). The report is a review of the reasoning behind the NAS' request for relief from the Federal Advisory Committee Act of 1972 that requires oversight over agency committees. The NAS' reasons for relief included: the NAS's ability to maintain authority over committee projects, the opening of meetings would stifle debate, and costs would soar along with a loss of expedience.

*Restructuring Costs Paid, Savings Realized, and Means to Ensure Benefits* (NSIAD-99-22). The report continues a series of studies done to gauge the effect of the several mergers within the defense industry. It estimates that the DOD will realize a savings of 64% or \$2.1 billion.

## CONGRESSIONAL RESEARCH SERVICE—SCIENCE, TECHNOLOGY, AND MEDICINE DIVISION

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*Federal Government Information Technology Policy: Selected Issues* (98-845 STM). The report reviews information technology (IT) issues facing the government. It looks at the efficiency aspect of IT along with security and privacy. Also, the report examines the

management of federal IT policy and its methods of prioritizing issues.

*The National Ignition Facility and Stockpile Stewardship: Highlights and Issues* (97-464 SPR). The report examines the DOE's National Ignition Facility (NIF), a "very large" laser designed to simulate nuclear explosions and an extension of the DOE's stockpile stewardship program. Even though construction on the NIF already began, many questions remain.

*Women's Health: Provisions of Selected Legislation, 1983-1998* (98-874 STM). This report traces congressional concern about women's health issues over a span of fifteen years. Over 20 laws have been passed in that time period along with numerous health programs. The report outlines the major provisions.

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Government offices may obtain single complimentary copies by calling 202/334-1513. Others may order copies from the National Academy Press by calling 800/624-6242 or via the Internet at <http://www.nap.edu>.

*Grading the Nation's Report Card: Evaluating NAEP and Transforming the Assessment of Educational Progress* (ISBN 0-309-06285-3). The report looks at the National Assessment of Educational Progress (NAEP). NAEP has been the only indicator of the nation's education system since the 1960s but is not used as a policy tool for change. The report recommends strategies that include: linking achievement data to other education indicators, streamlining data collection, and including data on students with special needs.

*Setting Priorities for Drinking Water Contaminants* (ISBN 0-309-06293-4). The publication focuses on new ways for the Environmental Protection Agency to determine which water contaminants should be regulated to prevent waterborne illnesses. It covers a variety of contaminants as well as the history behind contaminant regulation. The book recommends that public health should be a priority when deciding regulations.

*Trust in Cyberspace* (ISBN 0-309-06558-5). The publication examines the various issues involved in computer network security, software technology, and system architecture. The issue at stake is the reliability and security of computers and networks. Issues that are examined include: strengths and vulnerabilities of the telephone network and Internet, the factors that make up trustworthiness of a system, developments in computer security, and federal funding for such endeavors. ■



## HEARD OFF THE HILL



With the impending "senior boom," the U.S. health care system will have to re-evaluate its capabilities in accommodating such a large demographic shift. Studies show that health care costs will rise from the current \$1.6 trillion to \$2.3 trillion by 2015. The solution to alleviating these costs should not be in trying to maintain and expand the current health care system but rather investing in new health care technologies. However, increased investment in research is needed in order to realize the benefits of these technologies in time for the boom. *Science*, January 1, 1999.

A newborn baby with a rare skin disease is being given a new skin through advances in biotechnology. Tori Cameron, born with *epidermolysis bullosa* which is a disorder that causes severe blistering, is having her skin replaced by new bio-engineered skin called Apligraf. Doctors at the University of Miami School of Medicine have replaced about 40 percent of the baby's skin with Apligraf, which is collected and grown from discarded foreskin. Each patch costs \$975 and over 200,000 patches can be made from just a tiny piece of foreskin. *CNN Interactive*, January 12, 1999.

The state of California has established a committee to study the implications of human cloning. The new committee is composed of experts from a wide variety of backgrounds such as lawyers, doctors, and religious figures. The committee is to advise California lawmakers on how to proceed with such a volatile issue. California does have a ban on human cloning but that is set to expire in a little under three years time. *BBC Online*, January 27, 1999.

In a world where politics and science increasingly intertwine, it was not surprising that scientific research journals are now blurring the line between science and politics. The *Journal of the American Medical Association* published a study done in 1991 concerning people's opinions on the definition of "having sex." The categories of the study ranged from deep kissing to hitting a home run (not the words used in the study) as definitions. Subsequent backlash concerning the decision to publish the study in light of the President's impeachment trial resulted in the firing of JAMA's editor. *The Journal of the American Medical Association*, January 20, 1999. ■



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