get along with people will serve him well. "It's all about people there," says Lane. "No amount of rational argument and well-reasoned memos replace creating trust."

Marburger's Senate confirmation as director of the Office of Science and Technology Policy may not come until fall, but one Administration official predicts it will prove "a cake walk." That may be too late, however, for him to put his stamp on the 2003 budget proposal, which is already in the works.

Marburger says he was impressed during his Oval Office meeting by the president's willingness to listen and his "acute grasp of the fundamentals." The nominee adds that he did not insist on any "formal access" to Bush, but that he is satisfied he'll be able to work closely with the president and his team. The challenge for Marburger will be to maintain the detachment he advocates while making an impact on the White House's rough-and-tumble politics. **–ANDREW LAWLER**

SCIENCE POLICY

Bush Grapples With Stem Cells, Cloning

As summer temperatures hit Washington, D.C., last week, debate over human cloning and research on human embryonic stem (ES) cells—two separate but intertwined issues—heated up as well. Congress held two hearings on whether to ban human cloning, a decision that could affect work with ES cells; the National Academy of Sciences (NAS) hosted a meeting on the scientific promise and puzzles of stem cell research; and the National Institutes of Health (NIH) delivered a 200-page tome—all fodder for President George W. Bush's imminent decision on whether to allow federal funding of research with these cells, which are derived from week-old embryos. Meanwhile, rumors swirled about a major split within the Administration.

Of the two issues, human cloning is less contentious. The vast majority of scientists and lawmakers oppose any attempts to produce a child by cloning. They are split, however, on how narrowly defined any ban should be. Some researchers would like to use somatic cell nuclear transfer—the method used to create Dolly—to explore ways to make genetically matched stem cell lines for patients. The idea is to use a patient's cell to create a cloned embryo, from which scientists could derive ES cells. A bill introduced by James Greenwood (R–PA) in early June would allow scientists to conduct such research with human cells but would prohibit the creation of embryonic clones with the intent to implant them in a uterus. A second bill, introduced by Dave Weldon (R–FL) and Bart Stupak (D–MI), would ban all use of somatic cell nuclear transfer in human cells, with the ban to be revisited in 5 years.

At a 20 June hearing weighing the benefits of the two bills, Tom Okarma, president and CEO of Geron Corp. in Menlo Park, California, argued against a ban on research cloning. He doesn't foresee producing genetically matched ES cells for therapy anytime soon—the approach is impractical and far too expensive, he says—but he argued that research on nuclear transfer in humans is vital to the future of so-called regenerative medicine. Geron's goal, he explained, is to understand how an egg can reprogram the nucleus of an adult cell so that it can once again direct the entire process of development. Ideally, such research might enable scientists to transform a skin cell directly into a pluripotent stem cell without using an oocyte or creating an embryo.

Limited ban. Congressman James Greenwood's bill would allow scientists to pursue research on human cloning.

Alexander Capron, a bioethicist at the University of Southern California in Los Angeles, is not convinced. In a separate hearing, he supported the Weldon bill's complete moratorium, saying that the prospects for a scientific payoff from research cloning do not yet justify the risk. Capron worries that if embryos are created, for whatever reason, some renegade will inevitably implant one in a womb. But if future research in animals convincingly demonstrates the therapeutic potential of ES cells derived from clones, then the benefit would outweigh the risk, Capron said.

The Administration, which has been playing its cards close to the chest, tipped its hand at one of the cloning hearings. Claude Allen, deputy secretary of Health and Human Services (HHS), told the hearing that the Administration opposes any form of somatic cell nuclear transfer with human cells—even for research purposes. Although some advocates of ES research saw this as an indication that the Administration is also likely to decide against federal support for any research using ES cells, Allen said the two issues are separate and reiterated that President Bush had not yet made his decision on ES cell research.

In Congress, support seems to be building for ES cell research—from some unexpected corners. Orrin Hatch (R–UT), a vocal abortion opponent, wrote to President Bush on 13 June urging him to allow federal funding. And Trent Lott, Senate minority leader and another abortion opponent, said on NBC's *Meet the Press* that the research had great potential. He declined to say whether he supported federal funding, however.

HHS Secretary Tommy Thompson has been circumspect in his public comments. But the former Wisconsin governor has long been a supporter of ES cell research, and scientists who have spoken with him say he was encouraging. His views evidently contrast with those of Karl Rove, the president's chief political strategist, who reportedly worries that supporting stem cell research will alienate Bush's antiabortion supporters.

To prepare for the Administration's decision, Thompson requested both a scientific and legal review of guidelines proposed last year by NIH that would permit federal funding of research on ES cells. On 20 June, NIH's office of public policy forwarded him a 200-page document that reviews published results with embryonic, fetal, and adult stem cells. (It is not slated for public release.) The legal review is ongoing, says HHS spokesperson Bill Hall.

Opponents of research with ES cells often tout the benefits of stem cells derived from adult tissue, claiming they are just as versatile—and obviously far less controversial. But a symposium at the NAS on 22 June underscored the scientific consensus that it is still too early to tell which source of stem cells will prove most useful.

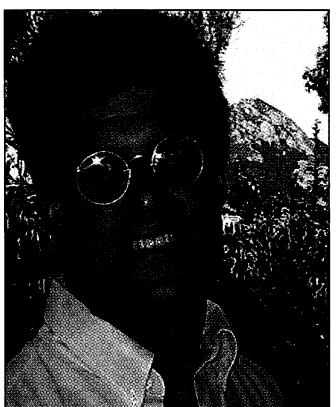
CREDIT: DENNIS COOK/AP

Indeed, one of the more promising recent studies using adult stem cells turned out to be less so, according to the researcher, developmental biologist Margaret Goodell of Baylor College of Medicine in Houston. In December 1999 she reported that muscle tissue contained stem cells that could become blood—raising the hope that adult tissues might harbor versatile stem cells that could, if prompted, become a variety of tissues. But in subsequent research she has found that muscle contains two distinct stem cell types, one destined to become blood and another destined to become muscle. The work has just been submitted for publication, Goodell says, but it suggests that scientists and policy-makers "can't yet leap to assumptions that we can use [adult-derived] cells for everything." —GRETCHEN VOGEL

SCIENCE PUBLISHING

Lab Chief, Postdoc Clash Over Nanotech Paper

Peter Schwartz says he knew he was getting into trouble when he clashed with his lab director last year over a nanotechnology problem that Schwartz claims to have solved. But he didn't realize how much trouble. Now, Schwartz says, he has been blocked from publishing his results, and he claims it's a classic example of a senior scientist clamping a lid on a junior colleague. But his former boss, Chad Mirkin, a chemistry professor at Northwestern University (NU) in Evanston, Illinois, and leader of a world-class nanotechnology group, strongly disagrees. Schwartz did some research "under my guidance," says Mirkin, then "he left the lab and tried to pass the work off as his own."



Would-be author. Authorship dispute blocks Schwartz's paper at *Langmuir*.

Mirkin and Schwartz do agree on this: A prestigious chemistry journal—*Langmuir*—was ready to publish Schwartz's report on a method of nanoscale DNA printing until Mirkin intervened in March. The publisher, the American Chemical Society (ACS), rejected an appeal from Schwartz on 14 June, effectively spiking the paper. This spat, which has generated several news stories, illustrates how academic differences in science increasingly involve commercial and legal battles as well.

The disagreement began more than a year ago in Mirkin's NU lab, according to Schwartz's records. The 37-year-old physicist says Mirkin hired him to work on a process developed by Mirkin and postdoc Seunghun Hong called "dip-pen" nanolithography (DPN) for printing molecular "ink" (*Science*, 29 January 1999, p. 661). Schwartz says his task was to improve the lab's method of printing DNA, which might be valuable for mass-producing DNA chips or, eventually, molecular electronic applications. Schwartz says, however, that he was unable to reproduce the lab's earlier DNA printing results. He began experimenting with a different technique called "nanografting," developed by Gang-yu Liu of Wayne State University in Detroit. Eventually, Schwartz says, he developed "meniscus-force nanografting" and used it to print lines of DNA as small as 15 nanometers wide.

Schwartz claims that relations with the lab soured after Mirkin ignored his informal critiques of DPN, prompting Schwartz to talk about the matter more publicly at a lab meeting. After that session, Schwartz received a letter from Mirkin, dated 1 July 2000, reprimanding him for "insubordinate behavior" and "belligerence" toward his colleagues. Mirkin also reminded Schwartz in the letter that his contract was about to expire and that he should turn over his notebooks to Hong, whose results Schwartz had challenged. Instead, Schwartz continued his research with the help of another lab member. Starting in July, Schwartz also had several talks with Lydia Villa-Komaroff, NU's vice president for research, explaining that he wanted to complete his own experiment, file a provisional patent, and publish the results. At the time he was looking for an academic job and is now an instructor at California Polytechnic State University in San Luis Obispo.

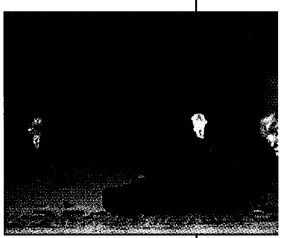
Schwartz left NU in August 2000, and, he says, after Mirkin stopped communicating with him, he submitted a manuscript on his own—first to *Nature*, which rejected it, then to *Langmuir*. Four independent reviewers vetted the manuscript for *Langmuir*, and an associate editor accepted it. Liu, who has read the paper, says it is "a very nice piece of work" that others in the field should see. She adds: "We need as many flowers as possible in the garden" of nanolithography.

In October 2000, Schwartz filed a provisional patent application, he says, listing NU and Mirkin as co-inventors. He claims he did this to protect the university's interests before he began giving public talks in labs where he was seeking employment. Schwartz says he notified Villa-Komaroff and separately wrote

CREDITS: (TOP TO BOTTOM) DAVID LONGSTREATH/AP; COURTESY OF PETER SCHWARTZ

ScienceScope

Environmental Reparations Five Middle Eastern countries will soon get unprecedented payments to conduct studies of the environmental damage caused by the 1990–91 Persian Gulf War, when Iraqi troops set fire to hundreds of Kuwaiti oil wells, shrouding the region in smoke for months. The money is part of reparations being drawn from the Iraq "oil for food" fund run by the United Nations (U.N.).



Last week, the U.N. Compensation Commission (UNCC) council approved distributing $243 million from the fund for environmental impact research, with the lion's share going to Saudi Arabia and Kuwait and smaller amounts to Iran, Jordan, and Syria. The nations have UNCC approval for 107 studies, including surveying coastlines for spilled oil, studying smoke damage to archaeological sites, and following health effects in people who inhaled the smoke.

Julia Klee of UNCC says "as far as we're aware, this is the first time" a country has paid environmental damages after a war. The money should be disbursed within a month.

Channeling Science China Central Television (CCTV), China's leading TV network, is starting a channel devoted to science. It debuts on 10 July and will air programs on nature, history, geography, ecology and environment, hot issues in science and education, and interviews with prominent scientists.

The channel is part of the government's strategy to "rejuvenate China by relying on science and education," says Gao Feng, director of CCTV's Department of Society and Education, which is spending $12.5 million to get the channel off the ground. Programs from National Geographic and the Discovery Channel imported by local TV stations "have cultivated an audience for our new channel," he says. Some 300 people are involved in the effort, which will include 7 hours of new programming as part of every 18-hour broadcast day.

The scientific community welcomes the new outlet, which will be broadcast via satellite on Channel 10. "It may serve as a bridge between the scientists and the public," says Yang Linzhang, deputy director of the Nanjing Institute of Soil Science under the Chinese Academy of Sciences. "But it will be a challenge for the TV workers to make their programs appealing to different kinds of audiences."