

Panel to Back Human Embryo Cloning

Ethics Commission to Urge Congress to Bar Uses Leading to Babies

A1

By Rick Weiss
Washington Post Staff Writer

A federal ethics commission will recommend that Congress enact legislation that would allow some researchers to create cloned human embryos, but would prohibit the use of those embryos to make cloned human babies, according to several commission members.

Under the plan, privately funded scientists or doctors could make cloned human embryos for research purposes but could not implant them into women's wombs.

The much anticipated recommendations, from the National Bioethics Advisory Commission, are an attempt to find common ground between those who find the possibility of human cloning an affront against nature and those who see cloning as a promising option for infertile couples and a possible source of medical advances.

Commission members said the recommendations were sensible, given the ethical complexities and the need

for immediate action. But critics, including antiabortion activists, complained that the proposed restrictions do not go far enough.

The ethics group, consisting of 18 experts in science, law and theology, is scheduled to complete its work this weekend. Its basic findings, which are largely complete, were outlined in a draft report obtained by The Washington Post and in interviews with members of the commission.

The group has met five times at See CLONING, A29, Col. 1

CLONING, From A1

President Clinton's request since Scottish scientists in February made the startling report they had cloned a lamb named Dolly from a single cell taken from an adult sheep. It's possible, but not certain, that the technique could be used to make human babies that are genetically identical to an existing man or woman, and President Clinton wanted recommendations about how to deal with that prospect.

At first many commission members wanted simply to extend the current moratorium on the use of federal funds for human cloning, which Clinton announced in February—in part because a law might be hard to undo should human cloning eventually prove safe and acceptable.

But members became concerned that without an overarching legal prohibition, privately financed scientists not covered by the funding moratorium might wade quickly into the otherwise unregulated realm of cloning research.

"The most important thing is to get some rules about ethical conduct," said David R. Cox, a commission member and professor of genetics and pediatrics at Stanford University. "We're focusing on the arena of making babies, and the rules shouldn't rely on the source of funds."

To get around the worry that a legislated ban might become outdated in the quickly evolving field, sources said, the group plans to recommend that the law include a "sunset provision," to limit its lifetime unless it's renewed.

Commission members said they came to realize in recent weeks they could not untangle the myriad ethical issues in time to meet a June deadline for their final report, so they fell back on the common ground of safety concerns to justify their call for a ban on cloning for human reproduction. Testimony from scientists had convinced the group that cloning poses serious health risks for both the clone and the woman who would carry the cloned fetus to term.

"It's like a court trying to decide a very complex question—you can do it exhaustively or you can decide on the issue that is the clearest," said Thomas Murray, a commission member and director of the Center for Biomedical Ethics at Case Western Reserve University.

"Are there concerns beyond safety? Moral concerns? Absolutely," Murray said. "They really go to the heart of what's significant about having children, being a parent, the interweaving of generations and questions about whether cloning is elevating narcissism to new heights."

While leaving those questioned unanswered, Murray said, the group's report tries to catalogue and describe them so the national debate can continue to evolve.

Members said the recommended ban would ease the most immediate concern voiced by federal officials and the public: that the technology used to make Dolly might be used to make children who are genetic knockoffs of a single biological adult.

Although the ban would not specifically address the issue of cloning human embryos, they said, Clinton already partially closed that door by decreeing in 1994 that federal funds cannot be used to create human embryos for research purposes.

But critics, including at least one dissenter on the commission, said they were troubled by the panel's decision not to address private sector embryo cloning. As currently worded, the ban would allow privately financed laboratories and clinics to clone human embryos and perform experiments on them—as they already do with other human embryos—as long as they don't implant them into women.

"It's the worst of both worlds," one commissioner said of the federal restrictions on embryo research and the lack of regulation in the private sector, speaking on the condition of anonymity.

"The place you're likely to get all the rules strictly adhered to and the research published openly is the federal government," the commissioner said, "and the place where things will get done shoddily and just done for the money will be the private IVF [fertility] clinics that already have bad reputations for conducting research without proper oversight."

The decision not to ask for a ban on human embryo cloning also angered those who believe that life begins at conception. "This would, in essence, be a ban with a wink," said

John Cavanaugh-O'Keefe, of the American Life League, an antiabortion organization based in Stafford, Va. "It would be okay to clone as long as you kill."

Some commission members have also expressed concern in recent weeks that if a ban were less than complete in this country then the United States may become a relatively unregulated "offshore island" attracting scientists from other countries with more restrictive bans.

Ultimately, however, the commissioners were unwilling to recommend a ban on all research involving cloned human embryos. In part, sources said, they feared Congress would write a law so restrictive or imprecise as to interfere with other

kinds of cloning-related research that are not ethically questionable and offer medical promise.

Many commission members also felt that the issue of research on human embryos—whether produced by standard test-tube methods or by cloning—was beyond their charge from the president. A National Institutes of Health panel specified certain "ethically acceptable" kinds of embryo research in 1994, only to have the findings thrown out by Congress and the president.

Cox, of Stanford, said that the commission's approach was practical for now. The group could have haggled forever with scientists who would like the ban on federally funded embryo research lifted, and with

activists who want the ban expanded to include private sector.

"That's simply a game we're not going to play right now," Cox said. "It's not shrinking from the issue. It's making a decision on the basic tough issue, and that issue is making babies from cloning."

Commission members this week were engaged in a frantic effort to complete their report, which is to be finalized at a public meeting in the Crystal City Marriott on Saturday. But a ban is certainly justifiable for now, members said, because there is evidence that cloning often results in abnormal embryos.

The Scottish team went through 277 sheep embryos to get one Dolly. Scientists suspect that many of the

other 276 failed to survive because the technique led to genetic defects. Indeed, it is still not known whether Dolly will prove as healthy as a normally produced lamb, "and subtle changes may show up more in a person than in a sheep," said R. Alta Charo, a commission member and professor of law at the University of Wisconsin at Madison.

Further research in animals might eventually resolve those concerns and human cloning may become acceptable someday, according to some scientists. As of yesterday, however, members said they had not come to an agreement on how soon a legislated ban should expire.

The commission compiled an enormous amount of information be-

fore making its decision, through a survey sent to scientific organizations, research into legal precedents, and religious doctrines, and testimony from members of the public.

In contrast to the philosophical, biological and legal technicalities that the commission studied, much of the public testimony consisted of strongly worded and simply put opposition to human cloning, based on religious or moral beliefs or fears that cloning would exacerbate social inequities.

"Cloning is just one more way to treat people like property, to focus on the material things in our lives and miss the deeper spiritual realities,"

District resident Mary Lynn Jackson in testimony before the

The Washington Post

WEDNESDAY, JUNE 4, 1997

Energy Official Interceded At NSC on Behalf of Donor

Contributor, Clinton Discussed Pipeline Project

A1

By Sharon LaFraniere
and Susan Schmidt
Washington Post Staff Writers

A high-ranking Energy Department official interceded with a National Security Council staff member on behalf of controversial Democratic donor Roger Tamraz after Tamraz discussed his proposal for a major foreign oil pipeline with President Clinton, administration officials said last night.

Despite warnings about allowing Tamraz into the White House, Clinton and senior presidential adviser Thomas F. "Mack" McLarty met with him at fund-raising events in the executive mansion in the spring of 1996. McLarty subsequently asked the Energy Department if the administration could be more supportive of Tamraz's proposed pipeline, which would carry oil from the Caspian Sea to Turkey, one administration official said.

Tamraz was invited to at least four events at the White House after presidential aides recommended that he be denied access to the executive mansion because of suspicions he was misrepresenting his relationship with Clinton administration officials to potential business partners.

The disclosures concerning Tamraz, an international oil financier, provided a stark example of how one big Democratic campaign contributor won access to high government officials. Tamraz's name first surfaced in the Democratic fund-raising controversy earlier this year after allegations that Democratic National Committee Chairman Donald L. Fowler contacted the CIA to have a favorable report on the businessman sent to the White House.

Administration officials have provided the information about the Department of Energy's review of the

See TAMRAZ, A10, Col. 4

Tamraz pipeline project to congressional committees investigating the fund-raising practices in last year's elections. The White House released the information last night in response to requests by reporters, saying Tamraz won no change in policy.

At the time Tamraz met with Clinton and McLarty, the National Security Council and Department of Energy already had decided that Tamraz's pipeline proposal did not merit administration support. But after Tamraz talked to the president, McLarty contacted the Energy Department to ask for another review of the pipeline project, administration officials said.

Tamraz, a Lebanese American businessman, contributed at least \$177,000 to the national and state Democratic parties in 1995 and 1996. At the time, he was seeking U.S. government support for his proposal to build the multibillion-dollar oil pipeline from the Caspian Sea to Turkey.

The land-locked Caspian Sea holds one of the world's largest untapped oil reserves. The U.S. government's policy is not to support any of the many commercial proposals to tap the oil, but simply to push for an east-west pipeline as well as a north-south pipeline so that Russia will not exert sole control over the oil.

Tamraz, working through the State Department and diplomatic channels, was given a chance to discuss his proposed project in June 1995 meetings with NSC analyst Sheila Heslin and two Energy Department officials. His business associate, Haroun Sassounian, also described the proposal to Vice President Gore at a White House coffee for contributors two months later.

But Tamraz had no luck that summer, winning no more than briefings on the U.S. position. Because of the NSC's concerns, Tamraz and his business associate were denied a private meeting they hoped for with Gore, despite lobbying by R. Scott Paterick, then DNC treasurer, the White House said.

Clinton was another matter. Most of his top aides apparently knew nothing of the NSC's position. One exception was then-Gore chief of staff Jack Quinn, who went on to become White House counsel. But Quinn said last night he did not know that Tamraz was trying to see Clinton after he was shut out of Gore's office.

At a March 27, 1996, dinner for 120 political contributors, Tamraz got a brief opportunity to talk with Clinton directly about the virtues of his proposal, the White House said. Clinton told McLarty "to follow up" on that conversation, a White House official said. Tamraz also pushed his idea with McLarty at a White House coffee for political contributors five days after the dinner, the White House said. He gave McLarty a brochure on his firm and his business card.

McLarty passed the material on to C. Kyle Simpson, associate deputy secretary for energy programs, with a memo that said: "Please review this and let's discuss." Simpson said in an interview that McLarty told him the president had met with Tamraz and asked if there was "anything unique about the proposal that would cause us to be more supportive of it."

Simpson turned to Jack Carter, a senior adviser and the department's expert on oil routes from the Caspian Sea. "I just asked was there anything about Tamraz's proposal that would set it apart from the others, that would allow us to be more supportive of it," Simpson said.

According to the White House official, Carter then called Heslin and "pressured" her "to relax her position with respect to Tamraz."

What exactly Carter said is unclear. A source familiar with Carter's version of events said Carter learned that Tamraz had some difficulty with White House access and asked Heslin if Tamraz could be allowed to meet with Clinton. Carter was told "no," and he reported that information back to Simpson, the source said.

Simpson said Carter told him that there was nothing unique about Tamraz's proposal that would merit U.S. government support and he passed that onto McLarty, who dropped it.

FINAL

The Washington Post

WEDNESDAY, JUNE 4, 1997

Dealing With Dolly

WITH COMMENCEMENT speech season in full swing, the president has been using campuses as a place to talk about the ethical challenges posed by scientific and technological breakthroughs. At Morgan State University on Sunday, he predicted the next half century will be an "age of biology" whose medical and reproductive wonders, from Dolly the sheep to a cure for diabetes, will bring unheard-of benefits along with increasingly perplexing moral debates. Nothing could illustrate the point better than the weekend reports of heavy weather over at the National Bioethics Advisory Commission, whose members, in the wake of Dolly's surprise appearance on the world scene, are trying to come up with recommendations for scientists on whether to ban experiments in human cloning.

The 18 commission members, struggling to meet a May 27 deadline, are reported to be moving toward consensus not on the large moral question—whether research on the cloning of humans should be encouraged as life-giving progress or banned as a cheapening of human identity—but, rather, on the narrower pragmatic judgment that experimenting with human cloning at this stage of the technology may carry an unacceptably high danger of producing severely malformed fetuses. This, a panel member told the *New York Times*, could provide the basis for asking private clinics to join voluntarily in the

president's previously announced ban on human-cloning experiments. It also would clear the way for recommending that the ban be continued on federal funding for such experiments.

The president, at Morgan State, proposed four principles for evaluating how new technologies and their uses stack up against already-agreed-upon common values—for, as he put it, making sure that the sciences "continue to serve humanity, not the other way around." About new technologies, he suggested, we should ask whether they make life better for all citizens rather than just a chosen few; their application should not interfere with basic principles of equal treatment and equality before the law; they should not help break down the privacy and autonomy of the individual citizen, and they should not be treated as if scientific answers alone could trump deeper convictions about what is valuable in life.

These aren't bad starting points for a debate that, as the members of the president's bioethics panel no doubt would tell him, gets a lot more difficult the moment you get to examples. Viewed in that light, the idea of proceeding modestly and basing one's recommendation on a straightforward safety question, not an overarching moral principle, looks like an intelligent way to go. Nobody knows what if anything will come of post-Dolly-era cloning. It would be scientifically and morally reckless to pretend otherwise.

When Poles Read Virginia's Books

GOVERNMENT budgets are always political documents, and when a major election looms, voters can expect a season of sweeping conclusions based on the numbers—and on who's reading them. In Virginia, where it's new-governor time, the latest fiscal news just happens to reaffirm whatever anyone citing it has been saying all along. Thus the report of a "surplus" in the state budget is cited gleefully (1) by Allen administration officials as a sign of wise management; (2) by the campaigners for candidate Jim Gilmore as reason to continue good times by electing another Republican governor; (3) by many Democrats as little more than lucky fallout from better times nationally; and (4) by accountants as a higher amount of revenue than the projections originally called for. Take your pick and wait for the calls to spend the dividend, cut taxes or put it in a "rainy day" fund.

Another report this week—this from legislative analysts of the Democratic-controlled House Appropriations Committee—concludes that Gov. Allen's effort to save about \$110 million a year by cutting 5,500 employees from the state payroll saved only \$7 million this year, largely because state agencies are spending more on private contractors to do the work. The study finds that since 1995, when the Allen administration began an attempt to cut the payroll by 5 percent through employee buyouts, the agencies

have spent \$165 million more on the hiring of contractors and private employees. That, they point out, is a 31 percent increase during the two years. Implication: Privatization is a flop. Republican rebuttal: The house analysis is "astonishingly flawed."

Besides, say the Republicans, look at a state department of transportation analysis showing that this agency has been carrying out the governor's program to privatize government—having contracted out more than half of a list of hundreds of new projects. Budget Director Robert Lautenberg says it's "a more cost-effective way to provide certain services. . . . It makes economic sense to do so. That's what the taxpayers want." Says Robert P. Vaughn, an analyst from the House committee, the administration needs to show how it's shrinking government if the same services are still being provided by shifting costs elsewhere.

Privatization is no all-purpose cost-cutter, but neither is it a guaranteed loser. Savings connected to shrinking personnel rosters take time to realize; but contracting can produce waste, as any rundown of federal cost overruns over the years will show in expensive detail. Voters may find better ways to measure the candidates by pressing them on details not only of what they propose to spend but also on what that money will deliver in services.

The Washington Post

THURSDAY, MAY 22, 1997

George F. Will

Democracies And Defense

Peace won't keep itself.

In 1964 the Braves played in Milwaukee, the Dow Jones average rose to 891, Bloomingdale's men's shirts cost \$5.95, an Oldsmobile cost \$3,495, the top-rated television program was "Bonanza." And the first CH-46 helicopters entered service with the Fleet Marine Forces.

Those helicopters, which were to carry Lt. Charles Krulak into battle in Vietnam, today serve the training and operations of young Marines serving under Gen. Charles Krulak, commandant of the Corps. At least those helicopters do when they are operational and not crashing.

The replacement—the marvelous MV-22 tilt-rotor Osprey—is coming, on a procurement timetable which, although not fast enough, is faster than had previously been planned. Stretching out procurements increases per-unit costs. It also increases pressure to buy less of new technology, or even to "economize" by patching and mending old ones, such as the CH-46s.

Bear this in mind as the Pentagon's Quadrennial Defense Review (QDR) dismays people who still think the defense budget has not suffered enough. They evidently think that peace keeps itself, and that deterrence—conflict prevented—is not dramatic enough to be a politically rewarding expenditure.

The defense budget has been a target-rich environment for factions seeking increased domestic spending. This in spite of the fact that as defense spending has shrunk to a pre-Pearl Harbor portion of GDP, the military's deployments have increased.

The weapons purchased during Reagan's buildup—never mind LBJ's—are wearing out. So are the military men and women who are experiencing an erosion of the quality of their lives, a result of cheeseparing budget-cutters and the increased tempo of operations.

Frederick Kagan and David Fautua, history professors at West Point, note that in the nine Bush and Clinton years, troops have been sent abroad (to the Gulf, Bosnia, Haiti, Somalia, etc.) more often than in the 20 years of Nixon through Reagan.

Active duty personnel have been cut 27 percent



BY OHLSSON

since 1991, so deployment requirements for soldiers and airmen have increased—300 percent to 400 percent since the end of the Cold War, to levels comparable to those of sailors on ships. James Kitfield of the National Journal reports that the departure rate of Air Force pilots—trained at a cost exceeding \$1 million apiece—is up 40 percent in the past year.

In 1864 impatient Americans accepted U.S. Grant's sledgehammer, high-casualty approach to war. However, since World War I, when more Americans died "on the line" in three months than were to die in 10 years in Vietnam, the nation has been looking for technologies that will minimize casualties. Gen. Frederick Kroesen, former Army vice chief of staff, says this is the recurring human dream of a "silver bullet" technology—crossbow, machine gun, tank, poison gas, airplane, nuclear weapons—that will enable the possessor of the technology to turn warfare into a clash of his materiel against the enemy's men.

However, U.S. modernization programs have been cut 50 percent in a decade. Besides, wars are still won when men with rifles occupy ground. Furthermore, the report of a task force for the Foreign Policy Research Institute warns of "the demilitarization of the military" as U.S. forces engage in the politics, ambiguities and complexities of "peacekeeping" often at the expense of their "war-fighting" skills and training." In the FPRI re-

port, retired Col. Harry G. Summers Jr., endorsing the judgment of historian Sir Michael Howard, says that America must "be prepared to wage war at the level of the Agrarian Age, for old verities about will and courage still apply."

The QDR reaffirms a capability of coping with two "major regional conflicts" (MRCs) nearly simultaneously. Defense Secretary William Perry defined an MRC as involving an enemy fielding up to 1 million men and 2,000 to 4,000 tanks. Kagan and Fautua, writing in Commentary, argue that not only can the U.S. Army not conduct two MRCs, it could not conduct even one "unless it withdrew from most of its international commitments."

As always, there are those who assure us that we have arrived on the sunny uplands of lasting peace. But from Donald Kagan, Yale historian and classicist, comes a cautionary reminder. Between 1924 and 1929 Britain's chancellor of the exchequer—a former first lord of the admiralty—repeatedly cut naval spending to pay for social programs. He was particularly dismissive of the idea of a war with Japan: "I do not believe there is the slightest chance of it in our lifetime." He was to be prime minister when Singapore fell.

If even the prescient Churchill, often regarded as a Cassandra, erred on the side of optimism, how likely is it that our democracy, driven by short-term calculations of domestic politics, is making prudent provisions for defense?

Date: 05/12/97 Time: 14:48

NAP NEWS BRIEFING, WASHINGTON, MONDAY, MAY 12

KEY WEST, Fla. (AP) An Australian swimmer completed a more than 100-mile crossing between Cuba and the Florida Keys today, just 24 hours after she left Havana. Susie Maroney came ashore on the small sandy beach at Fort Zachary Taylor State Park on Key West shortly after noon. It was her second attempt to cross the Florida Straits. She had failed last year. Her team claimed she was the first ever to complete the swim from Cuba to the Florida Keys, but some record books say Walter Poenisch, who was then 64, made the swim in 1978. The entry has been challenged.

McVEIGH

DENVER (AP) Timothy McVeigh wanted to bomb the Oklahoma City federal building ``to cause a general uprising in America'' and felt justified in killing the people inside because they are part of an ``evil empire,'' his former Army buddy testified at McVeigh's trial today. Michael Fortier, who has pleaded guilty to knowing about the plot, said McVeigh told him he and co-defendant Terry Nichols chose the federal building because that is where the ``orders were issued'' in the government's siege of the Branch Davidian compound at Waco, Texas. The Oklahoma attack occurred on the second anniversary of the attack on the Branch Davidian compound.

COURT-WHITEWATER

WASHINGTON (AP) The White House today asked the Supreme Court to protect the secrecy of conversations Hillary Rodham Clinton had with government lawyers about the Whitewater investigation. The White House cited attorney-client privilege. It asked the justices to overturn a federal appeals court order that notes of White House lawyers' conversations with Mrs. Clinton be turned over to a Whitewater grand jury.

IRAN-EARTHQUAKE

ABIZ, Iran (AP) At least 4,000 people were killed or injured in the devastating weekend quake in eastern Iran, state television reported today as rescue workers pressed their search for the dead. Earlier government statements said that at least 2,400 people died in Saturday's quake, and it was unclear if the death toll had risen. As many as 6,000 had been reported injured by the government and relief workers, and 50,000 made homeless. President Hashemi Rafsanjani cut short a trip to Turkmenistan today to visit the area hit by the earthquake, which struck less than two weeks before Iran's May 23 presidential elections.

ITALY QUAKE

ROME (AP) A string of earthquakes jolted the central Italian region of Umbria Monday, damaging a school and church in one hilltown and alarming tourists in the pilgrimage town of Assisi. No injuries were reported. The epicenter of the quakes was put in the area between the ancient Umbrian hill towns of Todi and Spoleto, about 80 miles northeast of Rome.

CHINA-CLONING

BEIJING (AP) China's leading institute of scientific research has banned the cloning of humans. In announcing the ban by the Chinese Academy of Sciences, vice president Xu Zhihong said the cloning of a sheep by Scottish scientists presented a dilemma for scientists trying to clone cows and rats and using cloning to

research hereditary diseases. "Banning the use of cloning to copy human beings is absolutely necessary to maintain ethical morality, which holds together today's human society," the state-run Xinhua News Agency quoted Xu as saying.

SPACE

PETERSON AIR FORCE BASE, Colo. (AP) The year is 2007. Tensions are rising in the Far East, and U.S. satellites are being targeted for destruction. The U.S. Aerospace Force swings into action, moving its constellation of orbiting lasers and beam-directing mirrors into position. It sounds futuristic. But Air Force Gen. Howell M. Estes views space as the ultimate high ground, where American military and commercial interests are sure to be challenged. Estes, who is commander in chief of the U.S. Space Command, said in an interview that Americans should see that the more the United States ties its military and economic wagon to space, the more vulnerable it becomes.

MARKETS

NEW YORK (AP) Stocks are higher, with the Dow industrials moving back into record territory. Just before the hour, the Dow was up 66.35 at 7235.88. NYSE advancers outnumbered decliners 1,593-819. The Nasdaq composite index was up 3.49 at 1338.54,

ITALIAN OPEN

ROME (AP) Thomas Muster, getting his clay-court game back in gear, began his quest for a record third consecutive Italian Open title with a straight-sets victory today. Muster, the No. 3 seed at the \$2.3 million tournament, overpowered Italian wild card entry Marzio Martelli 6-3, 6-2 in one hour. The first seed bounced from the event was No. 16 Mark Philippoussis of Australia, who looked uninterested at times in going down 6-2, 6-0 to Morocco's Karim Alami.

AP NewsBrief by PRUDENCE HELLER

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Human Embryo Research

Continuing Resolution 9 (P.L. 104-91) prohibited Federal funding for the "creation of a human embryo or embryos for research purposes..." and "for research in which a human embryo or embryos would be destroyed, discarded or knowingly subjected to risk of injury or death greater than that allowed for research on fetuses in utero." The C.R. applied to funding for the entire FY 96. Identical language was placed in FY 97 DHHS Appropriations language (P.L. 104-208). The first section codifies the President's directive of Dec. 2, 1994. The second section addresses research on all human embryos, regardless of source. The second part goes substantially further in prohibiting a much larger class of research that has implications for treating infertility, preventing birth defects, understanding oncogenes and studying embryonic stem cells.

The second provision applies to embryos the same standards that are currently in place for research involving human fetuses. Research involving human fetuses is governed under DHEW 45 CFR part 46.208(a), "No fetus in utero may be involved as a subject in any activity covered by this subpart unless: (2) The risk to the fetus imposed by the research is minimal, and the purpose of the activity is the development of important biomedical knowledge which cannot be obtained by other means." Minimal risk is defined as, "The probability and magnitude of harm or discomfort expected in the research is no greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests." **Therefore, research that would involve manipulation of the preimplantation embryo that might result in its death, injury, or harm, is precluded under the Congressional ban, regardless of the source of the embryo.** This includes six of nine applications for funds for research on human in vitro fertilization that might have received NIH funding, in compliance with the President's directive of Dec. 1994.

Taken in sum, both phrases prohibit virtually all human embryo research that might be conducted with Federal funds under other circumstances. Due to the large demand for in vitro fertilization to circumvent certain male and female causes of infertility, there is considerable work under way in this area in the private sector, funded by patients. There are no standards in place governing such procedures, other than FDA requirements for approval of the component drugs and devices.

A preimplantation human embryo exists from a few days after conception until about 3 weeks, at which time implantation occurs. The NIH Human Embryo Research Panel highlighted research involving up to 14-day old embryos because it is at this time that the "primitive streak" appears; a line of cells that will eventually form the nervous system. Prior to development of the primitive streak, the embryo is a disc-shaped collection of cells that have yet to develop specific functions. This multi-function potential makes them especially valuable in the development of a wide range of therapeutic agents for leukemia, sickle cell anemia, Parkinson's disease, diabetes, and spinal cord injury. This field is emerging as one with significant potential to understand human biology and address illness and disease affecting millions of Americans.

BIO WORLD[®] TODAY

TUESDAY
APRIL 15, 1997

THE DAILY BIOTECHNOLOGY NEWSPAPER

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FDA Panel Won't Recommend Approval Of Sequus' Amphotec For Supplemental NDA

By Lisa Seachrist
Washington Editor

SILVER SPRING, Md. — An FDA advisory panel voted 6-to-1 that Sequus Pharmaceuticals Inc.'s antifungal agent, Amphotec, failed to show efficacy as a prophylactic treatment in feverish patients with low white blood cell counts.

The Antiviral Drugs Advisory Committee did, however, unanimously find that the drug resulted in less kidney damage than other forms of antifungal therapy.

"It is difficult to establish the efficacy of this drug because the sample size is small," said committee chair Scott Hammer, professor of medicine at Harvard Medical School. "It is unfortunate, because we have a real need for a safer agent."

Sequus submitted data from a toxicity trial which compared its liposomal formulation of the antifungal drug amphotericin B with standard formulations of amphotericin B. The company was attempting to show that Amphotec was equally effective in preventing fungal infections in patients with neutropenia.

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Chiron Asks FDA To Broaden Proleukin Label To Include Metastatic Melanoma

By Charles Craig
Staff Writer

Chiron Corp. submitted a supplemental marketing application Monday to the FDA for clearance of Proleukin for treatment of metastatic melanoma, a deadly form of skin cancer that is diagnosed in 40,000 new patients each year.

Chiron, of Emeryville, Calif., has marketed Proleukin, which is recombinant interleukin-2 (IL-2), for treatment of metastatic kidney cancer since 1992.

Larry Kurtz, Chiron's vice president of corporate communications, said data supporting the company's supplemental biological license application with the FDA demonstrating Proleukin's effectiveness in treating metastatic melanoma is similar to benefits seen in kidney cancer patients.

Clinical studies used to support Proleukin's label's expansion involved 270 patients, some of whom partici-

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Exelixis Raises \$15.8M To Further Its Genomics Work To Discover Disease Pathways

By Frances Bishopp
Staff Writer

Exelixis Inc., a functional genomics company which researches connections between genes and human disease, has raised \$15.8 million in its second private placement since its founding in 1995.

The self-managed financing was led by Bowman Capital Management, of San Mateo, Calif., and included all of the company's original investors as well as a string of new ones, such as Biotechvest, of San Diego, Invesco Trust Co., of Denver, Maverick Capital, of Dallas, Life Science Ventures, of Munich, Germany, Armen Partners, of New York, and Robertson, Stephens & Co., of San Francisco.

Remi Barber, chief operating officer at Exelixis, told *BioWorld Today* the money invested by Robertson,

See Exelixis, Page 3

Clock Ticks For National Bioethics Commission As Cloning Issue Is Scrutinized

By Lisa Seachrist
Washington Editor

WASHINGTON — With its deadline for making some recommendations on cloning to President Clinton looming six weeks ahead, the National Bioethics Advisory Commission (NBAC) is leaning toward proposing a federal ban on research efforts that would result in producing a cloned human baby.

The commission, however, appears hesitant to weigh in on research in human tissues that stops short of implanting a cloned embryo — the types of research on human eggs and DNA that could result in new cell and tissue therapies — for fear of simply renewing the human embryo research debate.

"We have a lot to do here," said NBAC chairman and

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Princeton University President Harold Shapiro. "But, for a wide variety of reasons, everyone seems to be saying they want a barrier to human cloning now. Here is an easier area to reach a conclusion."

NBAC entertained religious, legal, scientific and ethical points of view at its meeting in March. Shapiro divided the issues into three "buckets" to contain the various questions that will come to play in any policy recommendations and assigned the commissioners to participate in one of the discussion "buckets."

Bernard Lo, a medical ethicist at the University of California, San Francisco, lead the ethical discussion, which focused on which consideration was strong enough to continue the moratorium: whether those who wished to clone or those who wished to prevent cloning had the burden of proof, and what arguments would justify a permanent ban.

"We had a lot of support for continuing the moratorium," Lo said, "but we couldn't pinpoint any one objection that was telling. Instead, it was a cumulative effect that may justify a continuation of the moratorium. And we didn't begin to touch upon the research that would lead up to cloning a human."

The ethical "bucket," however, did try to assess whether there was an inherent right to reproduction and, if there was, whether these were limits to that right. They weighed that view against concerns discussed during the religious perspectives meeting in March, which include undue expectations of a cloned human, disruption of the family unit as well as problems in identifying one's genetic parents.

Nevertheless, the ethical discussion found some difficulty incorporating religious views because they weren't stated in secular language.

"Some people said that is demeans our belief to ask us to state it in secular terms," Lo said. "It is difficult because many of these objections do have weight, but many religious representatives feel it shows disrespect to ask for different language."

Thomas Murray, an ethicist at Case Western Reserve University, in Cleveland, who asked several of the speakers in the March meeting to state their objections in secular terms, pointed out that the commission "can't just give veto power to anyone with a strong belief. We don't do that with blood transfusions even though some find that procedure offensive."

Attempting To Regulate That Which Doesn't Exist

Even though these types of considerations will be important in developing policy actions for the committee, several members questioned whether it was necessary to address human cloning when cloning as yet doesn't exist. Stuart Orkin, professor of pediatric medicine at Harvard Medical School, and Janet Rossant, senior scientist at Mount Sinai Hospital, in Toronto, served as cloning experts and

presented some of the scientific issues to the committee.

Rossant noted that species differences may prevent human cloning from ever happening. In addition, she pointed out that there are completely differentiated cells in most tissues and it is unclear that the donor cell used to create the cloned sheep "Dolly" was indeed a fully differentiated cell.

"It is possible that imprinting may result in developmental problems," Rossant said. "There is also some risk to the cloned human as a result of using old DNA — it may result in a shortened life — and they have begun to accumulate mutations that could cause problems."

Orkin presented the list of steps that good science would follow before attempting to create a human clone. Orkin maintains that science today is in phase one — basic research into animal cloning and the cellular mechanisms controlling reprogramming of the DNA. Phase two, which is not yet happening, would include experimentation on early embryos not intended for implementation. Phase three would include generating differentiated cells as cellular therapies and phase four would be implanting an embryo produced by nuclear transfer in order to produce a human being.

"At this time period, implanting, in addition to ethical concerns, is just bad science," Orkin said. "We need more information from animal experiments."

Ezekial Emmanuel, professor of medicine at the Dana-Farber Cancer Institute, in Boston, asked whether, for the time being, animal research provides enough information. Rossant responded, "For now, there is a great deal of animal research that needs to be done. But I don't see how any cellular therapies are going to arise without moving to experiments with human eggs and producing a human embryo."

Because of a ban on human embryo research written into the appropriations legislation for the National Institutes of Health, there is no government funding for, and consequently no oversight of, human embryo research. For that reason, the legal "bucket" explored all of the policy options for two different activities that Alta Charo, professor of law at the University of Wisconsin, Madison, described as "baby-making and everything else."

For "everything else," Charo described the policy options as total permission, including federal funding, permissibility without federal funding, conditional permissibility without federal funding and rules that restrict use in humans, until adequate information in animals is obtained, or a total prohibition.

"It is important to realize that federal funding may slow down the introduction of this technology into the clinic," Charo said.

In the "baby-making" scenario, Alexander Capron described the policy options as full federal funding, conditional permissibility without federal funding and protections in place for the gestating woman and consent to

See Bioethics, Page 5

TUESDAY, APRIL 15, 1997

BioWorld® TODAY

PAGE 5 OF 5

OTHER NEWS TO NOTE

• **Advanced Tissue Sciences Inc.**, of La Jolla, Calif., and Smith & Nephew plc, of London, report final data from a pivotal trial of Dermagraft in the treatment of diabetic foot ulcers demonstrated Dermagraft, within a specified therapeutic range and based on metabolic activity, was shown to be significantly more effective than the best standard of care in achieving complete healing of severe ulcers at 12 weeks. In December 1996, Advanced Tissue Sciences submitted a premarket approval application to the FDA for approval to market Dermagraft in the treatment of diabetic foot ulcers. In March 1997, the company received FDA approval for Dermagraft-TC for use as a temporary wound covering for severe thermal burns in patients who require autograft placement.

• **Agouron Pharmaceuticals Inc.**, of La Jolla, Calif., reported results from a Phase I study of AG3340 — a highly selective, nonpeptidic inhibitor of certain matrix metalloproteinases — demonstrated the drug was well tolerated at all studied dose levels. The drug was rapidly absorbed following oral administration, resulting in blood levels of the drug substantially greater than those showing efficacy in animal cancer models. Also, results from a preclinical study of Thymitaq, an antitumor agent, demonstrated that, administered at subtoxic dose, it enhanced the effectiveness of radiotherapy 260 percent in animals and increased the tumor control rate from 10 percent (with radiation alone) to 90 percent. The company also said its protease inhibitor, Viracept, with AZT and 3TC, both marketed by **Glaxo Wellcome plc**, of London, showed the amount of HIV remained below quantifiable levels in plasma and lymphoid tissue of AIDS patients one year after treatment with the three-drug combination.

• **Alza Corp.**, of Palo Alto, Calif., and SmithKline Beecham plc, of London, have entered into an agreement under which SmithKline will have the right to commercialize Alza's Nicoderm transdermal nicotine product in the People's Republic of China and Japan. Under the agreement, SmithKline will make up-front and milestone payments to Alza who will manufacture and sell the product to SmithKline at an all-inclusive price.

• **AntiCancer Inc.**, of San Diego, has received a \$630,000 Phase II small business innovation research grant from the National Cancer Institute for further development of its cancer animal model, MetaMouse. MetaMouse is more precise than laboratory mice to study cancer, AntiCancer said, because instead of inducing mice to develop their own tumors, human cancer tissues are surgically implanted in organs corresponding to their human donors. This is the second such grant in six months for AntiCancer.

• **Atlantic Pharmaceuticals Inc.**, of Raleigh, N.C., said preclinical studies of its 2-5A antisense drug against

respiratory syncytial virus showed the compound was 130 times more effective than a currently approved treatment, Virazole (ribavirin), which is sold by **ICN Pharmaceuticals Inc.**, of Costa Mesa, Calif.

• **Biomatrix Inc.**, of Ridgefield, N.J., said China has approved the company's Synvisc treatment for osteoarthritis of the knee. Synvisc, an elastoviscous fluid, is injected into knee joints to supplement diseased synovial fluid and improve mobility. The therapy has been recommended for approval in the U.S. by an FDA advisory panel.

• **Cor Therapeutics Inc.**, of South San Francisco, withdrew its application for European marketing approval of Integrilin for treatment of acute cardiac ischemic events in patients undergoing angioplasty. The company said the decision was made after discussion with European regulatory officials and Cor's Integrilin partner, **Schering-Plough Corp.**, of Madison, N.J. An FDA advisory panel in March declined to recommend the drug for marketing in the U.S. (See *BioWorld Today*, March 3 and 4, 1997, p. 1.)

• **Cubist Pharmaceuticals Inc.**, of Cambridge, Mass., said it achieved the second and third research milestones in its collaboration with **Bristol-Myers Squibb Co.**, of New York, on development of antibacterial and antifungal drugs. The amount of the milestone payments was not disclosed.

• **CV Therapeutics Inc.**, of Palo Alto, Calif., has begun a Phase II study of its selective adenosine A(1)-antagonist, CVT-124, in patients with congestive heart failure. The study is a randomized, double-blind, placebo-controlled ascending dose crossover study, in which the companies plan to enroll 18 to 24 patients at three to four clinical sites in the U.S.

Bioethics

Continued from Page 4

using DNA, or a total prohibition.

"We all agree about 'baby-making,'" Eric Cassell, professor of public health at Cornell Medical College, in New York, said. "But how do we get at the private sector?"

Charo noted that with the current ban on human embryo research, some doctors in the fertility field have patients pay for services that are basically unproven experimental therapies that take place outside of clinical protocols without any outside review.

Charo advocates the extension of basic human subject protections — informed consent and outside protocol review — to all citizens in the U.S. Currently, human subject protections apply for those participating in research funded by the National Institutes of Health, those participating in studies that will be reviewed by FDA and those participating in research sponsored by a few other government agencies.

NBAC plans to meet twice in May in order to prepare policy recommendations for the president. ■



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March 18, 1997, Tuesday, Late Edition - Final
SECTION: Section C; Page 1; Column 1; Science Desk

LENGTH: 1354 words

HEADLINE: Little-Known Panel Challenged to Make Quick Cloning Study

BYLINE: By GINA KOLATA

BODY:

LATE last week, a little-known commission that had to go cap in hand to Federal agencies for financing and that does not even have an executive director began holding hearings on the cloning of humans.

The group, the National Bioethics Advisory Commission, was directed by President Clinton on Feb. 24 to deliver a report to him within 90 days on legal and ethical issues involved in cloning techniques and "possible Federal actions to prevent its abuse." Yet, ethicists said, it was only sheer luck that such a group even existed.

This is not the first national ethics commission. Such groups date to the 1970's, when a committee was established to investigate whether patients were adequately protected when they enrolled in medical research studies. Since then there have been several other commissions, the most recent of which submitted its report on the use of human embryos for research just two and a half years ago.

But the panel that is looking at cloning was never intended to take on such a momentous topic, and no national ethics commission has ever had to work so quickly to get out a report. "Nothing has been analogous to this," said R. Alta Charo, a commission member who is a law professor at the University of Wisconsin.

The 15-member group began its crash course in cloning on Thursday, meeting in an L-shaped

room on the ground floor of the Watergate Hotel in Washington. Dr. Shirley Tilghman, a molecular biologist at Princeton University, informed them of the science behind the recent cloning report. In that report, by Dr. Ian Wilmut of the Roslin Institute in Edinburgh, Scotland, researchers described how they had merged an udder cell from a six-year-old sheep with a specially prepared sheep egg. The genetic material from the udder cell directed the egg to grow and develop into a lamb, named Dolly, that was born last July, the identical twin of the sheep whose udder cell was used. Dr. Wilmut's feat shocked the world, for even most scientists had assumed that the cloning of adults was biologically impossible and was merely the stuff of science fiction.

In addition, the commission heard testimony from religious leaders, who spoke of the theological questions that cloning raised, and from four ethicists, two of whom felt that human cloning should be flatly prohibited and two of whom said they could imagine situations in which it would be acceptable.

This is unfortunate

The cloning hearings, however, were a far cry from the group's original mandate, which was to look into the ethical problems that might arise in medical research that uses human subjects and to look at genetic information and how it is handled by medical institutions. And the group was working at warp speed compared with its initial pace. It was formed in October 1995 and did not have its first meeting until October 1996.

"I don't want to say it was a sleepy little outpost -- that's too strong," said Dr. Arthur Caplan, director of the Center for Bioethics at the University of Pennsylvania. "It was a quiet committee that would take a reasonably paced look at two emerging areas and let the media and Congress understand what's going on." It was not even an advisory group to the President. Instead, it was put into the Office of Science and Technology Policy at the White House, giving it "very low priority," Dr. Caplan said.

But then, Dr. Caplan said: "All of a sudden, cloning explodes, and the President looks desperately for whom he can turn to for help and advice. The only group he can go to is the National Bioethics Advisory Commission." Overnight, Dr. Caplan noted, "there is a big change in the notion of what this group can be."

Some commission members admit that their task is difficult. The executive order that finally authorized the creation of the commission was dated Oct. 3, 1995. Then, said Ms. Charo, the commission member, "there were F.B.I. checks all through the winter and spring of 1996." She added: "The whole appointment process took forever."

Ms. Charo, who was also a member of the Human Embryo Research Panel, said the current commission had several difficulties.

"We were hamstrung by a lack of funding," she said. "The concept was that all the agencies that had anything to do with human subjects experiments would kick in funding, so we had to go with our hand out to Federal agencies and say, 'Please contribute.' "

Then, Ms. Charo said, there was the staffing problem. "We still do not have an executive director," she said. "The job description is still being written or it has just been written."

The group had its first meeting in October 1996, said Dr. Harold T. Shapiro, the commission's chairman and the president of Princeton University. But, Dr. Shapiro said, it got going quickly, holding four meetings and dividing into subcommittees to handle the work on human subjects research and genetic information.

"Each subcommittee wanted to take on a task that it could finish in a year, so if we ceased to exist after that we would have accomplished something," said Dr. Thomas H. Murray, who is director of the Center for Biomedical Ethics at the Case Western Reserve University School of Medicine and a member of the commission. "That was our agenda. Then cloning hit."

Dr. Norman Fost, director of the Program in Medical Ethics at the University of Wisconsin, said Mr. Clinton's request that the group issue its cloning report within 90 days of Feb. 24 "is rather a compressed period of time," considering that it took other national commissions years to come up with reports.

Alan Weisbard, an associate professor of law and medical ethics at the University of Wisconsin who was the associate director of a previous panel, the President's Commission for the Study of Ethical Problems in Medicine and Biomedicine and Behavioral Research, agreed that "90 days is awfully ambitious for something as complex and multidimensional as cloning." His group, he said, had four years to work on its report, completing its task in 1983.

While some, like John Robertson, an ethicist and law professor at the University of Texas in San Antonio, who testified before the commission on Friday, are so impressed by the group that they are certain it can do its job in 90 days, and do it well, others are doubtful.

One skeptic is Dr. Ronald M. Green, who directs the Ethics Institute at Dartmouth College and was a member of the Human Embryo Research Panel. That group had a bitterly disappointing experience: its report was rejected by Congress and by the American public.

"Our panel worked for a year on a very thoughtful series of recommendations," Dr. Green said. But as soon as he received the report, Mr. Clinton overruled one of its recommendations, that human eggs could be deliberately fertilized for use in research. And, Dr. Green said, soon "Congress got into the act, and within a short while there was essentially a virtual prohibition on any research that would discard or destroy an embryo or render it unsuitable for development."

Ms. Charo, however, said the embryo panel's work had taught her a valuable lesson. That group, she said, relied on logic to make its case that research with early human embryos was ethically acceptable.

"The logic was airtight, but it did not change anybody's mind and there was a lot of resentment," Ms. Charo said. Now, she said, she realizes that "logical arguments are only rationalizations for gut feelings or religious viewpoints." And, she said, that is where the group ought to start in analyzing what it wants to say about the cloning of humans. She spent Saturday morning re-reading science fiction on cloning. "I don't think we can make good suggestions unless we can understand what is compelling for the public," she said.

As for her own opinion, Ms. Charo said she is torn. "In some ways, my heart wars with my head," she said. "My heart says there is something unnerving about this. I can understand why calls for an absolute ban would be well received." But, she added, "My head says that absolute bans are drastic actions that should only be undertaken when we know it is the only solution."

GRAPHIC: Drawing (David Suter)(pg. C9)

LANGUAGE: ENGLISH

LOAD-DATE: March 18, 1997

Copyright 1997 The New York Times Company
The New York Times

March 18, 1997, Tuesday, Late Edition - Final
SECTION: Section C; Page 9; Column 1; Science Desk

LENGTH: 509 words

HEADLINE: New Cloning Attempts Meet No Success So Far

BYLINE: By GINA KOLATA

BODY:

DR. IAN WILMUT, the man who cloned a sheep, went on a lecture circuit in the United States last week, telling eager scientists how he had done it. Within a few days, he spoke at a meeting in Baltimore, sponsored by the Cambridge Healthtech Institute, he gave a lecture and visited the Department of Agriculture's research center in Beltsville, Md., and he lectured at the National Institutes of Health in Bethesda, Md. In between, he sandwiched in testimony before the United States Senate.

In the meantime, other scientists are trying their own cloning experiments. One of the first academic scientists was Dr. Neal First of the University of Wisconsin, who just days after he heard of Dr. Wilmut's feat, tried to clone a cow, using skin cells from a calf fetus.

But, he said, for unknown reasons the cloned embryos died when they grew to 16 cells. Embryos at that stage are simply a ball of identical cells, with no fetus-like features. The embryos would have had to survive a week and grow to about 60 to 120 cells before Dr. First could have transferred them to a cow that would serve as a surrogate mother. Undaunted, Dr. First said he was trying again. After all, it took Dr. Wilmut 277 attempts to clone Dolly, the lamb.

Dr. Willard Eyestone, an embryologist at PPL Therapeutics Inc., in Blacksburg, Va., said he got a bit further in his efforts to clone a cow. Dr. Eyestone knew about the cloning of Dolly, the lamb, before Dr. Wilmut's paper was published on Feb. 27 because he works for a branch of PPL Ltd. of Edinburgh, Scotland, which sponsored the work. So, last fall, he began his efforts to use fetal skin cells -- an easily available source of cells that have already differentiated, that is, committed to being one sort of cell or other.

Dr. Eyestone said he managed to create about 18 embryos that survived for 30 to 40 days before the cows miscarried them. At that stage, he said, the embryos have turned into fetuses. They have millions of cells, a heartbeat and have "rudiments of a head, legs and a tail," he said. Like Dr. First, he is trying again.

Dr. William Fodor, director of xenotransplantation at Alexion Pharmaceuticals Inc. in New Haven, heard Dr. Wilmut speak in Baltimore and then went to the Department of Agriculture to learn how to clone cows. Dr. Fodor's company is trying to develop genetically engineered pigs whose organs can be transplanted into humans. Cloning, he said, would offer a way to modify the pig cells so they could be biochemically humanized. The idea would be to grow pig cells in the laboratory, add human genes and then clone those cells that best expressed the genes.

But, Dr. Fodor said, he suspects it will be more difficult to clone a pig than a cow because of their developmental patterns, so he wants to learn to clone a cow first. Thus, his visit to the Department of Agriculture, where scientists are adept at using early, undifferentiated embryonic cells to clone cows, the sort of work that had been going on for at least a decade before Dr. Wilmut cloned Dolly.

LANGUAGE: ENGLISH

LOAD-DATE: March 18, 1997

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USA TODAY

March 18, 1997, Tuesday, FIRST EDITION

SECTION: NEWS; Pg. 14A

LENGTH: 391 words

HEADLINE: Outlaw human cloning

BYLINE: Christopher "Kit" Bond

BODY:

The cloning of Dolly, the now famous sheep, by Scottish scientist Ian Wilmut has generated both fascination and fear. Americans are wondering whether yet another science fiction story is about to come true.

I would suggest that in this case our technological capacity may be outrunning our moral sense. The ethical implications of human cloning are staggering. We should never create human beings for spare parts, as a replacement for a child who has died, or for other unnatural and selfish purposes. Wilmut has stated that he can see no scenario under which it would be ethical to clone a human being, and he is right.

I have introduced, with the support of both Democrats and Republicans, legislation to ban federal funding of human cloning and human cloning research. President Clinton has suggested we "study" the issue. Yet a federal research panel in his own administration in 1994 saw no justification for human cloning research, and even suggested that such activity would devalue human life by undermining the individuality of human beings.

Most Americans know this instinctively, which is why 90% of us have told pollsters we would like to see human cloning prohibited by law.

Our bill affects only human cloning research that would replicate a human being. Plant and animal research would continue, and the National Institutes of Health would continue work on its human genome mapping project, which offers great promise for development of new approaches to diagnose, treat and prevent disease.

But we must draw the line at human cloning. The belief that all human beings are unique and created by God is shared by billions around the world. Human cloning, man's attempts to play God, would change the very meaning of life, of what it is to be human. Are we ready for that? Hardly.

Enactment of my legislation is just a first step. The United States should show moral leadership and follow the example of several other countries by banning and criminalizing all human cloning research, whether private or public. Whether this should be done through a federal law or state-by-state prohibitions will be decided by Congress. But the creation of Dolly shows we must act very soon.

Sen. Christopher Bond, R-Mo., is a member of the Senate Appropriations Committee.

LANGUAGE: ENGLISH

LOAD-DATE: March 18, 1997

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USA TODAY

March 18, 1997, Tuesday, FIRST EDITION

SECTION: NEWS; Pg. 14A

Very good piece

LENGTH: 465 words

HEADLINE: Control, yes; but don't ban human cloning

BODY:

Scientists around the world are racing toward the moment when human cloning is not just thinkable, but totally doable. Despite new calls from alarmed federal lawmakers, there is no way to stop the science. And despite the concerns of everyone else, there's not yet any need to.

To be sure, the current alarms over human cloning -- conditioned as much by fiction as by fact -- resonate deeply. Members of Congress now want to ban federal funding of human cloning research. And some, following the lead of several European nations, want to outlaw such research entirely.

But there's a better way to handle the matter, and it's already been tested. In the early 1970s, breakthroughs in genetic engineering sparked similar uneasiness among lawmakers, consumers and scientists. They worried that the newly developed ability to move genetic material between species might produce mutant lifeforms and deadly new pathogens.

None of those fears came true, and today we enjoy the benefits of genetic engineering in everything from tomatoes to insulin. That's because instead of overreacting, lawmakers and the scientific establishment created a federal advisory panel to establish biosafety standards and review applications for new experiments. The public was reassured and the science marched on.

That model can work today, with similar benefits. A federal panel would allow regulators to help modulate the pace and direction of cloning research. And it would provide the context for continuing public debate. For example, some scientists oppose cloning research on human embryos, but not on clusters of human cells before they form an embryo. That's a super-fine line, and it needs to be thoroughly discussed before the nation takes sides.

Also, such engagement gives American consumers a first-look at any new medical benefits that the research produces. Among the hoped-for outcomes -- new organs for needy transplant patients.

Finally, the regulatory process can be left flexible. If new hazards -- biological or ethical -- are discovered, then the regulations can be tightened. But if our fears are unwarranted, they can be eased.

On the other hand, if human cloning research is outlawed, it will merely be driven offshore. And if it is denied funds, it will be driven entirely into the hands of commercial laboratories. Either way, the science marches on -- to the beat of someone else's drum.

So far, federal lawmakers have had a busy year legislating medical options. They have debated hospital stays, diagnostic techniques and procedures. Now, some want to outlaw an entire field of medical opportunity. They warn about scientists who play God. The real threat, though, is posed by lawmakers who play doctor.

LANGUAGE: ENGLISH

LOAD-DATE: March 18, 1997

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Editorial Notebook

Cloning as an Anticlimax

With all the hand-wringing over the cloning of sheep in Scotland, it is easy to forget that society confronted a far more radical biological breakthrough a quarter-century ago and has emerged none the worse for it. That earlier revolution, known as "gene splicing" or "recombinant DNA technology," gave scientists the awesome power to snip genes from one species and insert them into another, producing creatures with characteristics never before seen. It has spawned such useful advances as bacteria that make human insulin and crops that resist insect attacks. But it has also produced some pretty freakish creatures in the name of science.

In one outlandish example just reported, scientists took the gene governing eye formation in a squid and stuck it into fruit fly larvae, with the result that the insects developed eyes on their wings, legs and antennae. That sounds more like "fooling with Mother Nature" or "playing God" than anything the cloners are up to.

For all the furor it excites, the power of cloning pales in comparison with gene splicing. Cloning does not allow scientists to create anything new, it simply lets them copy something that already exists. On any rational worry scale, cloning poses less risk to health and the environment than does gene splicing, promises fewer benefits and raises ethical issues no more difficult than those grappled with for the past quarter-century.

It is salutary to recall the outcry that greeted the advent of gene splicing in the early 1970's. The biggest concern then does not even arise in the cloning debate, namely the fear that reckless scientists might create novel pathogens that would devastate the world's population, or new plants that would grow out of control and bury the herbal competition. That concern was soon alleviated, thanks to astonishing self-control by a scientific community eager to stay one jump ahead of the Luddites and regulators. Guidelines were drawn up that stipulated high-level containment for the most dangerous experiments and approval by institutional and government authorities before experiments could be conducted. The guidelines applied to all scientists receiving Federal funds, and were followed voluntarily by others.

Once it became clear that no catastrophe was on the way, the guidelines were relaxed and the whole field fell under routine supervision by regulatory agencies. True, some critics still complain that genetic engineering is booming ahead without adequate public discussion or vigorous oversight. But now the more frequent com-

The Real Advance Came Decades Ago

plaint is that progress is too slow, the benefits long in coming. The genetically engineered tomatoes are hard and flavorless, the genetically engineered bovine growth hor-

mone to boost milk production is meeting resistance, and most biotech companies have yet to show a profit.

Fears that gene splicing might be misapplied to humans have also proved unfounded. Gene therapy to cure disease has progressed much slower than hoped and has thus far been applied to cases almost everyone would find ethical — replacing a defective gene with a good one in an effort to cure an inherited disease, for example. A consensus has developed, reinforced by government guidelines, that gene therapy will be tried only on somatic cells that affect an individual patient, not on the reproductive, or germ, cells that will affect future generations. So far as is known, no one is trying germ line experiments and no one is trying to produce a more perfect human being in a new wave of eugenics.

Now the cloning breakthrough is upon us. Scientists have finally cloned an adult animal, a big step beyond the past cloning of embryos and fetuses. This is a striking technical achievement, for it shows that mature cells can be reprogrammed to start anew and produce a younger twin of an adult with known characteristics. The immediate goals are in animal husbandry. Some scientists hope to take a cow that produces a lot of high-quality milk — perhaps one that has first been *genetically modified* to do so — and then clone its cells to produce multiple copies. Genetic alteration is notoriously hit-or-miss and it would be highly useful, once a "supercow" is produced, to be able to multiply its numbers more easily. But whether the new techniques will work efficiently must still be demonstrated.

Meanwhile, there is not likely to be any great rush to clone humans. Indeed, it is difficult to imagine how such cloning could even be tested, given the high likelihood of producing malformed babies or fetuses in the process.

None of this is to deny that cloning raises tough ethical questions, such as potential loss of individuality when one's genetic identity is deliberately copied, or possible abuses in the hands of a dictator or megalomaniac multimillionaire. The apprehension over cloning will be useful if it triggers a deeper debate on the dangers. But if recent history is any guide, Nature will prove far more intractable than expected, and the cloners far less diabolical than feared.

PHILIP M. BOFFEY

The New York Times

TUESDAY, APRIL 1, 1997

Weather
Today: Partly sunny, windy, cool.
High 48. Low 32. Wind 20-35 mph.
Wednesday: Sunny, breezy, mild.
High 60. Low 40. Wind 8-16 mph.
Yesterday: Temp. range: 33-51.
 pollen count: 58. Details on Page B2.

The Washington Post

FINAL

Inside: Health
Today's Contents on Page A2

120th Year No. 117

TUESDAY, APRIL 1, 1997

Phone May Vary in Areas Outside
Washington (See Service A2)

25

Bombing Trial Opens With Tight Security

*Prospects for McVeigh Jury
Face Aggressive Questioning*

By Lois Romano and Tom Kenworthy
Washington Post Staff Writers

DENVER, March 31—Amid extraordinarily tight security and a huge news media presence, the trial of Oklahoma City bombing suspect Timothy J. McVeigh opened here today with aggressive questioning of prospective jurors that quickly underscored the potential difficulty of selecting an unbiased panel.

Almost two years after a massive bomb sheared off the front of the Alfred P. Murrah Federal Building, killing 168 people, U.S. District Judge Richard P. Matsch, federal prosecutors and attorneys for McVeigh began the tedious process of selecting 12 jurors and six alternates. Only six potential jurors were questioned today, and several of them already appeared to pose problems for one side or the other in a case that has drawn enormous pretrial publicity.

Matsch last year ordered the case moved here, saying that the defendants—McVeigh and Terry L. Nichols, who will be tried later—could not get a fair trial in Oklahoma because they had been "demonized." Ironically, the first of 352 prospective jurors questioned today was a white man in his forties who was working in Tulsa

See BOMBING, A7, Col. 1



Marsha Knight, center, who lost a daughter in the Oklahoma City federal building bombing, greets other victims and survivors

outside federal courthouse in Denver on the first day of jury selection in the trial of suspect Timothy J. McVeigh.

Stocks Plummet Again; Analysts Cite 'Correction'

By Brett D. Fromm
and Sharon Walsh
Washington Post Staff Writers

Investors returning from the three-day Easter weekend continued dumping stocks yesterday, pushing down the Dow Jones industrial average to its biggest two-day percentage drop since the Iraqi invasion of Kuwait in 1990.

The Dow's 157.11-point fall yesterday, to 6583.48—its lowest point since early January—stemmed from a mix of worries about rising interest rates, lower earnings at some big companies and the prospect that the long bull market has run its course.

Some market analysts said this plunge is part of a "correction" in stock prices, which surged follow-

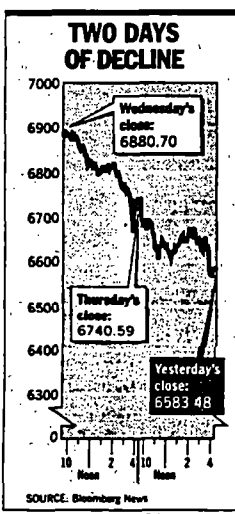
ing last November's presidential election, driving the Dow from the 6000 range to above 7000 in February.

"I think we're in for a very choppy period," said David Shulman, chief stock strategist at Salomon Brothers Inc. His opinion was shared by Peggy Farley, managing director of Amas Securities Inc., who noted that the market needs some good news to turn it around.

"There's a great deal of fear in the market," said Farley. Citing the Federal Reserve's decision last week to raise short-term interest rates to prevent inflationary pressures, she added, "The Fed's preemptive strike really did damage to the markets."

Many analysts said the Dow's

See STOCKS, A8, Col. 1



New Immigration Policy Left in Limbo by Ruling

By Pamela Constable
Washington Post Staff Writer

A federal judge decided yesterday to delay until Saturday implementation of a tough new immigration law, saying he agreed with immigrant advocacy groups that the public had not been given enough time to learn about the law's complex regulations.

Justice Department lawyers said last night that they might appeal the ruling by U.S. District Judge Emmet G. Sullivan. Immigration officials said it would cause "wide-scale confusion" and "significantly undermine" their ability to enforce the new law. That law will take effect today as scheduled without any of the regulations to guide immigration agents.

The officials warned that thousands of deportation cases could be jeopardized and that immigration agents at airports and borders would have to process more than 5 million people entering the country between today and Saturday, including several hundred thousand with questionable documents or other problems, without knowing exactly how to treat them.

The new law stiffens requirements for the granting of political asylum, makes it easier for the immigration service to deport arriving foreigners and makes it harder to win a waiver of deportation. It also requires all illegal immigrants to leave the country within the next six months or risk being

See IMMIGRATION, A8, Col. 5

A Mismatch: Too Few Fields In Youth Soccer

By Michael D. Shear
Washington Post Staff Writer

Jim Carlan needs \$1 million so more kids in Howard County can play soccer. He's got \$400,000 saved after 10 years of profits from soccer tournaments, and he's negotiating a lease on 30 acres near the county dump where he will create 13 new fields if he gets the rest of the money.

Either the 4,700 players in the Soccer Association of Columbia-Howard are going to have to sell an awful lot of T-shirts and candy bars—or a kids' game is going to hire professional fund-raisers to squeeze big donations out of corporations.

"It would take an awful lot of candy bars to fund this, so we are going to have to get bigger money," said Carlan, 58, the association's president. "It's getting to be a regular business, there's no question about that. It's not the



Children run sprints to warm up their legs for soccer practice at Rippon Middle School in Woodbridge.

mom-and-pop operation it used to be."

Across the Washington area, finding a place for children to play soccer is an increasing challenge, as the sport's popularity has surged. Financially squeezed local

governments haven't been able to develop enough fields for practices, games and tournaments to satisfy the demand.

That has forced area soccer clubs to do it themselves. Soccer moms and dads who lead the

groups find themselves forced to become high-stakes financial planners, setting up capital construction budgets that sometimes exceed \$1 million and hiring consultants who usually raise mon-

See SOCCER, A10, Col. 1

Artificial Human Chromosomes That Replicate Developed in Lab Scientists Aim to Ferry Curative Genes to Cells

By Rick Weiss
Washington Post Staff Writer

Scientists in Ohio have created the first artificial human chromosomes, an achievement that may someday allow doctors to alter people's genetic inheritance or cure diseases by slipping genetic "cassettes" directly into cells.

The artificial chromosomes, made in the laboratory from a blend of natural and synthetic human DNA, are miniature versions of human chromosomes—the sausage-shaped structures inside cells that carry all the genes required for life.

Scientists said the long-sought advance marks the first time anyone has created an artificial human chromosome that can replicate the way natural chromosomes do every time a cell divides.

In theory, the chromosomes could be custom designed to ferry curative genes into persons suffering from inherited diseases such as cystic fibrosis, or even to provide genetic enhancements such as added

protection against cancer. Immediately, the chromosomes will serve as miniature laboratory benches, helping scientists learn how genes are regulated inside cells—central question in biology.

Some predicted the success would also escalate concerns about scientists' increasing ability to manipulate genes, which reached new heights in February with the first cloning of an adult sheep. Artificial chromosome will not directly facilitate the cloning of animals or people, medical ethicists and others said, but they represent a similarly surprising and what disconcerting new power over basic biological and reproductive processes.

So far, the Ohio team has created only a handful of very small artificial chromosomes' inside laboratory-reared human cells, said geneticist John J. Harrington, who with Huntington F. Willard led the work at Case Western Reserve University in Cleveland.

The group hopes to inject some

See CHROMOSOME, A6, Col. 1

High Court Upholds Law Aiding Broadcasters Cable Operators Can Be Forced to Carry Local Television Stations

By Joan Biskupic
Washington Post Staff Writer

In a case affecting what television programming Americans receive, the Supreme Court ruled yesterday that cable systems can be forced to carry local broadcast television stations. The 5 to 4 ruling was a big victory for broadcasters that, in the

requiring cable television operators to carry the signals of local commercial and public broadcast television stations. That law, part of broad 1992 cable legislation, was intended to protect free over-the-air television broadcasting and especially smaller broadcasters that feared cable systems would shut them out completely.

More than 60 percent of Ameri-

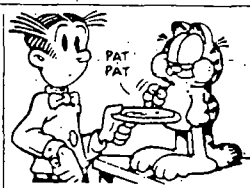
can cable companies eagerly carry the big three broadcast networks because of their wide viewership. But smaller broadcasters—such as Channel 20, Channel 50 and Howard University's public television station in Washington—risked being dropped by cable companies without the protection of the federal law. Yesterday's decision ensures that no matter how cable operators

Rabbis Speak Out

■ A group of Orthodox rabbis said Reform and Conservative Judaism, and every stream of Judaism other than Orthodoxy, are "not Jewish at all, but another religion."
NATION, Page A3

Winds Batter Region

■ In a March finale, fierce winds blew into the Washington region yesterday, driving snow squalls across the skies and



Comics Relief

■ Forty-six cartoonists have traded places for this one special day (look at the calendar) and the

Protest on Jerusalem

■ Arab foreign ministers urged renewal of their countries' boycott of corporations doing business with Israel
WORLD, Page A11

The Post on the Internet
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STATEMENT FROM DR. HAROLD VARMUS, NIH DIRECTOR
March 6, 1997

As I have said on many occasions, I fully support the President's ban on federal support for human cloning, his appeal for a voluntary moratorium by the private sector, and the review he has requested by the National Bioethics Advisory Board (NBAC). In my comments at yesterday's House hearing,* I said that I hoped imminent legislation on cloning would be held off while the President's NBAC hears public testimony and deliberates about the matter.

At yesterday's hearing, I explicated the broad range of possible applications for cloning--in animals and humans. Among them was application of cloning techniques in such cases as untreatable infertility. This possible application is one that would likely be brought to the NBAC for consideration at its public hearings. I feel strongly that public discussions on all aspects of human cloning are important and that the NBAC is the right forum for that.

* House Science Subcommittee on Technology.

February 25, 1997

Question and Answer on Cloning

Should scientists in the United States be allowed to conduct the kind of research which led to the cloning of adult sheep in Scotland? Should regulations be instituted? What kind?

- There are no prohibitions in the United States on this kind of research in animals. The techniques used have valuable implications for pharmaceutical and agricultural applications. For example, such techniques might help produce larger quantities of drugs that are less expensive. Ailments that could be treated range from emphysema to hemophilia. Other applications could include protein therapies and organ transplants.
- In 1994, the National Institutes of Health convened a panel of experts to address the issues surrounding preimplantation human embryo research and to make recommendations regarding the development of guidelines for funding such research. The panel's recommendations also addressed areas of research which would not be acceptable for federal funding. Among these were two relevant areas which were identified as being unacceptable for funding:
 - Cloning of human preimplantation embryos by separating blastomeres or dividing blastocysts (induced twinning), followed by transfer to the uterus.
 - Studies designed to transplant nuclei into an enucleated egg, including nuclear cloning, in order to duplicate a genome or to increase the number of embryos with the same genotype with transfer [to the uterus].
- The NIH panel's recommendations were not put into effect. On December 2, 1994, President Clinton issued an Executive Order which stated that NIH was not to allocate any resources to support the "creation of human embryos for research purposes." During the 1995 appropriations cycle, Congress passed legislative language which prohibits the funding of research involving *in vitro* embryos.
- On February 24, 1997, President Clinton asked the National Bioethics Advisory Commission to examine the ethical and legal implications of cloning. The NBAC is to deliver its report to President Clinton in 90 days. Among the issues to be discussed is the role of privately funded research, which at the present time is unregulated.

DRAFT Q and A on Cloning
March 3, 1997

Q. Why do this Presidential Directive on human cloning when the President has already referred the matter to his National Bioethics Advisory Board?

A. This is an interim measure to assure that no human cloning is conducted or supported by the the federal government while the NBAC is assessing the complexities of this area over the next several months.

Q. Isn't there already a law banning human embryo research? Why do you need a Presidential Directive?

A. The law is in the appropriations language for HHS (FY 1996 and FY 1997). It bans use of HHS funds for creation of human embryos for research and research in which human embryos are discarded. First of all, the law right now only covers studies funded by HHS (not the whole federal government). Second, this is such new technology that we simply want to be very, very clear about what is being put on hold at this time. Third, the law bans creation of human embryos for research purposes and does not cover creation of human embryos for procreation.

Q. What impact does a Presidential Directive have on the private sector?

A. The Presidential Directive only covers federal work or federally supported work. But, as a part of his message today, the President is asking the scientific community to refrain from human cloning at this time, while the NBAC has its deliberations. But, let me be clear, the majority of scientific experts believe that any prospect of successfully applying this cloning method to human beings in the near future is extremely remote.

Q. Is animal research like the sheep experiment affected by this Presidential Directive or by the appropriations law on embryo research?

A. No. This Presidential Directive refers to cloning of humans. The legislative ban also covers only human research. There is no ban nor should there be any ban on animal cloning. There is very important scientific work that can be accomplished using animals. This work will have important benefits for agriculture, medicine, and veterinary medicine. It could lead to improvements in organ transplantation and better treatments for burn patients and cancer patients. Also, by creating genetically identical animals, scientists testing drugs could use far fewer animals than they now need.

Q. And A. The Ban on Human Cloning

Q. The headline in today's Washington Post says that the Director of NIH is opposed to a ban on human cloning. Is that correct? Does this mean he disagrees with the President's stance?

A. Not at all. Dr. Varmus has said repeatedly (including at yesterday's Congressional hearing) that he supports the President's move to ban federal funding for human cloning. And the President's referral to the National Bioethics Advisory Commission. The headline of the Post is out of synchrony with the text and the facts. Dr. Varmus was commenting on the possibility of an imminent legislative ban.

Q. Didn't Varmus ask Congress at the hearings not to ban cloning?

at the hearing

A. Yes. He said he hoped that legislation on this matter is held off while the President's National Bioethics Advisory Commission hears public testimony and deliberates on the matter. (Their report due in 90 days from March 4.)

Q. Why did Varmus suggest that human cloning might be acceptable in some cases?

A. At the Congressional hearing, Varmus was laying out the broad range of possible applications for cloning--in animals and humans. Among them was application of cloning techniques in very rare circumstances, such as cases of untreatable infertility. He did not say he favored this application, only that consideration of it should be a part of public debate and the deliberations of the National Bioethics Advisory Board.

He has said repeatedly that he finds the notion of human cloning for experimental purposes personally offensive. He has said he agrees with the President's assertions that human cloning for any purposes poses huge ethical challenges.

Q. What does the President think about the use of cloning to treat infertility?

A. He's going to wait for the report from the National Bioethics Advisory Commission.

NOTE: Mr. Ehlers introduced two bills yesterday HR922 and HR923, one would permanently ban any federal funding for human cloning research and the other would ban human cloning altogether even with private funds.

NOTE: USED BUT NOT ISSUED.

3/6/97

Q. Are studies on animal cloning now being conducted or supported by the government?

A. Yes. There are animal studies related to cloning being funded by the government. These are seen as important studies that are not affected by this Presidential Directive.

Anne Thomas, NIH
(301)-496-4461

Monkeys Cloned for First Time

Oregon Scientists Created Primates From Embryos Not Adult Cells

By Rick Weiss and John Schwartz
Washington Post Staff Writers

Scientists in Oregon have produced monkeys from cloned embryos, the first time a species so closely related to humans has been cloned, researchers said in interviews yesterday.

The scientists used a technique similar to the one that Scottish researchers announced last week had enabled them to clone a sheep. Experts said the cloning success in Oregon, which has not yet been announced, adds to a growing body of evidence that there are no insurmountable biological barriers to creating multiple copies of a human being.

"It demands that we take seriously the issue of human cloning," said Arthur Caplan, a bioethicist at the University of Pennsylvania.

The two monkeys, born in August, were cloned from cells taken from embryos, not from an adult—a crucial difference between them and Dolly, the sheep cloned by the Scottish researchers. The cloned primates are not genetically identical to any adult monkey, an aspect of the sheep experiment that raised a host of thorny ethical issues.

Lead researcher Don Wolf, a senior scientist at the Oregon Regional Primate Research Center in Beaverton, and director of the human in vitro fertilization laboratory at Oregon Health Sciences University in nearby Portland, said researchers do not plan to produce clones from adult monkeys.

"This is really an effort to see if we can create genetically identical monkeys for research," he said. Far fewer of these carbon-copy research animals will be needed in drug experiments, for example, because their sameness would eliminate much of the genetic variability that confounds such experiments, Wolf said. "It would allow you to ask questions with fewer animals," he said.

The two monkeys created in Oregon are not identical to each other because they were cloned from different embryos. But researchers said the technique could be used to create eight or more identical monkeys from a single embryo, and that further advances could lead to the ability to make clones of adults as well.

The work, at the federally funded facility has yet to be published in a scientific journal.

The monkeys were created in a two-step technique. First, researchers created several monkey embryos using a standard in vitro fertilization method of mixing eggs from a single

female with sperm in a petri dish. Once the embryos had divided into eight cells, Wolf and colleagues teased apart the embryos' cells.

In the second step, the scientists took one full set of chromosomes from each embryo cell and inserted each batch into a fresh egg cell whose DNA had been removed. Each of those cells then had the potential to become a new embryo. Nine successfully developed into embryos and were implanted into female monkeys, three of whom became pregnant. One fetus died.

The two monkeys "seem totally normal," Wolf said. Although they were carried by separate surrogate mothers, they are brother and sister because both embryos were created by mixing eggs and sperm from the same mother and father. If more than one cell from any single embryo had survived, the resulting newborns would have been genetically identical.

The same technique has already been used to clone embryos in other species less closely related to humans. Scottish researcher Ian Wilmut and his colleagues also used the technique to clone sheep embryos last year, an intermediate step to their successful cloning of Dolly from an adult.

Scientists said that by adding the technology of genetic engineering, the cloning technique could allow scientists to grow colonies of identical animals with made-to-order characteristics. "This is a step toward designing animals with specific diseases" for drug testing and other purposes, said Dorothy Boatman, a reproductive biologist at the Wisconsin Regional Primate Research Center in Madison. "It looks very interesting," said Boatman who, with husband Barry Bavister, achieved the first successful birth of a monkey through in vitro fertilization in 1984.

Aspects of the technique could eventually help infertile women, Wolf said.

Some researchers say that problems with the egg, not the genetic material in it, might be at the root of fertility problems in older women. If even a single embryo could be created through in vitro fertilization in such women, healthy genetic material from its cells could be inserted into eggs that had been retrieved from a younger donor and whose genes had been removed. The resulting embryos, containing all the genes of the mother and father, could be transferred back to the biological mother.

Caplan, the bioethicist, said cloning

is still far too expensive and results in too many abnormal embryos to be practical for humans. Also, he said, public outcry over the prospect of human cloning means that "You're probably heading down the path to criminal arrest, not the Nobel Prize, if you try this in people."

FOR MORE INFORMATION
To read full coverage of the cloning issue and opinions on cloning humans, click on the above symbol on the front page of The Post's Web site at www.washingtonpost.com.

Morris, Arney, Lott, Moynihan On News Shows

Guests to be interviewed today on major television talk shows:

Political strategist Dick Morris; Sens. Don Nickles (R-Okla.) and Robert G. Torricelli (D-N.J.); former senator Dennis DeConcini (D-Ariz.); and Lee P. Brown, former Clinton administration drug policy chief, on "Fox News Sunday" (WTTG) 9 a.m.

House Majority Leader Richard K. Arney (R-Tex.) and Sens. Orrin G. Hatch (R-Utah) and Daniel Patrick Moynihan (D-N.Y.) on "Meet the Press" (NBC, WRC) 10:30 a.m.

Sens. Thad Cochran (R-Miss.) and Carl M. Levin (D-Mich.); Rep. Dan Burton (R-Ind.); National Drug Control Policy Director Barry R. McCaffrey; and Stephen Jones, attorney for Oklahoma City bombing defendant Timothy J. McVeigh, on "This Week" (ABC, WJLA) 11:30 a.m.

Senate Majority Leader Trent Lott (R-Miss.) on "Face the Nation" (CBS, WUSA) 11:30 a.m.

White House special counsel Lanny Davis, and Sens. Mitch McConnell (R-Ken.) and Paul D. Wellstone (D-Minn.) on "Late Edition With Frank Sesno" (CNN), noon.

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TLOOK

Commentary and Opinion

Should We Cut This Out?
Human Cloning Isn't as Scary as It Sounds

By Robert Wachbroit

The recent news of the successful cloning of an adult sheep—in which the sheep's DNA was inserted into an unfertilized sheep egg to produce a lamb with identical DNA—has generated an outpouring of ethical concerns. These concerns are not about Dolly, the now famous sheep, nor even about the considerable impact cloning may have on the animal breeding industry, but rather about the possibility of cloning humans. For the most part, however, the ethical concerns being raised are exaggerated and misplaced, because they are based on erroneous views about what genes are and what they can do. The danger, therefore, lies not in the power of the technology, but in the misunderstanding of its significance.

Producing a clone of a human being would not amount to creating a "carbon copy"—an automaton of the sort familiar from science fiction. It would be more like producing a delayed identical twin. And just as identical twins are two separate people—biologically,

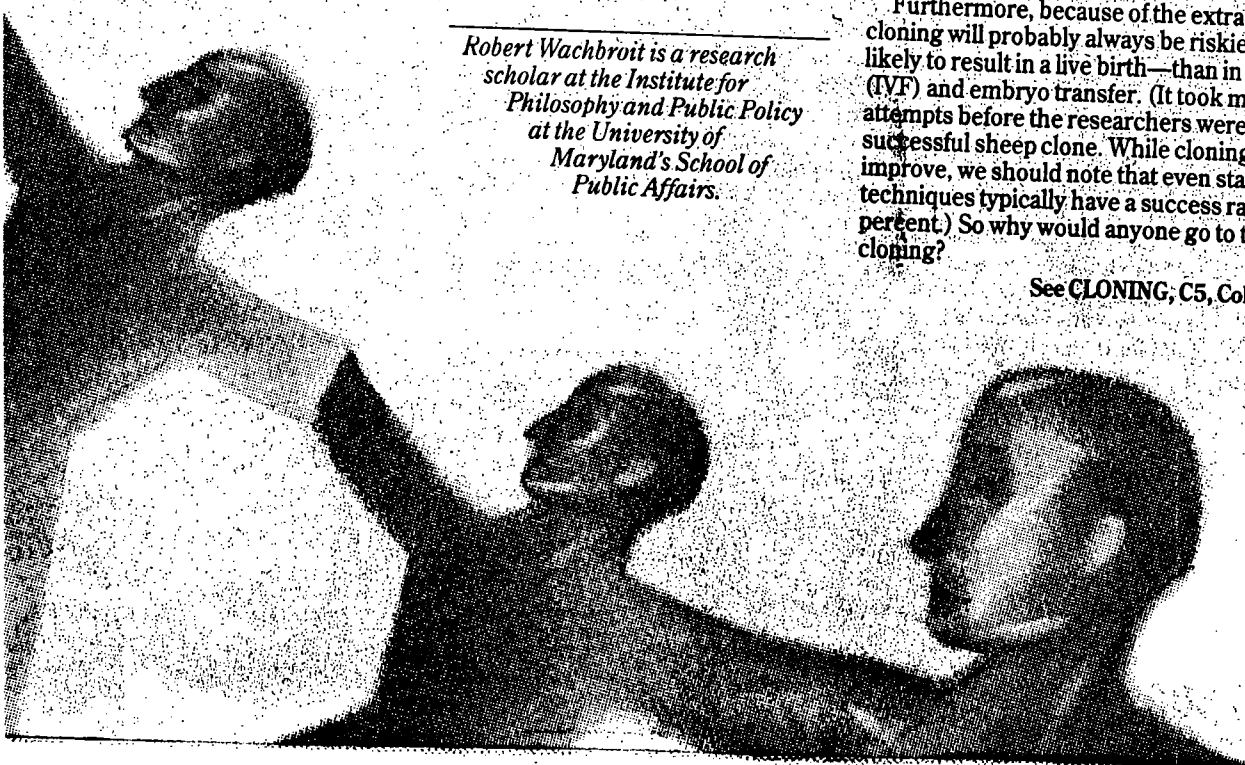
psychologically, morally and legally, though not genetically—so a clone is a separate person from his or her non-contemporaneous twin. To think otherwise is to embrace a belief in genetic determinism—the view that genes determine everything about us, and that environmental factors or the random events in human development are utterly insignificant. The overwhelming consensus among geneticists is that genetic determinism is false.

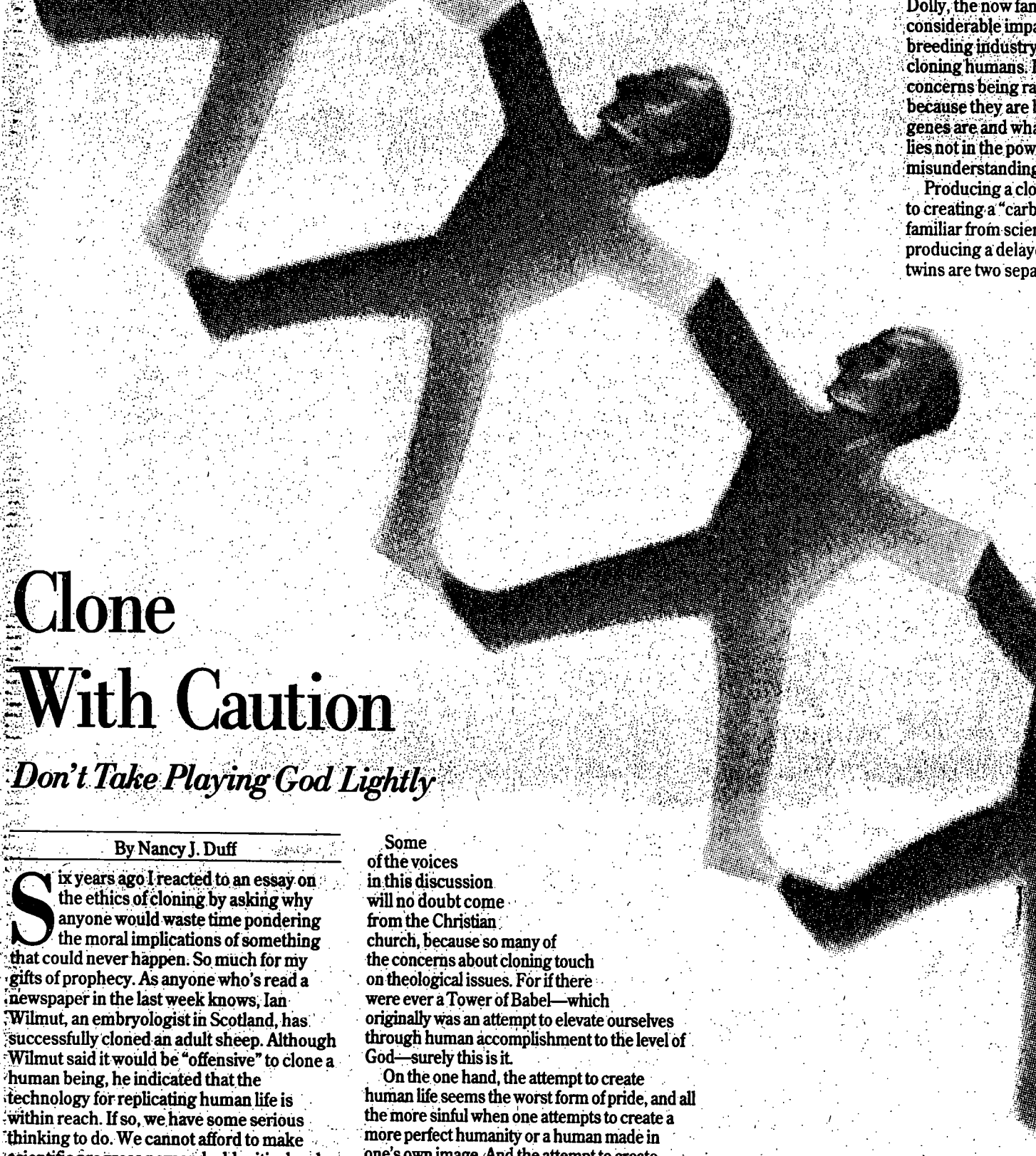
As geneticists have come to understand the ways in which genes operate, they have also become aware of the myriad ways in which the environment affects their "expression." The genetic contribution to the simplest physical traits, such as height and hair color, is significantly mediated by environmental factors. And the genetic contribution to the traits we value most deeply, from intelligence to compassion, is conceded by even the most enthusiastic genetic researchers to be limited and indirect. Indeed, we need only appeal to our ordinary experience with identical twins—that they are different people despite their similarities—to appreciate that genetic determinism is false.

Furthermore, because of the extra steps involved, cloning will probably always be riskier—that is, less likely to result in a live birth—than in vitro fertilization (IVF) and embryo transfer. (It took more than 275 attempts before the researchers were able to obtain a successful sheep clone. While cloning methods may improve, we should note that even standard IVF techniques typically have a success rate of less than 20 percent.) So why would anyone go to the trouble of cloning?

See CLONING, C5, Col. 1

Robert Wachbroit is a research scholar at the Institute for Philosophy and Public Policy at the University of Maryland's School of Public Affairs.





Clone With Caution

Don't Take Playing God Lightly

By Nancy J. Duff

Six years ago I reacted to an essay on the ethics of cloning by asking why anyone would waste time pondering the moral implications of something that could never happen. So much for my gifts of prophecy. As anyone who's read a newspaper in the last week knows, Ian Wilmut, an embryologist in Scotland, has successfully cloned an adult sheep. Although Wilmut said it would be "offensive" to clone a human being, he indicated that the technology for replicating human life is within reach. If so, we have some serious thinking to do. We cannot afford to make scientific progress now and add critical and moral insight later.

Nancy Duff is an associate professor of theological ethics at Princeton Theological Seminary.

Some of the voices in this discussion will no doubt come from the Christian church, because so many of the concerns about cloning touch on theological issues. For if there were ever a Tower of Babel—which originally was an attempt to elevate ourselves through human accomplishment to the level of God—surely this is it.

On the one hand, the attempt to create human life seems the worst form of pride, and all the more sinful when one attempts to create a more perfect humanity or a human made in one's own image. And the attempt to create more nearly perfect human beings raises the specter of having a power over human beings that the church ascribes only to God.

On the other hand, while issuing this warning
See SOUL, C5, Col. 3

was inserted to produce generated concerns. Dolly, the now famous, considerable impact cloning industry, but cloning humans. For the concerns being raised are because they are the genes are and what they lies not in the power of the misunderstanding of its. Producing a clone of to creating a "carbon copy" familiar from science fiction producing a delayed identical twins are two separate p

R

James Earl Ray Has Already Had His Day in Court

*A Trial Won't Answer the Questions
That Remain About King's Murder*

By Richard Billings

There is no statute of limitations on murder, and it is never too late to know the truth, but it is patent nonsense for to relive the nightmare of Martin Luther King Jr.'s assassination by bringing the dying James Earl Ray to trial.

MARY McGRORY

Good Bill, Bad Bill

The best and worst of Bill Clinton have been on display lately, one so different from the other that you wonder if they are found in the same person.

The good Bill Clinton went with his wife Hillary to a school in a poor part of town and spent more than an hour reading and talking to the students of Garrison Elementary School. The president appeared to be in his element. Mrs. Clinton does this sort of thing perfectly. It was the best imaginable use of their time. It validated their common claims of interest in children, their determination to to read. It reminded some voters why they voted

city dwellers who say they are too busy to tutor in the slums. Their involvement in the affairs of the hapless Capital City long overdue—they ignored the shambles at their feet for four years because of the radioactive Mayor. Concentrating on the schools by Marion Barry and his crony-ridden government. As Stephanie Abney, a first-grade teacher at Garrison, explained to Post reporter Debbi Wilgoren, children who have never been read to don't do well in first grade—that's why it's so important to have tutors, because they're filling that gap.

That was Clinton at his best, calling

What's So Scary About Human Cloning?

CLONING, From C1

There are, of course, a few reasons people might go to the trouble, and so it's worth pondering what they think they might accomplish, and what sort of ethical quandaries they might engender. Consider the hypothetical example of the couple who wants to replace a child who has died. The couple doesn't seek to have another child the ordinary way because they feel that cloning would enable them to reproduce, as it were, the lost child. But the unavoidable truth is that they would be producing an entirely different person, a delayed identical twin of that child. Once they understood that, it is unlikely they would persist.

But suppose they were to persist? Of course we can't deny that possibility. But a couple so persistent in refusing to acknowledge the genetic facts is not likely to be daunted by ethical considerations or legal restrictions either. If our fear is that there could be many couples with that sort of psychology, then we have a great deal more than cloning to worry about.

Another disturbing possibility is the person who wants a clone in order to have acceptable "spare parts" in case he or she needs an organ transplant later in life. But regardless of

the reason that someone has a clone produced, the result would nevertheless be a human being with all the rights and protections that accompany that status. It truly would be a disaster if the results of human cloning were seen as less than fully human. But there is certainly no moral justification for and little social danger of that happening; after all, we do not accord lesser status to children who have been created through IVF or embryo transfer.

There are other possibilities we could spin out. Suppose a couple wants a "designer child"—a clone of Cindy Crawford or Elizabeth Taylor—because they want a daughter who will grow up to be as attractive as those women. Indeed, suppose someone wants a clone, never mind of whom, simply to enjoy the notoriety of having one. We cannot rule out such cases as impossible. Some people produce children for all sorts of frivolous or contemptible reasons. But we must remember that cloning is not as easy as going to a video store or as engaging as the traditional way of making babies. Given the physical and emotional burdens that cloning would involve, it is likely that such cases would be exceedingly rare.

But if that is so, why object to a ban on human cloning?

What is wrong with placing a legal barrier in the path of those with desires perverse enough or delusions recalcitrant enough to seek cloning despite its limited potential and formidable costs? For one thing, these are just the people that a legal ban would be least likely to deter. But more important, a legal barrier might well make cloning appear more promising than it is to a much larger group of people.

If there were significant interest in applying this technology to human beings, it would indicate a failure to educate people that genetic determinism is profoundly mistaken. Under those circumstances as well, however, a ban on human cloning would not only be ineffective but also most likely counterproductive. Ineffective because, as others have pointed out, the technology does not seem to require sophisticated and highly visible laboratory facilities; cloning could easily go underground. Counterproductive because a ban might encourage people to believe that there is a scientific basis for some of the popular fears associated with human cloning—that there is something to genetic determinism after all.

There is a consensus among both geneticists and those writing on ethical, legal and social aspects of genetic research, that genetic determinism is not only false, but pernicious; it invokes memories of pseudo-scientific racist and eugenic programs premised on the belief that what we value in people is entirely dependent on their genetic endowment or the color of their skin. Though most members of our society now eschew racial determinism, our culture still assumes that genes contain a person's destiny. It would be unfortunate if, by treating cloning as a terribly dangerous technology, we encouraged this cultural myth, even as we intrude on the broad freedom our society grants people regarding reproduction.

We should remember that most of us believe people should be allowed to decide with whom to reproduce, when to reproduce and how many children they should have. We do not criticize a woman who takes a fertility drug so that she can influence when she has children—or even how many. Why, then, would we object if a woman decides to give birth to a child who is, in effect, a non-contemporaneous identical twin of someone else?

By arguing against a ban, I am not claiming that there are no serious ethical concerns to the manipulation of human genes. Indeed there are. For example, if it turned out that certain desirable traits regarding intellectual abilities or character could be realized through the manipulation of



BY SAM HUNDLEY FOR THE WASHINGTON POST.

FOR THE RECORD

Britain, Spain, Denmark, Germany and Australia have laws barring human cloning; legislation is pending in Canada. Formal U.S. restrictions on human cloning do not exist; laws restricting use of federal funds on human embryo research might not apply.

After news of Scotland's sheep cloning broke, New York state Sen. John Marchi introduced a bill that would make it a felony to clone humans. New York would be the first U.S. state to ban human cloning.

human genes, which of these enhancements, if any, should be available? But such questions are about genetic engineering, which is a different issue than cloning. Cloning is a crude method of trait selection: It simply takes a pre-existing, unengineered genetic combination of traits and replicates it.

I do not wish to dismiss the ethical concerns people have raised regarding the broad range of assisted reproductive technologies. But we should acknowledge that those concerns will not be resolved by any determination we make regarding the specific acceptability of cloning.

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against attempting to play God, theologians should remind people that even the awesome ability to replicate humans would not actually turn us into gods. The belief that advances in scientific technology decrease the power of God as they proportionately increase human power itself represents hubris and self-deception. No matter how successful we are at putting together the right biological material to replicate life, we do not, as God does, call life into being. If we proceed with research into cloning we must do so with humility, and the recognition that human cloning would not mean we have become our own creators.

But the procedure does provide yet another potential means for humans to act as our own destroyers. Although cloning does not involve fertilizing an egg, but rather transplanting the DNA from the cell(s) of one animal to another, once the newly fused DNA and egg have been implanted into a uterus, this material develops into a new life. So, the same question that plagues debates over abortion and artificial means of reproduction would apply to human cloning: When does human life begin?

Traditionally, Roman Catholics have held that "ensoulment" occurs at conception, so that anytime a fertilized egg is lost, a human life is lost as well. While cloning sidesteps conception, one could ask whether "ensoulment" occurs at the moment the DNA is successfully transferred from one cell to the next. Even those who do not employ the language of "ensoulment" can acknowledge concern for whether a failed attempt at human cloning would indicate the failure to combine genetic material—or the loss of an individual human life. That question must be debated, and if we proceed with research in cloning we must proceed with a profound respect for life.

Another question human cloning raises is whether the process breaks biblical and natural laws that reveal God's will for procreation between man and woman. One scientist even suggested (humorously) that human cloning could eliminate the need for men. But it is doubtful that conceiving children in the old-fashioned way will ever become unpopular. Neither men nor women, fathers nor mothers, will become obsolete.

One cannot, however, dismiss concern for the child brought into being through cloning. What kind of identity crisis would arise if one were a duplicate of one's father or mother or diseased sister (and knew that one was brought into being to be a duplicate)? We must weigh a couple's

desire for a genetically preplanned child against the best interest of children. Until we have more information on the effect of existing artificial means of reproduction (such as artificial insemination with an anonymous donor) on the children and families they produce, surely we must prohibit the cloning of human beings. If we proceed with research in cloning, we must do so with extreme caution.

Besides the questions involving human cloning, the church must ask if the ownership and manipulation of animal life and species is consistent with the command to have dominion over the earth. Those faithful to their Judeo-Christian heritage should not only be concerned about the well-being of humanity, but about the welfare of all of God's creatures. What does it mean to hold a patent on a species of animals? Has dominion over the earth's creatures moved too far into the arena of objectification through ownership and control?

But there is a danger as well in rigid opposition to cloning. If the church supports a total ban on all cloning, does it not risk admitting that reason must be fettered by ignorance in order to protect our faith? (One is reminded that Galileo was sentenced first to life in prison, and then to house arrest, for "vehement suspicion of heresy," because he supported the Copernican view that the earth moves around the sun, a view deemed by the Inquisition to contradict biblical claims for a stationary earth.) Surely the faithful can thank God for the incredible resources of the human mind and for the accomplishments of human science and pray for their progress.

But while we should thank God for human resourcefulness, we also must acknowledge the human capacity to misuse those resources and scientific accomplishments for evil purposes. Rather than burying our heads in the sand by calling for a moratorium on all such research (for fear that animal cloning will inevitably lead to human cloning), or leaving the scientific world to regulate itself, the church (along with other religious bodies, governmental agencies, lawyers, etc.) must help forge a responsible path for this new technology before it proceeds further. We should, I believe, encourage science to proceed cautiously, openly and with a willingness to be regulated by institutions that seek not only to promote science or monetary gain, but to protect the public good.

THE FEDERAL PAGE

Issues of Cloning Research to Be Placed Under Microscope *Bioethics Commission Will Aim to Help Clarify Federal Role in Regulating Rapidly Changing Science*

By Rick Weiss
Washington Post Staff Writer

"All we like sheep, have gone astray," goes the libretto from Handel's "Messiah."

Those words will echo in churches during upcoming Easter services, but are equally thematic for an 18-member ensemble called the National Bioethics Advisory Commission, which in two weeks will stage a special performance for President Clinton at the Watergate Hotel.

The panel of experts in medicine, law and ethics will convene at a March 13-14 meeting the extent to which we humans are indeed like sheep. And given the recent startling news that scientists have learned how to clone adult sheep, it will consider whether we would be going too far to apply some of those techniques to people.

Just one week Clinton asked the commission to put aside its current work on genetic privacy and the protection of human research subjects to conduct an emergency analysis of the legal and ethical implications of the recent cloning work. The task is enormous and represents the first true test of the commission, which has suffered from a lack of funds and an uncertain future since Clinton created it in 1995.

Becoming the commission's arcane funding apparatus, which relies on an atypical degree of coordination among several different federal agencies, money for its staff and research expenses was not forthcoming until early this year—more than a year into the group's two-year mandate from Congress. Meanwhile, uncertainty about whether Congress will extend the commission's life beyond its current expiration date of Oct. 3 has forced the group to organize its work in a cumbersome dual-track agenda. One track assumes a close of business this fall, the other looks ahead to what the commission might do if it gets budgeted for another term.

Now the commission must quickly change gears and provide within 90 days of last week's presidential request an intelligent assessment of one of the most difficult bioethical questions to arise in decades: In what ways should the federal government involve itself in the quickly evolving field of mammalian cloning?

History offers few insights into how successful the commission will be. The first national bioethics commission, created in 1974, quickly issued its first report (addressing research on human fetuses) and its recommendations were codified immediately as federal regulations. Before expiring in 1978, it created widely respected reports on the protection of human research subjects, including prisoners and children, which also became law.

By contrast, the last federal ethics board, created by Congress in 1985, turned into a battlefield over abortion issues. The board expired in 1989 without issuing a single report.

Many members of the current commission have a wealth of experience that could help the group succeed, having sat on such high-profile committees as the Recombinant DNA Advisory Commission (which examines proposals to alter people's genes) and the ill-fated National Institutes of Health (NIH) Human Embryo Research Panel, whose 1994 conclusions to allow certain kinds of embryo research were quickly overridden by Congress.

proven possible in people. Instead the group will provide context and general advice, said commission member Alexander M. Capron, co-director of the Pacific Center for Health Policy and Ethics at the University of Southern California Law Center in Los Angeles. The panel's agenda has not been finalized but a commission spokesman said time would probably be allotted for public comment.

"A big part of the value is that clarifying function," Capron said, "sorting out of what's real about this and what is science fiction, and to what extent is this a problem we already have means of coping with and where might we need to have more regulation, legislation or guidance. If we engage in it carefully and publicly, then we'll have heard from most of the key people on the subject and can be comprehensive in our report."

One unglamorous but important task the commission will try to accomplish is compiling a list of the various state and federal regulations that already apply to cloning and embryo research. "There are states that have statutes trying to restrict embryo research. We need to know how many there are and what those statutes say," said commission member R. Alta Charo, a law professor at the University of Wisconsin in Madison. "Other states have restrictions on fetal research, but the definition of fetus can in some states be interpreted to include embryos."

Federal funding of embryo research for the past two years has been blocked by Congress through an appropriations rider that applies to the departments of Health and Human Services, Labor and Education. Technically, Charo said, that means other federal departments could still fund such research. And while the Transportation Department, for example, is unlikely to pay for cloning research (unless, perhaps, there was a sudden shortage of truck drivers), the patchy and temporary nature of the current ban is something the government may want to address.

The commission also may examine how well current restrictions on cloning research might withstand a legal challenge. Some scholars recently have proposed that the First Amendment guarantees a freedom to think and inquire, and that federal restrictions on scientific research could be interpreted as an abridgment of that right of inquiry.

With some members of Congress talking about banning all cloning research regardless of the source of funding, questions also arise regarding federal jurisdiction. Usually the government relies on interstate commerce laws to regulate private enterprise, but recent rulings have narrowed the applicability of those laws such that their usefulness in banning embryo research is uncertain.

Legalities aside, experts said, the prospect of human cloning gives rise to profound ethical questions for the commission to consider. What are the potential psychological impacts of being born as a genetic duplicate of one's parent? More generally, how does cloning fit in with current regulations that require a risk-benefit analysis for all human research, when neither the risks nor the benefits of cloning are well understood?

For example, said NIH Director Harold E. Varmus, there may be hidden risks in making a person from a cell that is already many years old. If that cell has accumulated mutations during its years in another adult, the resulting clone might be born with a predisposition to cancer

A CLOSER

THE NATIONAL BIOETHICS ADVISORY COMMISSION

Created: October 1995 by Presidential executive order 12975.

Members: 18 people, appointed by the President, terms ranging from two to five years.

Chairman: Harold T. Shapiro, president of Princeton University.

Mission: To provide advice and recommendations to the President, the Technology Council and other federal agencies regarding bioethical issues, including biological and behavioral research and applications of such research.

Restrictions: Not responsible for the approval of specific projects.

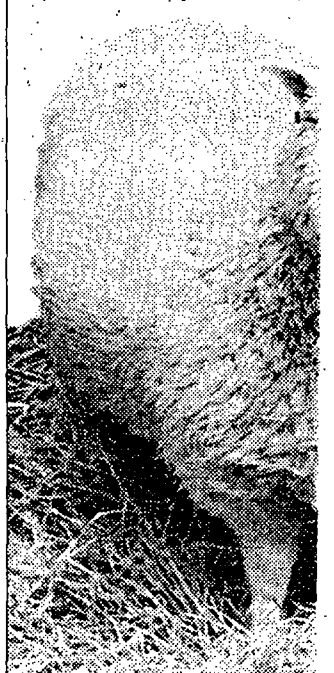
Priorities: Directed to focus first on the protection of the rights and welfare of research subjects and the protection of genetic information, including privacy and the patenting of genes.

Meetings: Up to 10 per year, as announced in the Federal Register or the public.

Funding: \$1.6 million for fiscal year 1996, by various federal agencies.

Sunset clause: Expires Oct. 3, 1997. Congress opts to extend its budget negotiations.

President Clinton asked the commission to study the implications of the recent production of Dolly.



ERAL PAGE

Research to Be Placed Under Microscope to Help Clarify Federal Role in Regulating Rapidly Changing Field

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A CLOSER LOOK

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Chairman: Harold T. Shapiro, economist and president of Princeton University.

Mission: To provide advice and make recommendations to the National Science and Technology Council and other government entities regarding bioethical issues arising from human biological and behavioral research and clinical applications of such research.

Restrictions: Not responsible for the review or approval of specific projects.

Priorities: Directed to focus first on two issues: the protection of the rights and welfare of human research subjects and the management and use of genetic information, including issues of genetic privacy and the patenting of genes.

Meetings: Up to 10 per year in various cities, announced in the Federal Register and open to the public.

Funding: \$1.6 million for fiscal 1997, contributed by various federal agencies.

Sunset clause: Expires Oct. 3, 1997, unless Congress opts to extend its life in upcoming budget negotiations.

President Clinton asked the commission to analyze the implications of the recent cloning work that produced Dolly.



Jessica Mathews

Post-Clone Consciousness

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isolation, entitlements, term limits, a host of cultural questions. The leader who can find them some shared common purpose on these questions, rather than merely trying to make himself agreeable to all, could be a winner.

So there is an opportunity for an issues Houdini who can bring a measure of effective ideological peace or at least civil order to the Republican Party.

You hear talk of senators like John McCain and Fred Thompson. There are no doubt others. What the challenge will take is someone who can do more than briefly paper over differences or who is willing to continuously remake himself to appease this faction or the other, as so many of the Republican presidential wannabes were doing last time. That is the opposite of stature. What is required is stature plus the political skill and guts to bring a workable degree of order to the currently fragmented troops. I suspect that whoever succeeds will have to take some pretty big hits first, will have to get into some pretty big fights, will have to demonstrate both self-confidence and a capacity to stand there and take it. It won't be one of those poll-created, papier-mache guys.

Maybe, of course, it will be no one. The moment and the opportunity could pass all the likely candidates by, just as has happened in both parties time and again over the years. For all I know we could just end up watching an interminable bicker over whose fault it is that both sides finally killed some reform legislation neither wanted, and see a reversion to the sterilities of Campaign '96—in which (think about this) we may be stuck forever. But such an outcome is not foreordained. The bipartisan lassitude and disorder of the moment may not be what the politicians in both parties had in mind with all that high-flown talk of bipartisanship a few months back. But it is full of promise for some smart political comer.

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William Raspberry

An O.J. Of Our Own

It wasn't supposed to end like this. It wasn't Terrence Johnson the cop killer and criminal who was supposed to emerge at the end of the saga that had gripped metropolitan Washington for nearly two decades. It was to be the Terrence Johnson who got it together, who finished high school and earned a college degree while serving 17 years in prison for killing two Prince George's County police officers and who, befriended by a lawyer, went on to become one.

Right up until last Thursday, when, on his 34th birthday, he apparently killed himself in the aftermath of a bank robbery gone bad, Terrence Johnson seemed always on the brink of getting it together.

Police say Johnson and his 35-year-old brother Darryl robbed an Aberdeen, Md., bank and fled on foot, only to be cornered by pursuing officers. When the officers ordered the men to lie down on the ground, they say, Darryl complied. But Terrence turned to face the officers, still 15 feet away, put a gun to his own head and fired.

Terrence Johnson burst on the scene in 1978, when he and a younger brother, Melvin, were arrested and brought to the Hyattsville police station on suspicion of stealing \$90.75 from a

Thinking about the post-Dolly world, let it first be clear that there will never be a human clone in the sense that that word is generally understood, namely as an exact replica of another individual. As applied to humans, a clone is a literary conceit, not a scientific possibility.

A cloned sheep proves that it will probably soon be possible to make a genetically identical copy of a person, but that is not remotely the same thing as making another you or another me.

This is so because a human's genetic inheritance is not, as the usual metaphor portrays it, a precise and fixed blueprint. It is, rather, a set of changeable potentialities that act on an individual's environment and are acted upon by it. Much more than any other species, we are the result of nature (genes) and nurture (environment)—not merely the sum of the two but the product of a constant interplay between them.

A physical or emotional characteristic of our environment interacts with a particular genetic endowment to elicit a particular behavior that in turn puts the individual into a particular environment and so on and on in an endlessly complex pattern that makes a person unique.

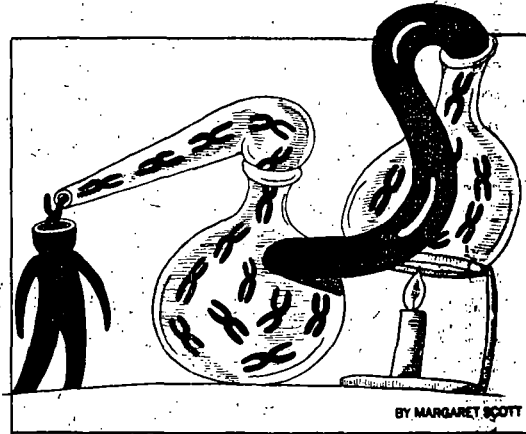
Identical twins reared separately provide a rough idea of how similar cloned people would be. While eerily alike in some respects (twins reunited in adulthood have shown up on the appointed day each wearing five rings; distributed on the same fingers), these genetically identical individuals also can be quite different. Clones would be even less alike because they would not have shared the same uterine environment. So much for apocalyptic visions of multiple Hitlers or even of the fantasy of reproducing oneself.

Dolly is an exciting scientific step because until now it was thought that cell differentiation in a higher organism—the pattern of gene expression through which an embryonic cell becomes a liver cell or a taste bud—is a one-way process that could not run backward. Dolly's genetic parent cell was in effect tricked into starting over. Animal cloning opens up enormous commercial opportunities with benefits for human health, food and more. And it promises tremendous insights into the cellular basis of aging—is Dolly seven months old, or six years and seven months, the age of the cell from which she was replicated?

For all that, however, this is more a philosophical than a scientific turning point. The great breakthroughs came 25 years ago with the discoveries that made it possible to clone genes: that is, the ability to fish out one gene from among the tens of thousands in an organism and make any number of copies of that particular stretch of DNA. With that came the ability to manipulate the gene in all kinds of ways, including transferring it from cell to cell or species to species. These were the discoveries that made bio-engineering possible, and they are the ones that have changed our lives—and perhaps the nature of human nature—forever.

Within the next 10 years, the 60,000 to 100,000 genes in the human genome will have been fully deciphered. Long before then, this flood of genetic information, combined with what biotechnology can do, will change the way we think about ourselves and our children-to-be and challenge ethics, religion, social values, personal privacy and legal protections.

When genetic screening becomes routine, will pregnancy become a matter of choosing among fetuses with hun-



*Dolly is one drop in a wave
about to crash over us.*

dreds of different dangerous or undesirable traits? What will it mean for religion when characteristics that have been innate through all of human history become a matter of choice? Do we share our genetic predispositions with a prospective spouse? Would we want to know them ourselves—do we have a "right" not to know?

If, as is likely, it becomes possible to alter genes that give rise to inherited diseases wouldn't we say yes to human eugenics? What about improving intelligence? Where will we draw lines?

What will happen if/when the genetically screened rich begin to diverge from the mass of humankind? How will the rest of the world feel about a global commerce based on genetic intellect property—once considered God's work or nature's—and all of it owned by companies in the developed world?

In one sense, Dolly is best understood as one drop in a towering wave that is about to crash over us. The achievement will prove enormously valuable if it galvanizes us into readying ourselves for this inundation of helpful, treacherous, value-shattering and life-saving information.

Americans will have to divorce the discussion of what should be allowed what should not from the debate about abortion. The link is through research on human embryos. Responses to Dolly this past week have ranged from Just Say No (ban human cloning and related work) to Just Do It (allow what comes but keep government regulation out). Neither is realistic. Science and commerce will march on. What now seems incomprehensible will be routine. The only good outcome is sensible, humane regulation, based not on courtroom decisions, but on broad, informed public debate. Understanding the science is the first, essential step.

The writer is a senior fellow at the Council on Foreign Relations.

BY T. GIBSON

Los The Sea · ch fo · a Wol' Are Be ef' s Sheep's Co · ig

By Rick Weiss
Washington Post Staff Writer

The announcement that Scottish scientists had cloned a sheep from a single udder cell quickly prompted Frankensteinian fantasies of the selfish wealthy inheriting their own fortunes and the wholesale cultivation of compatible organ donors.

Lost in the hoopla over Dolly the sheep, however, was the quiet excitement that biologists are expressing about the feat's more immediate accomplishment: the discovery of a way to change a cell's identity by reprogramming its genes—an achievement with enormous scientific and medical implications.

In essence, the Scottish researchers made an udder cell forget that it was an udder cell and made it think instead that it was an embryo cell, uncommitted to any particular organ and able to give rise to all the kinds of cells that together make a sheep.

The technique offers scientists a new way to explore the molecular mechanisms that turn genes on and off—the cellular switches and dimmers and circuit breakers that control the most fundamental processes of life. Once scientists learn how to flip those switches on or off as they please, a host of applications could quickly follow.

Cancer cells might be tamed by turning off the genes that drive those cells' untrammeled growth. Mature nerve cells, which typically do not regenerate if injured, might be convinced to regrow—a potential boon for people with spinal cord injuries.

A basic understanding of gene regulation could make it possible to grow new skin for burn patients, culture bone marrow for cancer patients or cure sickle cell anemia—a disease caused by a simple inherited glitch that could be cured with the flip of a genetic switch, if only scientists could reach out and touch it, said National Institutes of Health Director Harold E. Varmus.

Testifying before Congress last week, Varmus pleaded with lawmakers not to overreact to the cloning news by imposing restrictions that would unduly limit genetic research in early embryos. "You can argue about human cloning forever, and 90 per-

are active only in certain kinds of cells. The only difference between a liver cell, a brain cell and all the other kinds of cells in the body is the combination of genes that are turned on or off.

In the earliest stages of embryo development, specialized genes have not yet turned on and all cells have the potential to become any kind of cell. That is why scientists have long been able to clone entire animals from individual cells that have been separated from an early embryo.

But as the embryo grows, more and more cells become committed to a certain job in the body. In the language of developmental biology, they become differentiated.

Scientists have long believed that differentiation is a one-way process. Once a cell has gone down the developmental path to becoming a liver cell, it cannot become "undifferentiated" and then choose a new career as a kidney cell. This assumption was shattered when Ian Wilmut and his colleagues cloned Dolly from an udder cell.

"That cell had differentiated into a cell of the udder—it had met its destiny—and to find that it has everything readily available to start over again is amazing," said Carl Pinkert, a developmental biologist at the University of Alabama in Birmingham.

"This whole idea of cells being terminally differentiated was the dogma of our time," Pinkert said. "We thought there were irreversible genetic modifications. Now they've gone and taken a cell from a 6-year-old sheep and used it to make a new animal. This is a huge step for biology."

Wilmut and his colleagues succeeded by doing one thing that others had not tried: They starved the udder cell of crucial nutrients for several days in a petri dish before trying to clone it, which made the vast majority of that cell's genes turn off. In that quiescent state, the cell resembled an undifferentiated cell.

That wasn't enough by itself, however. Usually, when such a quiescent cell is awakened with a fresh meal of nutrients, a latent genetic program kicks in and only the genes that used to be activated turn on again. In effect, the cell remembers what kind of cell it was.

fused cell began dividing as though it were an embryo.

"The main part of getting genes to forget what they were doing is putting them in the cytoplasm of the egg," Wilmut said. "So now we want to know what is it in the egg's cytoplasm that . . . has that effect."

In experiments with yeast cells and frog embryos, scientists have identified some of the substances in eggs (scientists call them "maternal factors") whose job is to flip thousands of genetic switches into the proper positions to foster early embryo development. Most of these substances remain unidentified, but scientists know how they work: They attach to and manhandle DNA, literally bending the genes into configurations that turn them either on or off.

"The key players seem to be proteins that interact with DNA and that keep particular genes in an active or inactive state," said Colin Stewart, an embryologist at the National Cancer Institute's research center in Frederick, Md. Under the influence of these factors, Stewart said, most genes transplanted into an egg cell say to themselves: "Hey, I'm supposed to be on in an adult cell and here I am in an egg cell. I better turn off."

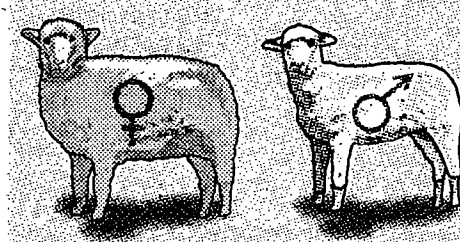
Now scientists hope to investigate these gene-regulating substances by studying embryos made by Wilmut's technique. In one possible experiment, scientists would block the activity of certain maternal factors and see how that affects embryo development. Step by step, such experiments could show which maternal factors regulate which genes.

"There are some studies looking at this in lower animals," Wilmut said. "What we will be able to do now is to think more optimistically about doing this kind of work with mammals."

Ultimately, scientists hope to make drugs that mimic the effects of individual maternal factors, with the aim of turning specific genes on or off as needed.

Varmus said doctors have had some success treating sickle cell anemia by giving a drug that boosts patients' production of a particular kind of hemoglobin in the blood. But the drug is not specific for the hemoglobin, and it works inefficiently and rarely.

NORMAL



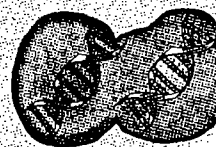
Egg cell

Sperm cell

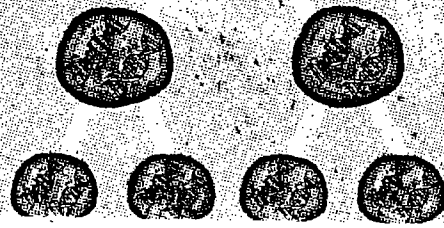


Embryo development starts when egg cell is fertilized by sperm cell. Egg and sperm each carry half of the genes needed to make an animal.

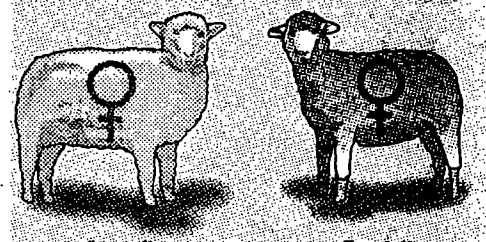
Cells fuse into single cell inside female



Cell begins dividing, forming embryo in uterus



CLONE



Any cell

Egg cell



Remove DNA

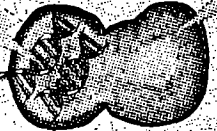


Scientists take single cell with full set of genes from animal they want to clone. Cell is maintained in special broth that temporarily turns off most of the cell's genes, making it resemble immature cell. They also remove egg cell from another animal and remove that cell's DNA.



Broth in Petri dish turns off DNA

Nutrients and jolt of electricity turn on dormant genes and fuse cell to egg whose DNA has been removed. The newly formed cell begins dividing to form embryo.



Cell begins dividing, forming embryo in Petri dish



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Cancer cells might be tamed by turning the genes that drive those cells' untrammeled growth. Mature nerve cells, which usually do not regenerate if injured, might be convinced to regrow—a potential boon for people with spinal cord injuries.

A basic understanding of gene regulation would make it possible to grow new skin for burn patients, culture bone marrow for cancer patients or cure sickle cell anemia—a disease caused by a simple inherited glitch that can be cured with the flip of a genetic switch, if only scientists could reach out and change it, said National Institutes of Health director Harold E. Varmus.

Speaking before Congress last week, Varmus pleaded with lawmakers not to react to the cloning news by imposing restrictions that would unduly limit genetic research in early embryos. "You can argue it's human cloning forever, and 90 percent of it is imagination run amok," Varmus said in an interview. "What this really raises, though, is a whole gamut of possibilities in human cloning." Virtually every cell in the human body contains a full set of the same 100,000 genes needed to make a complete person. Some of those genes are turned on in one kind of cell; these are the "housekeepers" that serve as a life support system for all cells. But other genes perform functions that are extremely specific, and

any kind of cell. That is why scientists have long been able to clone entire animals from individual cells that have been separated from an early embryo.

But as the embryo grows, more and more cells become committed to a certain job in the body. In the language of developmental biology, they become differentiated.

Scientists have long believed that differentiation is a one-way process. Once a cell has gone down the developmental path to becoming a liver cell, it cannot become "undifferentiated" and then choose a new career as a kidney cell. This assumption was shattered when Ian Wilmut and his colleagues cloned Dolly from an udder cell.

"That cell had differentiated into a cell of the udder—it had met its destiny—and to find that it has everything readily available to start over again is amazing," said Carl Pinkert, a developmental biologist at the University of Alabama in Birmingham.

"This whole idea of cells being terminally differentiated was the dogma of our time," Pinkert said. "We thought there were irreversible genetic modifications. Now they've gone and taken a cell from a 6-year-old sheep and used it to make a new animal. This is a huge step for biology."

Wilmut and his colleagues succeeded by doing one thing that others had not tried: They starved the udder cell of crucial nutrients for several days in a petri dish before trying to clone it, which made the vast majority of that cell's genes turn off. In that quiescent state, the cell resembled an undifferentiated cell.

That wasn't enough by itself, however. Usually, when such a quiescent cell is awakened with a fresh meal of nutrients, a latent genetic program kicks in and only the genes that used to be activated turn on again. In effect, the cell remembers what kind of cell it was.

In the Scottish experiment, the researchers fused the quiescent cell with a sheep egg cell and awakened the resulting "combination cell" with a meal of nutrient broth and a jolt of electricity. They already had removed the egg cell's own genes, or DNA, leaving behind the rest of the egg's guts, called cytoplasm. Apparently, Wilmut said, some substances in the egg's cytoplasm finished the job of erasing the donor DNA's memories. Having lost its udder identity, the newly

in experiments with yeast cells and frog embryos, scientists have identified some of the substances in eggs (scientists call them "maternal factors") whose job is to flip thousands of genetic switches into the proper positions to foster early embryo development. Most of these substances remain unidentified, but scientists know how they work: They attach to and manhandle DNA, literally bending the genes into configurations that turn them either on or off.

"The key players seem to be proteins that interact with DNA and that keep particular genes in an active or inactive state," said Colin Stewart, an embryologist at the National Cancer Institute's research center in Frederick, Md. Under the influence of these factors, Stewart said, most genes transplanted into an egg cell say to themselves: "Hey, I'm supposed to be on in an adult cell and here I am in an egg cell. I better turn off."

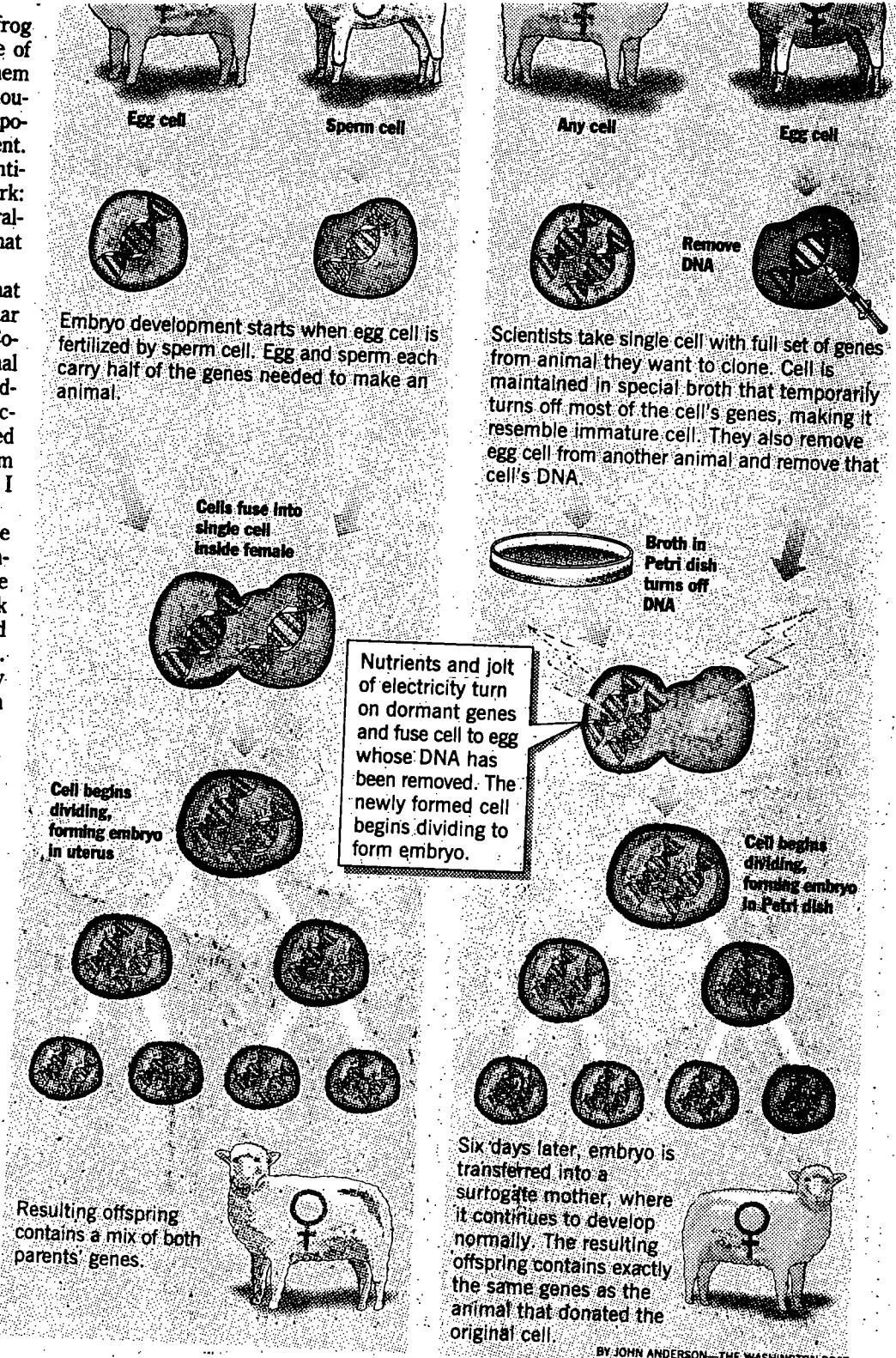
Now scientists hope to investigate these gene-regulating substances by studying embryos made by Wilmut's technique. In one possible experiment, scientists would block the activity of certain maternal factors and see how that affects embryo development. Step by step, such experiments could show which maternal factors regulate which genes.

"There are some studies looking at this in lower animals," Wilmut said. "What we will be able to do now is to think more optimistically about doing this kind of work with mammals."

Ultimately, scientists hope to make drugs that mimic the effects of individual maternal factors, with the aim of turning specific genes on or off as needed.

Varmus said doctors have had some success treating sickle cell anemia by giving a drug that boosts patients' production of a particular kind of hemoglobin in the blood. But the drug is not specific for the hemoglobin gene, so it works inefficiently and reduces symptoms by only about 50 percent. "If we could do better by turning on the hemoglobin gene directly, that would be great," Varmus said.

If all goes smoothly, scientists said, Dolly may be remembered as the sheep that heralded a new era in medical genetics—a far better fate than befell the female from whose udder she was cloned. That sheep, Wilmut said, has been eaten.



JUDY MANN

The Brave New World of Cloning

The cloning of Dolly would have been a spectacular event in human history even if she'd been anointed with a name that wasn't so perfect. USA Today got it right: "Hello, Dolly" was the only headline for the sheep that has ushered in an unknown and possibly quite wonderful—even magical by today's standards—era.

I'm not going to get totally Carol-Channing-gushy over this, especially in light of the news that Dolly was not named for her. Ian Wilmut, the embryologist who led the cloning team, has now revealed that the sheep that originated from a mammary cell was named after the most "impressive set of mammary glands" the researchers could think of: Dolly Parton's. Who says scientists aren't funny?

As one of the few (if not only) cattle barons who also writes a newspaper column (which tells you all you need to know about today's cattle business), I have an unusually personal take on the cloning of livestock. And on its potential for mischief.

Our cattle are fed nothing but water, grass, hay and grain. By contrast, the whole history of fiddling with nature to produce better meat or chicken is riddled with abuses. Beef and poultry producers, for example, have not been content to fatten up the animals through selective breeding and ample quantities of natural food. They've sped up the process with all sorts of hormones and additives that are now coming under heavy suspicion as causes of a variety of cancers. The whole organic food movement is a protective response to the agricultural industry's attempts to best mother nature through potentially carcinogenic pesticides and chemicals.

The cloning of an adult mammal now raises the possibility of the agricultural industry's cloning the most desirable cattle. If you are breeding cattle for the beef market, you might want cows that produce calves that have low birth weight (which helps calving) but then gain weight at such a ferocious speed that when the steer goes to market six months later it has the weight of a two-year-old bull. As for those troublesome cattle that jump cattle guards and stray, they're history. Who'd keep them in the gene pool?

The danger of selective breeding and cloning is that you lose genetic diversity in the herd—its best safeguard against disease. Anyone who has seen

pink-eye go through a herd knows the damage that one infected cow can create. Those doubting the importance of maintaining diversity in the gene pool need only look to the example of the cheetah, which is facing extinction, and has a gene pool so small that many of the animals are sterile. Those offspring that can reproduce no longer can breed protective diversity into the species.

The livestock industry has been in the forefront of reproductive technology. Artificial insemination is commonplace. For \$25 you can buy straws of semen from some of the great bulls of the American herds. Even with the vet bills for assisting in this endeavor, it's likely less expensive than keeping your own bull. Frozen embryos are now commonplace in cattle breeding: A red Angus cow grazing an Argentine prairie can give birth to a calf entirely of American parentage.

Given this record of pioneering, we can expect the livestock industry to take advantage of all that cloning can offer. But given, also, the industry's history of abuses of growth hormones, this is going to have to be closely regulated.

President Clinton made a good first response to Dolly when he asked the National Bioethics Advisory Commission, made up of experts from law, science, ethics, medicine and religion, to review the ethical and legal implications for humans of the new technology. Although there is a ban on federally funded research on human embryos, private companies are doing such research with no oversight. Britain is far ahead of us in deliberating this brave new world: It has passed a law against cloning humans. We've barely started the conversation.

We are only beginning, also, to understand the potential for new medicines from genetically engineered, protein-producing, cloned animals. Or their research potential. Experts are saying it will now be possible to breed animals whose organs can be transplanted into humans without the plague of rejection.

What is certain is that the genie is out of the bottle, and no one is going to put it back. It's like nuclear energy: We can rue it but it's here to stay. What we have to do now is understand the new biotechnology and make it work for the good. My daughter's advanced placement biology class has spent hours learning about this and discussing its ethical and moral implications.

The rest of us should do the same.

The Washington Post
FRIDAY, FEBRUARY 28, 1997

Eager to Emulate Cloning Feat, a Team Looks to Cows

By GINA KOLATA

On Saturday, on a gray afternoon when students at the University of Wisconsin at Madison were showing their prize Holstein cattle, Dr. Miassam M. Matalipova was trying to make her own prize cow: a clone.

From 10 A.M. until 5:30 P.M., she hunched over a microscope in the university's Animal Science Building, in a windowless room that is kept at 110 degrees, the temperature of a cow's uterus.

With infinite patience, Dr. Matalipova fused 12 skin cells from a 30-day-old calf fetus with 12 unfertilized cows' eggs, scavenged from ovaries fresh from the slaughterhouse the day before. If the experiment succeeds, at least one cloned calf, grown from a fetal skin cell, will be born in 10 months, the normal gestation time.

The attempt is not exactly the same as cloning an adult sheep, the feat that Dr. Ian Wilmut of the Roslin Institute near Edinburgh announced on Feb. 22. But it incorporates the crucial scientific advance made by Dr. Wilmut, which is to clone using a differentiated cell, one that has gone far enough in its development that it has already decided what it is, bone or blood or liver — or in this case, skin.

No one but Dr. Wilmut has ever cloned an animal from a differentiated cell, whether fetal or juvenile or adult. Until now, many thought that once a cell had differentiated, its DNA, the genetic material, could never go back to its original state; when egg met sperm and the DNA was ready to direct the growth of an embryo.

Dr. Matalipova and Dr. Neal First, the laboratory director, embarked on the ex-

periment after learning of Dr. Wilmut's success. In fact, Dr. Matalipova began preparing the skin cells on the basis of press reports even before she had seen Dr. Wilmut's scientific publication in the British journal *Nature*.

Dr. First, whom Dr. Wilmut considers his closest competitor, said he suspected that he was not alone in rushing to repeat some of Dr. Wilmut's work in another species. But cloning is tedious and often frustrating, so any results might be years in coming.

Dr. Matalipova, a petite Russian immigrant who is still learning English, began

News reports of success in Scotland were inspirational.

her experiment on Saturday by suctioning the nucleus — the central repository of a cell's DNA — out of unfertilized cow eggs, the size of the head of a pin. Working under a microscope that magnified the cells 100 times, she carefully poked a tiny pipette into the gelatin-like egg, tugging gently at the egg's nucleus until it finally swooped into the pipette, a gray sphere barely visible in the dribble of cytoplasm that accompanied it.

The egg was now deprived of its own DNA, of all the genetic instructions for the entire cow — whether it had been a spotted

or black cow, a good milk producer or a poor one. For the denucleated egg to develop into another individual, it needed another set of genetic instructions.

Using her microscope, Dr. Matalipova examined the fetal skin cells, long scraggly cells with protruding appendages like octopus legs, all growing so close to one another that their "legs" seemed hopelessly intertwined. Following Dr. Wilmut's procedure, Dr. Matalipova had starved the fetal cells for several days, so their DNA would no longer be replicating.

Ordinarily, scientists feed growing cells with a watery fluid that contains nourishing serum from blood as well as salts and energy sources, like the sugar glucose. If they deprive the cells of serum, the cells go into a state of suspended animation. They stop dividing, and some of the proteins that ordinarily cling to DNA, masking most of its genetic material, loosen or fall off.

Before she could use the fetal skin cells, Dr. Matalipova had to detach them from each other. She added an enzyme, and the nest of cells fell apart.

Still working under a microscope, Dr. Matalipova drew one of these round skin cells into her pipette. She carefully poked the pipette toward the egg cell so its tip was between the egg's luminous, viscous outer coating and the thin inner membrane that encases the body of the egg. Carefully, she pushed the skin cell into that space.

The next step was fusion: the actual joining of the skin cell with the egg. For eggs, researchers have discovered, a jolt of electricity does the trick. If they give an egg an electric shock, it will briefly open its pores

and undergo the same biochemical reactions — the surge of calcium, the burst of enzyme activity — that starts the cell on the path to dividing after a sperm penetrates an egg.

So Dr. Matalipova put two electrodes onto the glass slide and ran a tiny current through them. She gave the egg a brief jolt of current, lasting thousandths of a second.

Under the microscope, it looked as though nothing had happened. The fetal cell was still in place under the outer skin of the egg. But over the next four hours, its contents would ooze into the egg. Dr. Matalipova repeated the whole process 11 more times, until all 12 eggs had been fused with fetal skin cells.

When Dr. Matalipova returned to the laboratory four hours later, at 9:30 that night, she noticed that the skin cells inside the 12 eggs looked like ghosts of their former selves. Their contents had diffused into the egg and only their outer membranes remained.

On Sunday morning, Dr. Matalipova saw the new nuclei, from the fetal skin cells, in the host eggs. The eggs had begun dividing, the dance of development choreographed by the skin cells' DNA.

If the cloned embryos survive, Dr. First will implant them in a week into the uteri of cows. The animals will have taken hormones to make their bodies think they are one week pregnant. That will make them ready to accept the tiny embryos, which will consist, by that time, of only eight cells each. Then, Dr. First said, if the process works as efficiently for them as it did for Dr. Wilmut, in about 10 months, "we should get a calf."

C.I.A. Severs Ties to 100 Foreign Agents

Acts of Murder and Other Crimes Outweighed Value as Informers

By TIM WEINER

WASHINGTON, March 2 — Breaking with its past, the Central Intelligence Agency has severed its ties to roughly 100 foreign agents, about half of them in Latin America, whose value as informers was outweighed by their acts of murder, assassination, torture, terrorism and other crimes, Government officials said today.

As part of a worldwide review that began in 1994 and accelerated sharply in 1995, the C.I.A. for the first time began to systematically balance the quality of the information its informers delivered against those informers' criminal histories.

The C.I.A.'s purge of its informers in the last two years focused heavily on its Latin American division, which has had on its payroll hundreds of military officers and government officials in countries like Mexico, Guatemala, Honduras, El Salvador and Panama.

The agency found that the violence and corruption of scores of those informers were so bad, and the quality of the information they provided comparatively so marginal, that they were not worth the thousands or tens of thousands of dollars they were paid annually.

The C.I.A. has also cashiered government officials, military officers and private citizens with criminal histories from the payrolls of its covert-operations divisions covering the Middle East, Africa and Asia, the officials said.

The C.I.A.'s purge of people whose crimes outweighed their usefulness as informers was part of a larger review that has resulted in the dismissal of hundreds more agents, as the C.I.A. calls its foreign informers. These agents may also have committed crimes, but they were let go primarily because the quality of

their information did not justify keeping them on the payroll after the cold war, one official said. The Washington Post first reported the discharges today.

The worldwide review began in 1994 under the former Director of Central Intelligence, R. James Woolsey Jr., and gathered steam in 1995 under his successor, John M. Deutch. The "scrub," as it was called inside the agency, was resisted by some station chiefs and covert operators who argued, in effect, that they could not recruit saints to spy on sinners.

But it was pressed by Mr. Deutch and his general counsel, Jeffrey H. Smith, who argued that if the C.I.A. had to dine with the devil, it should bring a long spoon.

Mr. Deutch explained the thinking behind the scrub in a September 1995 speech. C.I.A. officers had always been rated for the quantity, not the quality, of the foreign agents they recruited. As a consequence, the agency had sometimes hired agents "blindly, without thorough vetting and established procedures for accountability," Mr. Deutch said.

The scrub was "a rigorous evaluation of each one of the agents we recruit," he said.

"If the information these assets provide is no longer relevant," he said, "if we can get that same information elsewhere, if questions of human rights violations, of criminal involvement outweigh the value of the information to our national interests, then we will end the relationship with the asset."

According to one Government official, as many as 1,000 foreign agents — somewhere between one-quarter and one-third of all the agents on the C.I.A.'s payroll in 1995 — failed to meet this test.

The Latin American division of the C.I.A.'s clandestine service proved to

be the one most riddled with foreign agents who were killers and torturers. That the agency had violent men on its payroll, and ignored that fact until after the worldwide review was under way, is well-documented. For example, a Presidential panel, the Intelligence Oversight Board, reported in June that the C.I.A. knowingly hired as paid informers Guatemalan military officers suspected of political assassinations, murder, kidnapping and torture.

Nor were these examples unique to Guatemala. They were repeated throughout Central America, where the C.I.A. had been deeply involved in clandestine operations in support of pro-American governments and military regimes from the early 1950's onward.

Throughout Latin America, Asia, the Middle East and Africa, the agency has long-standing official liaisons with military, intelligence and security services. Some of the officers of these services are violent or corrupt, but they are among the C.I.A.'s most valued informers. The agency also has had on its payroll people who are terrorists and drug dealers, or who were terrorists and drug dealers. These people provide information that the C.I.A. says is difficult to obtain elsewhere.

In 1995, the agency had on its payroll a man whose information helped catch the notorious Carlos the Jackal, the self-proclaimed author of terrorist acts that killed 83 people. The fact that this informer once had been a terrorist himself — that he had participated in two bombings in Western Europe that wounded Americans in the mid-1980's — was no bar to his employment by the C.I.A. Nor would it be under the guidelines laid down by the scrub, Government officials said.

The New York Times

MONDAY, MARCH 3, 1997

Resource Book Sums Up Black Education

By WILLIAM H. HONAN

A new reference book devoted to African-Americans and education, compiling decades of information from 40 disparate archives, has just been published by the research arm of the United Negro College Fund in Fairfax, Va.

"It's one-stop public policy research," said William H. Gray 3d, president of the fund, which raised \$5 million to support the publication.

The African-American Education Data Book: Volume 1, Higher and Adult Education, a 550-page compendium, contains information from private and public databases from throughout the country. The book is intended to be the most comprehensive source available on African-Americans and higher education.

For example, one study shows African-American women are almost twice as likely as men to obtain a bachelor's degree. Other studies call attention to the fact that African-Americans with Ph.D. degrees are underrepresented in the population as a whole, although that number has increased dramatically in recent years. It is now leveling off, however.

The Data Book describes rather than attempts to explain these stud-

ies, Mr. Gray said, because if scholars are given the raw information they can begin to interpret it.

For example, with the information about black Ph.D.'s, he said: "I think they'll find that the number of black Ph.D.'s declined because the people who used to be Ph.D. candidates were finding opportunity elsewhere, but that's up to them. All we do in this book is provide the basics."

The compilation was conceived by Mr. Gray, a former Congressman from Philadelphia who became the first African-American to serve as the House Democratic whip.

"When I was in Congress, I saw that much of our educational policy was based on what I call knothole scholarship," he said. "If you try to watch a baseball game through a knothole, you have to guess about what you're missing — and you miss a lot."

"When I came to the U.N.C.F.," he continued, "I realized we needed one place where you could see all the data, so we raised more than \$5 million and got this project under way."

Among those he hopes will make use of the information are scholars, public-policy makers, private donors, school boards, city commis-

sioners and members of Congress.

Although much of the information is not new, Mr. Gray said, "we explode some myths — like the myth that there are more blacks in jail than in college — that isn't true."

Among the surprises in the data, he said, was the fact that graduation rates have doubled for those who get strong financial aid.

A staff of five researchers led by Michael Nettles, a professor of education on leave from the University of Michigan, devoted seven months to the project. Sources included the Department of Education, the Census Bureau and the National Science Foundation.

Two companion volumes are planned for later this year. The second book, to be published in the late spring, will cover preschool through high school education. The third, to be published this summer, will deal with the transition from high school to the workplace or college.

Issues of Cloning Research to Be Placed Under Microscope

Bioethics Commission Will Aim to Help Clarify Federal Role in Regulating Rapidly Changing Field

By Rick Weiss
Washington Post Staff Writer

"All we like sheep, have gone astray," goes the libretto from Handel's "Messiah."

Those words will echo in churches during upcoming Easter services, but are equally thematic for an 18-member ensemble called the National Bioethics Advisory Commission, which in two weeks will stage a special performance for President Clinton at the Watergate Hotel.

The panel of experts in medicine, law and ethics will consider at a March 13-14 meeting the extent to which we humans are indeed like sheep. And given the recent startling news that scientists have learned how to clone adult sheep, it will consider whether we would be going astray to apply some of those techniques to people.

Last week Clinton asked the commission to put aside its current work on genetic privacy and the protection of human research subjects to conduct an emergency analysis of the legal and ethical implications of the recent cloning work. The task is enormous and represents the first true test of the commission, which has suffered from a lack of funds and an uncertain future since Clinton created it in 1995.

Because of the commission's arcane funding apparatus, which relies on an atypical degree of coordination among several different federal agencies, money for its staff and research expenses was not forthcoming until early this year—more than a year into the group's two-year mandate from Congress. Meanwhile, uncertainty about whether Congress will extend the commission's life beyond its current expiration date of Oct. 3, has forced the group to organize its work in a cumbersome dual-track agenda. One track assumes a close of business this fall, the other looks ahead to what the commission might do if it gets budgeted for another term.

Now the commission must quickly change gears and provide within 90 days an intelligent assessment of one of the most difficult bioethical questions to arise in decades: In what ways should the federal government involve itself in the quickly evolving field of mammalian cloning?

History offers few insights into how successful the commission will be. The first national bioethics commission, created in 1974, quickly issued its first report (addressing research on human fetuses), and its recommendations were codified immediately as federal regulations. Before expiring in 1978, it created widely respected reports on the protection of human research subjects, including prisoners and children, which also became law.

By contrast, the last federal ethics board, created by Congress in 1985, turned into a battlefield over abortion issues. The board expired in 1989 without issuing a single report.

Many members of the current commission have a wealth of experience that could help the group succeed, having sat on such high-profile committees as the Recombinant DNA Advisory Commission (which examines proposals to alter people's genes) and the ill-fated National Institutes of Health (NIH) Human Embryo Research Panel, whose 1994 conclusions to allow certain kinds of embryo research were quickly overridden by Congress.

Happily, some commission members said, the president has not asked for specific recommendations regard-

ing what to do about cloning—a biological feat not yet proven possible in people. Instead the group will provide context and general advice, said commission member Alexander M. Capron, co-director of the Pacific Center for Health Policy and Ethics at the University of Southern California Law Center in Los Angeles.

"A big part of the value is that clarifying function," Capron said, "sorting out of what's real about this and what is science fiction, and to what extent is this a problem we already have means of coping with and where might we need to have more regulation, legislation or guidance. If we engage in it carefully and publicly, then we'll have heard from most of the key people on the subject and can be comprehensive in our report."

One unglamorous but important task the commission will try to accomplish is compiling a list of the various state and federal regulations that already apply to cloning and embryo research. "There are states that have statutes trying to restrict embryo research. We need to know how many there are and what those statutes say," said commission member R. Alta Charo, a law professor at the University of Wisconsin in Madison. "Other states have restrictions on fetal research, but the definition of fetus can in some states be interpreted to include embryos."

Federal funding of embryo research for the past two years has been blocked by Congress through an appropriations rider that applies to the departments of Health and Human Services, Labor and Education. Technically, Charo said, that means other federal departments could still fund such research. And while the Transportation Department, for example, is unlikely to pay for cloning research (unless, perhaps, there was a sudden shortage of truck drivers), the patchy and temporary nature of the current ban is something the government may want to address.

The commission also may examine how well current restrictions on cloning research might withstand a legal challenge. Some scholars recently have proposed that the First Amendment guarantees a freedom to think and inquire, and that federal restrictions on scientific research could be interpreted as an abridgment of that right of inquiry.

With some members of Congress talking about banning all cloning research regardless of the source of funding, questions also arise regarding federal jurisdiction. Usually the government relies on interstate commerce laws to regulate private enterprise, but recent rulings have narrowed the applicability of those laws such that their usefulness in banning embryo research is uncertain.

Legalities aside, experts said, the prospect of human cloning gives rise to profound ethical questions for the commission to consider. What are the potential psychological impacts of being born as a genetic duplicate of one's parent? More generally, how does cloning fit in with current regulations that require a risk-benefit analysis for all human research, when neither the risks nor the benefits of cloning are well understood?

For example, said NIH Director Harold E. Varmus, there may be hidden risks in making a person from a cell that is already many years old. If that cell has accumulated mutations during its years in another adult, the resulting clone might be born with a predisposition to cancer or other diseases of aging. If so, Varmus said, it may be unethical to create such a person.

The Washington Post

MONDAY, MARCH 3, 1997

For House Counterpart, Differences to a Point

By Michael Powell
and David A. Vise
Washington Post Staff Writers

Rep. Charles H. Taylor (R) takes a less flamboyant rhetorical style to the helm of the House Appropriations subcommittee on the District than his fellow North Carolinian Lauch Faircloth. He cloaks his intentions in a thick gravy of country-style colloquialisms. But his world view seems no less certain.

"Government could mess up a one-horse funeral," said Taylor, a wealthy tree farmer from the western mountains and hollows of Transylvania County. "The District's ox is in the ditch, and we've got to get it out."

Faircloth and Taylor promise to bring some "North Carolina common sense" to District affairs. "There were substantial differences in the last Congress, when the House was moving and the Senate tried to curtail it," Taylor said. "That's gone. Lauch and I don't want to tread water."

Personal experience influences both men. Taylor, 56, remembers his 1990 swearing-in as North Carolina's 11th District representative. Sunlight glinted off the Capitol dome, and his family gathered round. Outside on Constitution Avenue, two men walked up to a cab, shot the passenger to death and calmly walked away.

"I couldn't believe it," Taylor said. "This is a beautiful place and your first impression of our nation. But in our part of the world, we believe in consequences."

Taylor hails from a place where Democrats outnumber Republicans. "In the 1980s, it was known as the window-wiper district, because no one could hold the seat," said Bill Sabo, a professor at the University of North Carolina at Asheville.

Taylor will concentrate on D.C. finances and tightening parole laws.

"No city can write its own checks or print its own bills," he said. "And no city can survive by putting violent criminals right back on the streets."

That said, his learning curve on city affairs will be steep. He leads an isolated existence, sometimes sleeping for several months in his office rather than rent an apartment. And he is known to all but trot from his last committee meeting to National Airport for the flight to Asheville.

"Those of us who live up on the Hill are in a more unrealistic situation than those of you who live out there," Taylor said. "I need to visit neighborhoods and schools. We must build a responsible community that volunteers in youth basketball, Boy Scouts and 4H Clubs."

The Washington Post

MONDAY, MARCH 3, 1997

By Rick Weiss
Washington Post Staff Writer

The announcement that Scottish scientists had cloned a sheep from a single udder cell quickly prompted Frankensteinian fantasies of the selfish wealthy inheriting their own fortunes and the wholesale cultivation of compatible organ donors.

Lost in the hoopla over Dolly the sheep, however, was the quiet excitement that biologists are expressing about the feat's more immediate accomplishment: the discovery of a way to change a cell's identity by reprogramming its genes—an achievement with enormous scientific and medical implications.

In essence, the Scottish researchers made an udder cell forget that it was an udder cell and made it think instead that it was an embryo cell, uncommitted to any particular organ and able to give rise to all the kinds of cells that together make a sheep.

The technique offers scientists a new way to explore the molecular mechanisms that turn genes on and off—the cellular switches and dimmers and circuit breakers that control the most fundamental processes of life. Once scientists learn how to flip those switches on or off as they please, a host of applications could quickly follow.

Cancer cells might be tamed by turning off the genes that drive those cells' untrammelled growth. Mature nerve cells, which typically do not regenerate if injured, might be convinced to regrow—a potential boon for people with spinal cord injuries.

A basic understanding of gene regulation could make it possible to grow new skin for burn patients, culture bone marrow for cancer patients or cure sickle cell anemia—a disease caused by a simple inherited glitch that could be cured with the flip of a genetic switch, if only scientists could reach out and touch it, said National Institutes of Health Director Harold E. Varmus.

Testifying before Congress last week, Varmus pleaded with lawmakers not to overreact to the cloning news by imposing restrictions that would unduly limit genetic research in early embryos. "You can argue about human cloning forever, and 90 percent of it is imagination run amok," Varmus said in an interview. "What this really raises, though, is a whole gamut of possibilities in medicine." Virtually every cell in the human body contains a full set of the same 100,000 or so genes needed to make a complete person. Some of those genes are turned on in every kind of cell; these are the "housekeeping genes" that serve as a life support system for all cells. But other genes perform functions that are extremely specific, and

are active only in certain kinds of cells. The only difference between a liver cell, a brain cell and all the other kinds of cells in the body is the combination of genes that are turned on or off.

In the earliest stages of embryo development, specialized genes have not yet turned on and all cells have the potential to become any kind of cell. That is why scientists have long been able to clone entire animals from individual cells that have been separated from an early embryo.

But as the embryo grows, more and more cells become committed to a certain job in the body. In the language of developmental biology, they become differentiated.

Scientists have long believed that differentiation is a one-way process. Once a cell has gone down the developmental path to becoming a liver cell, it cannot become "undifferentiated" and then choose a new career as a kidney cell. This assumption was shattered when Ian Wilmut and his colleagues cloned Dolly from an udder cell.

"That cell had differentiated into a cell of the udder—it had met its destiny—and to find that it has everything readily available to start over again is amazing," said Carl Pinkert, a developmental biologist at the University of Alabama in Birmingham.

"This whole idea of cells being terminally differentiated was the dogma of our time," Pinkert said. "We thought there were irreversible genetic modifications. Now they've gone and taken a cell from a 6-year-old sheep and used it to make a new animal. This is a huge step for biology."

Wilmut and his colleagues succeeded by doing one thing that others had not tried: They starved the udder cell of crucial nutrients for several days in a petri dish before trying to clone it, which made the vast majority of that cell's genes turn off. In that quiescent state, the cell resembled an undifferentiated cell.

That wasn't enough by itself, however. Usually, when such a quiescent cell is awakened with a fresh meal of nutrients, a latent genetic program kicks in and only the genes that used to be activated turn on again. In effect, the cell remembers what kind of cell it was.

In the Scottish experiment, the researchers fused the quiescent cell with a sheep egg cell and awakened the resulting "combination cell" with a meal of nutrient broth and a jolt of electricity. They already had removed the egg cell's own genes, or DNA, leaving behind the rest of the egg's guts, called cytoplasm. Apparently, Wilmut said, some substances in the egg's cytoplasm finished the job of erasing the donor DNA's memories. Having lost its udder identity, the newly

fused cell began dividing as though it were an embryo.

"The main part of getting genes to forget what they were doing is putting them in the cytoplasm of the egg," Wilmut said. "So now we want to know what is it in the egg's cytoplasm that... has that effect."

In experiments with yeast cells and frog embryos, scientists have identified some of the substances in eggs (scientists call them "maternal factors") whose job is to flip thousands of genetic switches into the proper positions to foster early embryo development. Most of these substances remain unidentified, but scientists know how they work: They attach to and manhandle DNA, literally bending the genes into configurations that turn them either on or off.

"The key players seem to be proteins that interact with DNA and that keep particular genes in an active or inactive state," said Colin Stewart, an embryologist at the National Cancer Institute's research center in Frederick, Md. Under the influence of these factors, Stewart said, most genes transplanted into an egg cell say to themselves: "Hey, I'm supposed to be on in an adult cell and here I am in an egg cell. I better turn off."

Now scientists hope to investigate these gene-regulating substances by studying embryos made by Wilmut's technique. In one possible experiment, scientists would block the activity of certain maternal factors and see how that affects embryo development. Step by step, such experiments could show which maternal factors regulate which genes.

"There are some studies looking at this in lower animals," Wilmut said. "What we will be able to do now is to think more optimistically about doing this kind of work with mammals."

Ultimately, scientists hope to make drugs that mimic the effects of individual maternal factors, with the aim of turning specific genes on or off as needed.

Varmus said doctors have had some success treating sickle cell anemia by giving a drug that boosts patients' production of a particular kind of hemoglobin in the blood. But the drug is not specific for the hemoglobin gene, so it works inefficiently and reduces symptoms by only about 50 percent. "If we could do better by turning on the hemoglobin gene directly, that would be great," Varmus said.

If all goes smoothly, scientists said, Dolly may be remembered as the sheep that heralded a new era in medical genetics—a far better fate than befell the female from whose udder she was cloned. That sheep, Wilmut said, has been eaten.

The Washington Post

MONDAY, MARCH 3, 1997

HE'S CHANGING THE FLOW

The Government's Procurement Chief Is Selling a Streamlined System, but Not Everybody's Buying It

By Peter Behr

Washington Post Staff Writer

From his Pennsylvania Avenue office, Steven J. Kelman, the Clinton administration's procurement chief, oversees an intricate pipeline system that last year pumped more than \$20 billion in federal contracts into the greater Washington economy.

Kelman, who came to Washington from Harvard University, is the driving force behind dramatic changes over the past two years in the way federal agencies spend money.

Kelman and congressional allies have swept away most of the old system of contracting, with its rigid rules, drawn-out bidding competitions, audits and appeals and replaced it with a simple, streamlined shopping system straight out of Kmart. In many cases, purchases are being made from pre-approved price lists of goods and services and orders are filled in weeks or months, not years, as under the old system. Like shoppers, government officials are learning to buy from "brand name" vendors with the best reputations and track records.

Already there is clear, if anecdotal, evidence that government buyers are getting better bargains on everything from underwear to computers by purchasing commercial, off-the-shelf versions rather than custom-made products, Kelman said. Major manufacturers who shunned government procurement are now on the bandwagon, he added.

"They've moved the system toward a common sense, commercial way of procurement," said Bert M. Concklin, president of the Professional Services Council, a Vienna-based association representing federal contractors.

But the reaction isn't all applause. "It basically allows the government to give the business to whomever they want," said Robert Dornan, vice president of Federal Sources Inc., a McLean-based consulting firm. Dornan warns that oversight and accountability have been weakened so much that cronyism and other old abuses may creep back into federal purchasing.

For the Washington area, the most critical effect of the changes is on the government's burgeoning purchases of computers and software, which account for nearly half of the region's \$20 billion in federal contracts, analysts estimate. The new procurement methods give added advantage to large, well-connected firms, contributing to a shift of technology purchases from Maryland to Northern Virginia, whose firms dominate the information technology field. Small, minority-owned firms have lost business as well, analysts say.

As a key architect of these radical changes, Kelman is implementing beliefs honed during 19 years of teaching and research at the John F. Kennedy School of Government at Harvard—that the American public deserves better government, not less government.

Unless it could speed up and simplify computer system purchases, the government could not take full advantage of fast-expanding technology to make it more efficient and cheaper, he concluded. "I'm not an anti-government person," Kelman said last week. "I believe government has an important role to play. ... To fulfill that role, it needs to perform better."

Winners and Losers

With a Beltway lined by companies that specialize in creating technology services for government, the Washington area has been a primary beneficiary of Kelman's doctrine. But not all of the changes have been positive for the region's economy.

As purchasing practices have changed, so has the flow of money through the region's pipeline. Preliminary figures for the 1996 fiscal year reveal major consequences: more contract dollars for Northern Virginia's information technology companies and less for their mostly smaller Maryland rivals. And less money for smaller, minority-owned contractors.

The 1996 spending scorecard shows that while federal purchases from all Washington-area contractors totaled \$20.8 billion in the 1996 fiscal year—a solid 7 percent gain from the year before—the benefits were skewed sharply. Northern Virginia's share increased by 16.3 percent, while suburban Maryland's dropped by 8.8 percent, due in part to the preponderance of big information technology contractors in Virginia. The District's share also rose, by 9 percent, according to preliminary figures from the General Services Administration.

Such a shift, if confirmed by final GSA data, matters a great deal.

According to Stephen S. Fuller, an economic analyst with George Mason University, each \$1 billion in new federal contracts creates nearly 8,500 jobs and helps pay the overhead of thousands more. Thus Northern Virginia's success and Maryland's struggle help explain why Maryland's economy continues to lag behind its neighbor's.

The changes also are making it harder for the region's many smaller, minority-owned businesses to win federal contracts, experts say.

Contracts to small, "disadvantaged" businesses in the Washington region—those headed by minorities or women—dropped to 2.86 billion in fiscal 1996, a decline of nearly 5 percent from the previous year's total. The drop-off was steepest in Montgomery and Prince George's counties.

Analysts caution that the GSA procurement reports contain errors and will be checked and updated over the next three months. But the data match recent spending patterns already observed by experts.

Two new approaches to federal purchasing that result from the Kelman-backed reforms explain why bigger firms now are getting the choice seats at the procurement table.

One involves so-called government-wide acquisition contracts—G-WACs, in federal shorthand. Last year, for example, the Transportation Department selected 20 teams of companies whose products and services could be purchased to meet information technology needs, not only at DOT, but at any other federal agency that wanted to buy from these vendors.

The Washington Post

MONDAY, MARCH 3, 1997

1/2

Jessica Mathews

Post-Clone Consciousness

Thinking about the post-Dolly world, let it first be clear that there will never be a human clone in the sense that that word is generally understood, namely as an exact replica of another individual. As applied to humans, a clone is a literary conceit, not a scientific possibility.

A cloned sheep proves that it will probably soon be possible to make a genetically identical copy of a person, but that is not remotely the same thing as making another you or another me.

This is so because a human's genetic inheritance is not, as the usual metaphor portrays it, a precise and fixed blueprint. It is, rather, a set of changeable potentialities that act on an individual's environment and are acted upon by it. Much more than any other species, we are the result of nature (genes) and nurture (environment)—not merely the sum of the two but the product of a constant interplay between them.

A physical or emotional characteristic of our environment interacts with a particular genetic endowment to elicit a particular behavior that in turn puts the individual into a particular environment and so on and on in an endlessly complex pattern that makes a person unique.

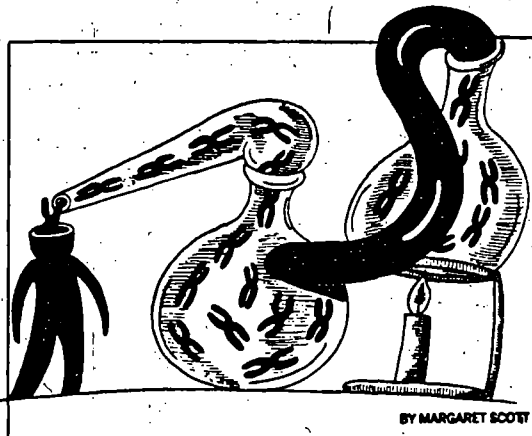
Identical twins reared separately provide a rough idea of how similar cloned people would be. While eerily alike in some respects (twins reunited in adulthood have shown up on the appointed day each wearing five rings, distributed on the same fingers), these genetically identical individuals also can be quite different. Clones would be even less alike because they would not have shared the same uterine environment. So much for apocalyptic visions of multiple Hitlers or even of the fantasy of reproducing oneself.

Dolly is an exciting scientific step because until now it was thought that cell differentiation in a higher organism—the pattern of gene expression through which an embryonic cell becomes a liver cell or a taste bud—is a one-way process that could not run backward. Dolly's genetic parent cell was in effect tricked into starting over. Animal cloning opens up enormous commercial opportunities with benefits for human health, food and more. And it promises tremendous insights into the cellular basis of aging—is Dolly seven months old, or six years and seven months, the age of the cell from which she was replicated?

For all that, however, this is more a philosophical than a scientific turning point. The great breakthroughs came 25 years ago with the discoveries that made it possible to clone genes: that is, the ability to fish out one gene from among the tens of thousands in an organism and make any number of copies of that particular stretch of DNA. With that came the ability to manipulate the gene in all kinds of ways, including transferring it from cell to cell or species to species. These were the discoveries that made bio-engineering possible, and they are the ones that have changed our lives—and perhaps the nature of human nature—forever.

Within the next 10 years, the 60,000 to 100,000 genes in the human genome will have been fully deciphered. Long before then, this flood of genetic information, combined with what biotechnology can do, will change the way we think about ourselves and our children-to-be and challenge ethics, religion, social values, personal privacy and legal protections.

When genetic screening becomes routine, will pregnancy become a matter of choosing among fetuses with hun-



BY MARGARET SCOTT

Dolly is one drop in a wave about to crash over us.

dreds of different dangerous or undesirable traits? What will it mean for religion when characteristics that have been innate through all of human history become a matter of choice? Do we share our genetic predispositions with a prospective spouse? Would we want to know them ourselves—do we have a “right” not to know?

If, as is likely, it becomes possible to alter genes that give rise to inherited diseases wouldn't we say yes to human eugenics? What about improving intelligence? Where will we draw lines?

What will happen if/when the genetically screened rich begin to diverge from the mass of humankind? How will the rest of the world feel about a global commerce based on genetic intellectual property—once considered God's work or nature's—and all of it owned by companies in the developed world?

In one sense, Dolly is best understood as one drop in a towering wave that is about to crash over us. The achievement will prove enormously valuable if it galvanizes us into readying ourselves for this inundation of helpful, treacherous, value-shattering and life-saving information.

Americans will have to divorce the discussion of what should be allowed and what should not from the debate about abortion. The link is through research on human embryos. Responses to Dolly this past week have ranged from Just Say No (ban human cloning and related work) to Just Do It (allow what comes but keep government regulation out). Neither is realistic. Science and commerce will march on. What now seems incomprehensible will be routine. The only good outcome is sensible, humane regulation, based not on courtroom decisions, but on broad, informed public debate. Understanding the science is the first, essential step.

The writer is a senior fellow at the Council on Foreign Relations.

The Washington Post

MONDAY, MARCH 3, 1997

Meg Greenfield

A Big Job Opening

These peculiar times have created an opportunity for a Republican leader

There is a huge opportunity out there for the Republican who knows how to take it. The party has recently had the kind of both good and bad fortune that can be turned to advantage by a skillful politician. It is, of course, a fact that our politics is littered with the remains of opportunities not taken and good fortune obtusely squandered. So nothing says this will be different. Still, the opportunity just now seems so distinctive that it is worth noting.

Start with the obvious: the gifts from the Clinton administration that just keep on giving. Every day seems to bring a new disclosure of some tawdry, diminishing fund-raising or other political practice the White House has to explain and justify and bring up to date in relation to whatever contradictory thing it said on the subject only days before. Yes, the Republicans have not exactly been Camp Fire Girls themselves on campaign financing. But this latest administration stuff has qualities that set it apart as especially damaging.

First, it engages shrines of democracy and symbols of power, from the White House itself to the Lincoln bedroom to Air Force One. Many Americans view these shrines and symbols as (1) belonging to them and not to any temporary, custodial White House occupants and (2) having been debased by the uses to which they have been put by the Clinton political apparatus. This is the kind of thing that, if it catches on, can be politically devastating. It does not require mastering a whole lot of head-breaking details about an obscure, decades-old real-estate venture. In addition, from the GOP's point of view it has the advantage of being the kind of trouble that does direct harm to a president's image—his stature, as distinct from his standing with the public on this particular issue or that. To the extent that people decide the practices engaged in are crummy, the practitioners will look at least a little crummy to them, too.

So there is an opportunity for an opponent of indisputable stature to move in on the picture as Candidate Clean, Senator Unsullied, something like that.

Next, there is what could be seen as either good fortune or bad fortune, depending on your politics, but which is surely part of the big opportunity. It is the (at least temporary) beaching of the whale Gingrich and the subsequent disorientation and quarrelsomeness of the lesser House Republican fish. Those who might take over from Gingrich some time are simultaneously circling one another and publicly behaving with that ostentatious "who, me?" reticence that vice presidents tend to display when presidents have to go off to the hospital for a day. This circumstance could change, but in terms of some new person's breaking out of the pack, it is very promising. Dole is gone. Trent Lott is having to establish himself as a competent Senate leader before he establishes himself as leader of much more than that. The governors have vanished back into the national-politics rabbit hole they seem mostly to inhabit for three years out of every four.

So there is, relatively anyway, a Republican Party leadership vacuum that the right person doing the right, smart things could fill.

Finally, there is the extremely difficult, if not near intractable, problem of the ideological and political conflicts within that large aggregation of strong-willed, occasionally fratricidal folks who consider themselves the national Republican Party. I say "fratricidal" knowing this word for years seemed more applicable to the Democrats. But, so far as their appetite for internecine warfare is concerned, the Democrats seem to have been stun-gunned lately, and to be slogging along more or less as one beast. It is Republicans who have the kind of sharp, deeply felt divisions for which the Democrats once were famous. Their conflict over abortion strikes me as the most politically consequential of these, similar in many ways to the Democrats' earlier conflict over civil rights; profoundly held personal convictions in stark opposition, as close to irreconcilable as the sides on a political issue can get. And even if you could get some accommodation on this one, there would be the troublesome rest: taxes, campaign-finance leg-

islation, entitlements, term limits, a host of cultural questions. The leader who can find them some shared common purpose on these questions, rather than merely trying to make himself agreeable to all, could be a winner.

So there is an opportunity for an issues Houdini who can bring a measure of effective ideological peace or at least civil order to the Republican Party.

You hear talk of senators like John McCain and Fred Thompson. There are no doubt others. What the challenge will take is someone who can do more than briefly paper over differences or who is willing to continuously remake himself to appease this faction or the other, as so many of the Republican presidential wannabes were doing last time. That is the opposite of stature. What is required is stature plus the political skill and guts to bring a workable degree of order to the currently fragmented troops. I suspect that whoever succeeds will have to take some pretty big hits first, will have to get into some pretty big fights, will have to demonstrate both self-confidence and a capacity to stand there and take it. It won't be one of those poll-created, papier-mache guys.

Maybe, of course, it will be no one. The moment and the opportunity could pass all the likely candidates by, just as has happened in both parties time and again over the years. For all I know we could just end up watching an interminable bicker over whose fault it is that both sides finally killed some reform legislation neither wanted, and see a reversion to the sterilities of Campaign '96—in which (think about this) we may be stuck forever. But such an outcome is not foreordained. The bipartisan lassitude and disorder of the moment may not be what the politicians in both parties had in mind with all that high-flown talk of bipartisanship a few months back. But it is full of promise for some smart political comer.

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MONDAY, MARCH 3, 1997
The Washington Post

To Clone a Sheep

IF AN EARLY consensus can be said to have emerged in the reactions to Dolly the cloned sheep, it's that Dolly's existence and the success of the technique that made her are signals of some profound alteration in the human condition. This may be of course be so, and, whether it is or not, a certain amount of awe is in order at the breaking of so long-standing and symbolic a scientific barrier as the replication of genetic identity. But it's far from obvious that the loss of that barrier must inevitably take us to a place where the issues are unreachable by the tools of morality and common sense. And this will be true even if researchers quickly solve the large number of unanswered technical questions that separate Dolly's cloning from the feared science-fiction scenarios of human mass production, slave factories and carbon-copied armies.

The most common fears in this regard are that people would clone themselves or others in multiple for ghastly purposes such as organ replenishment and that people would clone themselves directly rather than have children out of a desire for immortality or a pure access of ego. But it's not clear why cloned people, however they were grown and even though they were genetically identical to previously existing people, would be (or be seen as) any less "real people" than the second of a pair of identical twins. The cool-headed scientific cautions being heard post-Dolly about the limits of this strictly genetic understanding of identity—can a person be considered still alive just because his identical twin outlives him, and is there any reason to think clones would resemble one another any more perfectly than

identical twins?—ought to take the edge off this second set of fantasies, although we suppose that the people likeliest to succumb to the temptation are just the people one least wants to have around in perpetuity. As for the ethics of growing a replica of oneself for organ transplant, or six replicas to use as slaves, why would these actions be any less repellent if performed on identically cloned offspring than they would be if done on offspring—identical or otherwise—manufactured by their parents in the traditional manner?

Some of these issues have already been sneaking up on society in the form of debates over surrogate motherhood and infertility research. President Clinton Monday instructed a panel to reopen the question of whether the government should fund, and thereby impose some regulation on, the forms of human embryo research that were earlier banned from such funding. These issues, though, should not be confused with the specific concern that led to the earlier funding ban—namely, that human embryos were being created in laboratories for the express purpose of being experimented on and destroyed in the process. The process involved in the sheep-cloning by definition involved no new embryos—that is, newly fertilized eggs constituting brand-new individuals—but "only" doctored elements from the cell material of two different female sheep and the surrogate womb of a third. Technically, scientifically, this feat is amazing enough. It's important that we not allow the amazement and the novelty to obscure those ethical landmarks that we already have.

Lifting Sights in Virginia's Schools

VIRGINIA GOV. George Allen's anti-Washington streak has at times gotten in the way of his efforts to improve education in the state—but his latest proposal to toughen graduation requirements and focus more on basic subjects is a serious, valuable plan. As with any major call for higher standards, curriculum changes and additional standardized testing, some educators have reservations about certain aspects of the governor's proposal; and much will hang on just how the specifics of testing and enforcement are worked out. But already the scope of this plan should hearten local school officials and parents seeking to improve the value of Virginia diplomas.

The first part of the plan began last fall, with some new state curriculum guidelines for each grade. The latest report deals with how these and still other standards would be enforced. Beginning with the class of 2001, all high school students would have to pass new tests in the 11th grade in English, math, science and social studies to graduate. In schools where students consistently performed poorly on these tests, or on new standardized tests to be given in the third, fifth and eighth grades, the schools would get ratings of "unsatisfactory"—which could result in court action that could lead to state takeovers. In

addition, local school districts would be urged to hold back those in the third, fifth and eighth grades who failed the tests.

The emphasis on basics would begin in elementary schools—where students would have to spend more than three-fourths of the school day on these subjects. Prince William County Superintendent Edward L. Kelly says this heavy emphasis could crowd out art, music, technology and other electives—a reasonable concern. But the standard can be kept high without tying it to a percentage of the day. Fairfax County Superintendent Robert R. Spillane says he has yet to study the Allen plan but believes that requirements in Fairfax may already exceed those being proposed by the state. That may be so in other Northern Virginia schools as well, but there's nothing that would stop these systems from continuing to lift their standards.

Still other school officials note that the proposed changes could entail new costs for teachers, labs and so on. But if Virginians are determined to uphold and improve a good system, it may take more financial support. Gov. Allen has put things in proper order by first seeking to determine what needs doing—and then to figure how best to make it happen.

The Washington Post

WEDNESDAY, FEBRUARY 26, 1997

Secretary Albright's First Tour

THE BUZZ of Washington is that Madeleine Albright did a good job on her first trip as secretary of state. Not that any grand policy breakthrough was expected, or sought, on a mission conceived as a political and personal reconnaissance on both sides. After the excitements of her appointment and settling in, however, there was bound to be a surge of public interest in matters extending beyond her gender and her religious heritage—in, for instance, her talent for foreign affairs, which is not an irrelevant measure for the nation's top diplomat. There was no drama or crisis on the trip, and she was not hit by a truck. She displayed a foreign-policy fluency, and things came off well.

It may have been traditional but it also was smart to start off the second Clinton term with visits to the United States' major allies and would-be partners. This itinerary symbolically corrected the first-term fault of a seeming fascination with small problem countries. It is not big-power chauvinism but good sense that calls for a feeling for priorities. Nothing is

more important to American foreign policy than to create new institutional structures and political procedures to replace those of the Cold War. The transition from confrontation to cooperation—engaging in different ways Europe, Russia and China—is what American policy is now most about.

Heading out, Mrs. Albright offered the Economist a summary of the political circumstances in which policy making is now embedded. She warned that at a time when much of the world enjoys relative peace, there is a risk of forgetting the decades-long work of diplomacy that now makes it possible “to worry about domestic improvements rather than national survival. . . . We have our own work to do . . . if this space of tranquillity is to endure and spread, rather than be written off by history as a pleasant time of tragically wasted opportunities.” These words provide a taste of her conviction that the roots of foreign policy lie in domestic governance and a sample of her capacity to articulate it to an international audience as well as to a domestic one.

A Scapegoat in Switzerland

THE SWISS DIPLOMAT coordinating the investigation into his country's complicity with the Nazi regime said in a recent interview that coming to terms with its past was a “haunting experience” for Switzerland. “But I believe our government now understands that the first motivation must be to find out the truth,” Thomas Borer said.

Strange, then, that the one Swiss individual who has most clearly shown a desire to get at the truth has just been fired from his job. We are speaking of 28-year-old security guard Christoph Meili, who last month intervened to stop the shredding of historical documents at the Union Bank of Switzerland, where Mr. Meili was making his rounds. The documents pertained to the forcible transfer of property in Berlin before World War II; the shredding came a month after the Swiss government had, under international pressure, banned the destruction of any historical papers; you might think—given Mr. Borer's burning desire to find the truth—that the guard would be honored as a hero.

Not in Switzerland. The bank in question, while calling the shredding a “regrettable mistake,” immediately went after Mr. Meili. “What I currently know allows me to assume that the motives Meili has stated for his actions aren't the only ones,” Union Bank of Switzerland's Robert Studer said darkly. This was in line with other Swiss attempts to conjure some grand anti-Swiss conspiracy from the legiti-

mate and long-stymied efforts of Jewish groups to find the truth regarding missing wartime assets. Late last year, Switzerland's outgoing president accused the American Jewish lobby of “ransom and blackmail.” The economics minister detected a plot to “demolish” Switzerland's place as a financial center. Last month, the Swiss ambassador to the United States sent a cable home noting that “most of the opponents cannot be trusted.”

Swiss police, meanwhile, are reportedly investigating Mr. Meili for violating bank secrecy laws. His alleged crime was taking the documents he managed to salvage—pounds and pounds already had been destroyed—to a Jewish community group. Given that a high-ranking bank executive was doing the shredding, it's clear why the guard decided to go outside the chain of command. But that didn't stop his employer, the security firm Wache AG, from firing him—and this not long after Mr. Borer assured New York Sen. Alfonse D'Amato that Mr. Meili would not be fired, the senator says.

The Swiss embassy in Washington has no comment; this is a private matter between Mr. Meili and his company, a spokesperson says. Maybe so. But the government could offer him a job—or at least say out loud that it respects him as a man of principle. Until then, it would seem the Swiss aren't haunted so much by the dishonorable aspects of their past as by those who would expose that past against their wishes.

The Washington Post

WEDNESDAY, FEBRUARY 26, 1997

Study Cloning, Don't Ban It

By Daniel J. Kevles

PASADENA, Calif. In "Songs of Innocence," William Blake asked, "Little Lamb, who made thee?" The answer for Dolly the sheep is Dr. Ian Wilmut and his colleagues at the Roslin Institute near Edinburgh. Dolly, as the world now knows, is a clone, a duplicate of one genetic parent. Her birth marks a milestone in our ability to engineer animals for food and medicine. It also signals that humans can, in principle, be cloned, too. That prospect troubles many people, but they ought not be too concerned about it at the moment.

Dolly has provoked widespread ethical foreboding. The Church of Scotland suggested that cloning animals runs contrary to God's biodiversity. Dr. Wilmut himself said that cloning humans would be "ethically unacceptable." Carl Feldbaum, president of the Biotechnology Industry Organization, urged that human cloning be prohibited in the United States. (President Clinton asked a Federal bioethics commission for a speedy review of the implications of mammalian cloning.)

The outcry over Dolly calls to mind the great biologist J. B. S. Haldane's "Daedalus," a slim book of reproductive utopianism published in 1924. Haldane held that Daedalus of Greek mythology was the first biological inventor (the first genetic engineer, we would say) because he was connected with the procreation of the Minotaur through the coupling of Pasiphaë and the Cretan bull. Daedalus escaped punishment from the

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Society finds ways to resolve problems posed by science.

gods for his hubris, Haldane noted, but he suffered "the agelong reprobation of a humanity to whom biological inventions are abhorrent."

If Daedalus did not offend the gods of his day, many people have indicted biotechnologists for affronting God in ours. Yet Haldane, for one, knew that although biological innovations are often initially seen as perversions, over time, they become accepted as "a ritual supported by unquestioned beliefs and prejudices." As technologies improve, people recognize them as advantageous. Society, through its legislatures and courts, figures out how to resolve the problems they posed at the outset.

In this way, artificial insemination of humans, considered tantamount to adultery before World War II, has become widely accepted. So have reproductive methods like in vitro fertilization and surrogate motherhood. People abort fetuses with genetic disorders, administer growth hormones to smallish children and use insulin made by bacteria injected with a human gene.

Scientists have long speculated about manipulating genes to produce new Einsteins, Heifetzes and Hemingways. Now impresarios can dream of cloning Kareem Abdul Jabar and raising their own Dream Team.

The fantasies are endless, but they are just fantasies. People are the products not only of their genes but of their environments. Today an Ein-

stein clone might grow up to be Steven Spielberg. Anyway, no one knows what genes contribute to the qualities we most admire and value, whether virtuosity of the pen, the pitch or the piccolo.

Still, Dolly heralds wondrous innovations with huge economic implications (that Dr. Wilmut held back the news of Dolly's birth until he could register a patent has been reported without comment). Someday an infertile couple might choose to have a child by cloning one or the other partner. A cancer victim might use his DNA to clone spare body parts — liver, pancreas, lungs, kidneys, bone marrow.

For now, cloning should rightly be confined to animals. But as the technology evolves to invite human experimentation, it would be better to watch and regulate rather than prohibit. Outlaw the exploration of human cloning and it will surely go offshore, only to turn into bootleg science that will find its way back to our borders simply because people want it.

As with so many previous advances in biology, today's affront to the gods may be tomorrow's highly regarded — and highly demanded — agent of self-gratification or health. □

The New York Times

WEDNESDAY, FEBRUARY 26, 1997

Deplores 'Flynt,' and Censorship, Too

To the Editor:
The headline of your Feb. 21 Arts
page article "Flynt' Receives
Thumbs Up by New Reviewer:
A.C.L.U." could have been "A.C.L.U.

Welfare, Work and Pride

To the Editor:
In your Feb. 19 news article on
President Clinton's visit to Manhat-
tan, you report that he was criticized
on the welfare law by a woman who
said that people losing their benefits
need training so that they won't be
forced to take low-level jobs. The
woman, a welfare recipient, said,
"I've seen the women clean the toi-
lets; it's horrid and it's demeaning."
Anybody who thinks that cleaning
toilets is more demeaning than tak-
ing money they haven't earned is
confused about the source of pride.
And it illustrates the value distortion
that comes out of being perpetually
on welfare. REED MAROC
New York, Feb. 19, 1997

Opposes Free Speech." Not only did
the advertisement in Variety by the
American Civil Liberties Union Foun-
dation of Southern California honoring
the director Milos Forman express
support for his film "The People vs.
Larry Flynt," but it also condemned
"private pressure groups" and "coer-
cive pressures."

In so doing, the A.C.L.U. seems to
have bought the Orwellian argument
of a \$10 billion-a-year pornography
industry that using free speech
against pornography is a danger to
free speech. Feminists and others who
have pointed out the film's fraud in its
portrayal of Mr. Flynt's life, Hustler's
content and in pornography itself are
providing additional information on
which people can make their own deci-
sions, whether moviegoers or Acad-
emy Award voters.

I only hope that one truth
becomes visible as a result of this
controversy: It's possible to be
against pornography and against cen-
sorship. GLORIA STEINEM
New York, Feb. 22, 1997

To the Editor:

A. M. Rosenthal (column, Feb. 21)
gives rightful praise to the religious
communities that filed a proxy reso-
lution with Boeing calling for observ-
ance of basic human rights in its
China operation. Such groups, reli-
gious and otherwise, remind us all of
the king's nakedness. How sad it is
that we have 20-20 vision on the Chi-
na arms sales while we are blind to
the fact that we sell more
arms than the rest of the world com-
bined. (Rev.) JOSEPH P. LA MAR
Maryknoll, N.Y., Feb. 21, 1997

To the Editor:

Re Lawrence Wallack's Feb. 25
letter concerning Deng Xiaoping's
cigarette smoking: Although Mr.
Wallack rightly states that the terri-
ble risks of tobacco smoking are
preventable, has he considered the
dangers of air pollution in China? A
nonsmoking friend returned from
Beijing recently with bronchitis. The
reason? The only way to get a breath
of fresh air there, he says, is to have
a cigarette. SARAH STEINHARDT
Atlanta, Feb. 25, 1997

Judge Madeleine Albright by What She Believes

To the Editor:
Frank Rich's "Albright Question"
(column, Feb. 19) is no question at
all. Madeleine K. Albright, the Secre-
tary of State, was raised in the Ro-
man Catholic Church by parents who
were Roman Catholic. Why would
she believe anyone who said she was
Jewish? This is a free country, and
she can be whatever she wants to be.
And much as it might surprise
some people, many of us have an
identity based not on our ancestors
but on our own memories, beliefs and
experiences. What distresses me
most, as an American and as a Jew,
is that I thought it was in Hit-
ler's Germany that a person was
identified by what her grandparents
were. MARILYN HECHT DAINOFF
Cincinnati, Feb. 24, 1997

To the Editor:
Attempting to place Madeleine K.
Albright's seeming indifference over
her Jewish roots into a historic con-
text in postwar America, Frank Rich
(column, Feb. 19) proffered: "It was
the time for heavy-duty assimilation,
for name changes and nose jobs and
reform synagogues that bordered on
the Episcopalian." Mr. Rich's dis-
missal of a past era's forms of Jew-
ish worship as cosmetic misses the
point. Reform Judaism was never an
escape from Judaism but the oppo-
site: an effort to preserve and adapt
Jewish tradition to new circum-
stances. (Rabbi) ERIC POLOKOFF
Norwalk, Conn., Feb. 22, 1997

To the Editor:
Frank Rich's Feb. 19 column on
Madeleine K. Albright reminded me
of how disturbed I am about how this
issue has been handled by the news
media. Would this revelation be so
newsworthy if Secretary Albright
had discovered that her grandpar-

ents were Gypsies, or Communists?
This extended debate over the fact
that she can now be viewed as "Jew-
ish" is worrying to me and echoes
the ideas that drove Nazism, that
Judaism is not a religion like any
other but is something stamped in
the blood. I find it troubling that the
news media seem to be endorsing the
idea. MICHELLE FORREST
Baltimore, Feb. 20, 1997

To the Editor:
"Albright Struts Across a World
Stage, Radiating Star Quality"
(news article, Feb. 24) is a wonderful
tribute to Madeleine K. Albright at
the start of this phase of her career.
Rather than keep making a fuss over
what she did or didn't know about
being born Jewish, she is showing us
that she is an outstanding represent-
ative of what it means to be a natu-
ralized American and a model of a
mix of religions! Long may she
wave! PEARL GREENBERG
New York, Feb. 24, 1997



**The New York Times
Company**

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Museums and Schools

To the Editor:
I was sorry that your Feb. 19 Edu-
cation page article on how schools
and museums are working together
didn't mention the New York City
Museum School. A public school now
in its fourth year, it takes museum
education a step further, gearing
curriculum and teaching around the
resources of the Museum of Natural
History, Brooklyn Museum, the New-
York Historical Society, Jewish Mu-
seum and the Children's Museum.
These are students' classrooms sev-
eral days a week, and museum pro-
fessionals are part of each teaching
team. JAMES CONMY
Brooklyn, Feb. 19, 1997

New York's Drug Court

To the Editor:
"A Court for Addicts" (Topics
item, Feb. 19) features the Drug
Treatment Court in Brooklyn and
highlights the efforts being made by
the courts to address the drug-related
crimes that plague New Yorkers and
flood the criminal justice system.
This project — conceived of, devel-
oped and implemented by the New
York State Unified Court System —
exemplifies the court system's com-
mitment to developing new ways to
manage cases.
By looking to end the cycle of drug
use and recidivism for nonviolent
offenders, the courts have become an
integral part of the solution to crime.
The Brooklyn court is significant for
its emphasis on the needs
of drug-addicted women, for whom
treatment can be difficult to ob-
tain. JONATHAN LIPPMAN
New York, Feb. 20, 1997
The writer is chief, administrative
judge of New York State.

The New York Times

WEDNESDAY, FEBRUARY 26, 1997

President Asks Experts for Advice on the New Reality of Cloning

By TODD S. PURDUM

WASHINGTON, Feb. 24 — Reacting to what the White House called the “very startling news” that scientists in Scotland had successfully cloned a mammal, President Clinton today asked a Federal bioethics advisory commission to review the research implications for human beings and report to him in 90 days.

The White House spokesman, Michael D. McCurry, said the commission, which was appointed last summer to review questions of biogenetic research, had not been asked to reach any conclusion or make specific recommendations for legislation or regulation, only to “review the legal and ethical implications of this technology.”

Mr. McCurry said the President had been moved to act after reports that an embryologist at the Roslin Institute in Edinburgh had replaced the genetic material of a sheep's egg with the DNA from an adult sheep and created a lamb that is a clone of the adult.

Mr. McCurry said he was not aware of any existing regulations that would ban such research on animals in this country.

Earlier in his Administration, Mr. Clinton signed an executive order banning the use of Federal money to create human embryos for research purposes, and Congress has also banned such financing.

In his letter to the commission today, Mr. Clinton said the Scottish breakthrough “represents a remarkable scientific discovery but one that raises important questions.”

Mr. Clinton asked for “a thorough review of the legal and ethical issues associated with the use of this technology,” and “recommendations on possible Federal actions to prevent its abuse.”

“While this technological advance could offer potential benefits in such areas as medical research and agriculture,” the President said, “it also raises serious ethical questions, particularly with respect to the possible use of this technology to clone human embryos.”

Mr. McCurry said the commission, which is headed by Harold T. Shapiro, an economist who is the president of Princeton University, could

consider a host of questions, including whether the current ban on federally financed human embryo creation should be expanded to cover private institutions.

“The advisory commission will be in a position to look at the issue of whether those doing private research through their own academic pursuits ought to be sensitive to these issues, or whether there are any policy implications that arise from these developments,” Mr. McCurry said.

The commission was formed to look into biogenetic research, animal husbandry and the general area of biotechnology.

The lamb in Scotland was cloned from a 6-year-old ewe, using tissue taken from the ewe's udder. Most scientists had not thought that a whole mammal could be regenerated from mature body cells that were specialized for something other than reproduction.

While the research suggests that cloning humans might some day be possible, many genetic experts have said it would be unethical to try.

Others on the 15-member advisory commission include Alexander Capron, a professor of law at the University of Southern California; Eric J. Cassell, a professor of health at Cornell Medical College and an attending physician at New York Hospital; James Childress, a professor of religion and medical education at the University of Virginia, and David Cox, a professor of genetics and pediatrics at Stanford University and an expert on genetic defects, including Down syndrome.

The New York Times

TUESDAY, FEBRUARY 25, 1997

Study Faults President's Plan for Tuition Aid

By PETER APPLEBOME

Tax policies designed to make a college education more affordable, like those being proposed by President Clinton, might help make college more affordable for middle-income families but would not help the poor or increase overall access to higher education, according to a report being released today.

A major element of the President's ambitious education proposal is a program of \$1,500 tax credits that the Administration says would "open the doors of college to all who work hard and make the grade." These credits, called Hope Scholarships, would pay the full cost of tuition at most community colleges or could be applied toward the cost of other colleges and universities. Mr. Clinton has also called for allowing \$10,000 tax deductions for education and training and for permitting the use of Individual Retirement Accounts to pay for higher education.

But the new study says such policies would do little to help those who are not now attending college. The study was done by two research groups, the Institute for Higher Education Policy, based in Washington, and the Education Resources Institute, based in Boston.

Instead, the study says, such tax policies invariably benefit the middle and upper classes. To help the poor, it would be more effective, the report says, to focus on Pell Grants, a program based on need. Mr. Clinton has

Tax breaks will not bridge an education gap, a report says.

proposed that the maximum available from Pell Grants be increased to \$3,000 from \$2,700.

"Tax policy is very useful in promoting affordability for higher education — we think that is a good thing," said Jamie P. Merisotis, president of the Institute for Higher Education Policy. "But the advantage of need-based student aid is that it promotes both access to higher education and affordability."

The report says there are political and practical reasons for a tax-based approach. Tax provisions do not face annual budget reviews and oversight, it says, and those who benefit from tax policies, primarily the middle and upper class, have more political clout than those who benefit from programs like Pell Grants.

But it says the continuing disparity in college attendance rates makes that political tradeoff worrisome. According to the report, there is a gap of almost 30 percentage points — 58.2 percent compared with 87.8 percent — between the college attendance rates of the lowest- and highest-income groups.

Tax policies will do nothing to re-

dress that, the report says, because 71 percent of those with incomes above \$30,000 itemize their deductions, while only 9 percent of those with incomes below \$30,000 do so. The Pell Grant maximum would need to grow to \$5,000, Mr. Merisotis said, to match in real dollars the level of 1980.

David A. Longanecker, assistant secretary of education for post-secondary education, said the report failed to recognize fully both the political realities and the positive impact of a strong message that a college education can be attained.

Mr. Longanecker said, "It may be true that most of the tax credits will go to middle-income students — something we're not ashamed of — but if we're able to send a message as strongly as this does, it will affect participation of lower-income students as well as middle-income ones."

Although the greatest share of new resources would go to tax policies, Mr. Longanecker said, more overall spending would go to Pell Grants. The Administration plans to spend \$40 billion on Pell Grants over the next five years, compared with \$38 billion for tax benefits, he said.

"You can argue that we could take the tax-benefits money and put it onto the other side into Pell Grants, but it's a useless argument," Mr. Longanecker said. "In this Congress, that's not going to happen."

The New York Times

TUESDAY, FEBRUARY 25, 1997

Workaday World Of Stock Breeding Clones Blockbuster

By GINA KOLATA

IF Dr. Ian Wilmut of Scotland had been an American researcher trying to get a Federal grant to clone a sheep, a feat he announced on Saturday, the request would not have been approved, experts in the United States say. And not because the work was too scary or controversial. His goal is just too practical, and he comes from the wrong side of the scientific tracks.

Dr. Wilmut is from the world of animal science, a parallel universe to the high-profile, high-technology world of molecular biology. And, as became abundantly clear immediately after his announcement, the interests of his field are not those of the biologists who focus on genes and their control, who work with small animals, like mice, and who concentrate on the fine details of molecular interactions inside cells.

If Dr. Wilmut had been an American and had "submitted a grant application to the N.I.H. it would not have been supported," said Dr. Neal First, a professor of reproductive biology and animal biotechnology at the University of Wisconsin who is a member of committees that review grant proposals for the National Institutes of Health.

Dr. Lee Silver, a biology professor at Princeton University, agreed. "No way can you write a grant proposal saying you want to clone a sheep," he said. Reviewers like himself would immediately ask, "What questions are you asking?" Dr. Silver said. It would not be enough for scientists to argue that they simply wanted to make some sheep into drug factories. To

Continued on Page C8

Continued From Page C1

get a grant, researchers have to explain how they will study a biological system and how they will take it apart to understand its molecular basis, Dr. Silver said.

Dr. Randall Prather, an animal scientist at the University of Missouri in Columbia, said he and other scientists had different interests. He and other animal scientists, he added, have different interests from the standard N.I.H. grant recipient. "A lot of times, what we're dealing with is practical applications," he said.

And Dr. Wilmut's paper, Dr. Silver noted, was utterly utilitarian. "It was pure technology," he said, a technical manual for how to clone a sheep.

Although the work of Dr. Wilmut, an embryologist at the Roslin Institute in Edinburgh, focuses on cloning, the most forbidden and evocative technique of reproductive biology, its ultimate goal is practical: making sheep that are drug factories. So, for many of the nation's leaders in reproductive biology, Dr. Wilmut's feat was doubly astounding. First, he did it — he cloned a sheep, confounding the biologists who had concluded that cloning adult animals was impossible. And second, he seemed to come out of left field, out of a community centered on large farm animals and issues that these scientists had thought little about.

"I don't know him," said Dr. Silver, who studies mice. People in animal science "don't come to our meetings," he said.

Dr. Wilmut's tour de force was to take DNA from an adult sheep's cell and use it to grow a new being, an identical twin of the original. He took udder cells, from a 6-year-old sheep, that were growing in the laboratory and fused one of them with a sheep egg. He had already removed the egg's nucleus, containing its DNA, so the egg had no genetic material of its own. The new DNA took root in the egg and directed it to develop into an embryo. Dr. Wilmut implanted that embryo into a third sheep, which gave birth to a lamb, Dolly, that was born in July.

Next, Dr. Wilmut expects to add genes to the cultured adult sheep cells to turn them into miniature factories churning out pharmacologically useful proteins. Then he will clone the best of the drug-producing cells, making sheep whose milk will gush with drugs. His work is supported by PPL Therapeutics P.L.C., a small Edinburgh biotechnology company that wants to sell the drugs it extracts from sheep milk.

Granted, the process is not yet very efficient. In a paper that will be published on Thursday in the journal *Nature*, Dr. Wilmut reported that he had fused 277 udder cells with an equal number of eggs but that only 29 of the eggs had developed into embryos. When he transferred these embryos to the sheep who were the prospective surrogate mothers, only 13 became pregnant. Of those 13, only one carried the pregnancy to term and delivered a live lamb.

That means that even if scientists wanted to clone a human, they would have to wait for improvements in technology to make cloning more efficient and to insure that the babies that resulted would not have terrible, even fatal, defects. Scientists once thought that cloning was biologically impossible — now that they know it can be done, they need to learn how to do it better.

But animal scientists and veterinary scientists have a long history of breaking ground in reproductive medicine, said Dr. Ralph Brinster, a professor of veterinary medicine at the University of Pennsylvania.

"In the old days, veterinary practices were mostly large animals," Dr. Brinster said, adding that animal breeders had been plagued by the reproductive problems of their herds. About a third of the embryos that implant in an animal's uterus spontaneously abort — in humans, the number is closer to half — so breeders were eager to find ways to make animal reproduction more reliable and efficient.

In the 1950's, investigators discovered how to freeze mammalian sperm — in cattle — and how to transfer embryos from one animal to another, also in cattle. The dairy industry was transformed, Dr. Brinster said. Average milk production went from about 7,000 pounds a year to today's average of about 15,000 pounds a year.

At about the same time, biologists also discovered how to transfer mouse embryos from one female to another to establish a pregnancy in the surrogate mouse mother. Yet the researchers working with cows and those working with mice were unaware of each other's work, Dr. Silver said.

Later, these methods were taken up by doctors treating infertile patients. They froze sperm for artificial insemination, and they transferred embryos for in vitro fertilization, in which doctors remove eggs from a woman's ovaries, fertilize them in the laboratory and implant the developing embryo into a woman's uterus.

But animal science has jumped ahead. Last year, for example, Dr. Brinster discovered how to add new genes to sperm cells and how to transplant sperm-producing cells and grow them in another animal, which could then become a virtual sperm factory. Dr. Brinster talked of veterinary applications. A champion racehorse or a prize bull might become essentially immortal, his sperm-producing cells kept alive in another horse or bull or even in a mouse, and harvested when needed.

Dr. Brinster does not work with humans, and he leaves speculations about ethics to others. Dr. Wilmut does the same.

"It's safe to deal with animals, isn't it?" said Dr. Ralph Munson, an ethicist at the University of Missouri in St. Louis. "No one ever accuses us of playing God with animals."

"We believe in our society that financial reasons justify much of our research, particularly if it doesn't involve humans," Dr. Munson said. Perhaps it should be no surprise, he added, that animal researchers, treading close to the most delicate ethical issues of human identity, keep insisting that applying their work to humans is the furthest thing from their minds.

And perhaps, Dr. Munson said, it is no surprise that animal research on reproduction goes ahead in its own little world, unnoticed by most scientists or the public until it comes up with something shocking, like a clone of an adult sheep.

The New York Times

TUESDAY, FEBRUARY 25, 1997

A New York Study Finds Uninsured Are on the Rise

By ELISABETH ROSENTHAL

In a report filled with disturbing information that has implications for the entire country, researchers have found that the number of New Yorkers without health insurance has jumped in the last five years.

One quarter of New York City residents under 65 now have no health insurance at all: the exact figure is 24.8 percent, up from 20.9 percent five years ago. Surprisingly, most of the uninsured hold full-time jobs.

More and more companies have curtailed health benefits as the cost of health care has gone up, requiring employees to contribute heavily to premiums, especially for family members. Others have stopped offering health coverage altogether. So while government insurance programs have continued to cover the elderly and large numbers of the poor, low-income workers and their families are increasingly vulnerable.

Most uninsured families make between \$15,000 and \$45,000 a year, the report found. The number of children without insurance has gone up twice as fast as the number of adults.

"This is a crisis that is growing exponentially," said Mark Green, the New York City Public Advocate, who released the report.

One of President Clinton's main goals in his failed health plan was to provide health coverage for the 38 million Americans who lacked it. But since that plan failed, their plight has faded into the background. Managed care companies have no incentive to worry about the uninsured.

By 1995, the number of Americans without health insurance had grown to 40.3 million, or 17.4 percent of the population under 65, the Employee Benefit Research Institute said. In New York State, the percentage of people under 65 who are uninsured is 17.2 percent, up from 13.9 percent in 1990.

The study said the higher rate in New York City reflects a concentration of the working poor and immigrants, who tend to be in low-paying jobs and are not always eligible for government insurance. Many of New York's poor are part of the underground economy, meaning they are paid in cash, their earnings are unrecorded and they do not receive benefits. The proportion of people without health insurance is even higher in California (22.7 percent) and Texas (27 percent), states that have large immigrant populations.

In the past, such people have relied

on emergency rooms or clinics that dispensed care cheaply or free. But now, even that option is quickly disappearing, since hospitals are under pressure to cut costs.

"Everyone's going to be competing for paying patients, but there's no one looking out for the uninsured," said Kenneth E. Raske, president of the Greater New York Hospitals Association, an industry group.

The state has earmarked tens of millions of dollars to compensate hospitals for charity care, but Mr. Raske said that with the number of uninsured New Yorkers growing, that pool will be overwhelmed.

Angela Pollatos of Washington Heights in northern Manhattan is typical of those who have lost insurance in the last five years. Her husband is a painter who made \$30,000 last year. His company does not offer health insurance.

Three years ago, when Mrs. Pollatos was working, the family bought private insurance through a government-subsidized program. But the premiums were rising quickly, and when Mrs. Pollatos stopped working after the birth of a son, the family could no longer afford the program. Mrs. Pollatos has tried to buy insurance, but has been discouraged by the cost: \$500 a month for the cheapest plans. She found free coverage for her son at a health maintenance organization, the Bronx Health Plan.

Mr. Green's report, "Who Are New York City's Uninsured?" contains this information:

¶ Fewer than half of New York City residents now have private insurance, down from almost 60 percent five years ago.

¶ The proportion of children who have no medical insurance rose to almost 20 percent in 1995, up from 14 percent in 1990.

¶ About 22 percent of the uninsured work for companies of more than 1,000 employees, contradicting the conventional wisdom that large companies usually offer comprehensive benefits.

¶ Forty-one percent of men and 28.4 percent of women between 18 and 34 were uninsured in 1995.

Mr. Clinton has had to settle for piecemeal change. Last August, Congress passed legislation that allows workers to keep their health insurance if they lose or change jobs, and forbids insurers from denying coverage for pre-existing conditions.

The New York Times

TUESDAY, FEBRUARY 25, 1997

Scottish Feat Fuels Research Of Drug Makers

By ROBERT LANGRETH
And MICHAEL WALDHOLZ

Staff Reporters of THE WALL STREET JOURNAL
The successful cloning of an adult sheep will accelerate the race to create animals specially designed to produce proteins, drugs and even organs for humans.

"This could definitely improve our ability to produce genetically engineered animals," says David White, research chief of Imutran Ltd., a British unit of Switzerland's Novartis AG that is engineering pigs to produce organs for human transplant.

Several companies, including Genzyme Transgenics Corp. in Framingham, Mass., and PPL Therapeutics PLC, based in Scotland, are genetically engineering goats and sheep to make them produce milk containing human proteins that may be used to treat cancer, cystic fibrosis and other diseases. A few of these proteins, including an anticoagulant for trauma victims, have reached human testing.

Other companies, such as Imutran and tiny Alexion Pharmaceuticals Inc. in New

More News on Ewes

While huge scientific news, the cloning of an adult sheep doesn't necessarily translate into a great investment idea right now. Heard on the Street, page C1. Meanwhile, there are few legal obstacles to cloning, but many ethical questions are likely to arise. Legal Beat, page B8.

Haven, Conn., say human testing is still a few years off in their efforts to genetically engineer pigs to grow hearts, livers and other organs that could be transplanted into humans without being rejected.

The companies say that the new cloning technique developed at Scotland's Roslin Institute isn't so radical as to alter their short-term plans. Instead, the new approach could supplement existing methods, providing a new method and a better way to create future generations of genetically engineered animals.

Until now, this engineering has relied heavily on trial and error in embryo manipulation; only a small fraction of the attempts to introduce new genes turn out to be successful. The approach revealed by Scottish researchers this week, which involves the first-ever clone of a grown animal rather than embryo cells, could change that hit-or-miss track record if ultimately is perfected.

The breakthrough also might one day revolutionize drug research. Most drugs now are tested in lab animals only for toxicity; efficacy tests must be done on humans. But with the new cloning technique, drug makers may one day be able to create animals that carry newly inserted genes for, say, heart disease or cancer and then try out new drugs on these particular subjects.

Further out on the research horizon, the Scottish breakthrough opens up the possibility of realizing a long-held dream of transplant surgeons: the ability to regenerate new tissues for transplantation from one's own cells, thus circumventing the problem of foreign organ rejection.

Until now, many scientists had thought a specialized cell such as a liver or blood cell couldn't be "retrained" for another use. The Scottish research suggests this notion may not be so, as the researchers in Roslin took a single, specialized cell from a sheep's mammary gland and from it produced an entire new animal.

In the future, "if you have a worn-out pancreas, one might be able to take cells from another part of the body and in the lab grow them into a pancreas that would be implanted back into you," says George Seidel, a researcher and cloning expert at the Colorado State University in Fort Collins. "You wouldn't have a transplant-rejection problem anymore."

The Gene Business

COMPANY (LOCATION)

Alexion Pharmaceuticals Inc.
New Haven, Conn.

GENETIC ENGINEERING WORK

Genetically engineering pigs to produce hearts, livers and lungs suitable for human transplant; animal organs could be in human trials in a couple of years. Plans to try to reproduce Scottish cloning technique in pigs.

Novartis AG
Switzerland

Developing transgenic pigs to produce kidneys and hearts for human transplants. Will investigate the new technique.

Nextran Inc.
Princeton, N.J.

Developing transgenic pigs to make hearts, kidneys and lungs for human transplant. Has no immediate interest in the new technique.

Genzyme Transgenics Corp.
Framingham, Mass.

Produces therapeutic proteins in genetically engineered goats for treating cancer, trauma and other disorders in humans. Has no plans to adopt new cloning technique.

PPL Therapeutics PLC
United Kingdom (Scotland)

Agrees to license sheep-cloning technique to make therapeutic proteins in animal milk.

Unit of Baxter International Inc.

Many scientists caution, however, that practical applications of the Scottish method are still five to 10 years away or more. In particular, the approach first must be proved to work in other animals such as pigs and cows. And some scientists at biotechnology companies are skeptical that the Scottish work holds much commercial potential, calling it too crude to be practical.

The work at Roslin is a "significant achievement," but it may not be all that useful at its present level of development, says John Logan, vice president of research at Nextran Inc., a Princeton, N.J., unit of Baxter International Inc.

Nextran is breeding genetically engineered pigs for organ transplants, infusing pig embryos with special genes to combat human rejection. To date, Nextran has

Please Turn to Page B9, Column 2

Continued From Page B1

transplanted hearts, lungs and kidneys removed from the specially bred pigs into primates and has been able to avoid the initial acute rejection that occurs when tissue from one species is placed into another.

Like many companies working in this strange field, Nextran's technology involves injecting a few special human genes into the embryo of a pig. Researchers then must wait until the resulting piglet matures to determine if the gene implant "takes." The new genes are designed to block the release of toxic proteins produced by cells in an organ transplanted into another species.

Once the right pig has been produced, "it is very easy to breed a pig with a desired genetic trait," Mr. Logan says. "The rules of simple inheritance mean that half of all the pig's offspring will carry the desired trait."

But breeding takes lots of time. Scientists must wait to see if their genetic tinkering shows up in the offspring and sometimes must run through several generations before they cull enough subjects with the desired genetic traits. Adult-cell cloning, by contrast, might one day let researchers make an exact copy of the appropriate pig hundreds of times over.

"This will shorten the time frame it takes to breed transgenic animals by at least two to three years," says Paul Schmitt, chief executive of Chrysalis International Corp. of Raritan, N.J. The drug-research company holds a patent on the "microinjection" technique that is commonly used in animal genetic engineering.

In addition, if the technique proves useful in developing lab animals imbedded with gene defects that produce human illnesses, "you will see a great deal of effort to make use of it in studying a very wide range of human diseases," Mr. Logan says.

But other scientists must discover exactly how the Scottish method works, adds Michael Roberts, chairman of the department of veterinary research at University of Missouri at Columbia. "Somehow the DNA [from the mature cells] was able to program the unfertilized egg into becoming an embryo," Dr. Roberts says. "Nobody knows why that worked."

Scientists in the U.S. and abroad have been able to clone the DNA from one embryo into another to reproduce large numbers of genetically modified animals for studying human diseases. "Now this will be a great deal easier" with the new technique, he says.

The discovery also has long-term potential for improving the breeding of livestock and farm animals. Cloning embryo cells can be an imprecise method: It isn't a sure bet how an embryo will turn out. The new technique may someday let breeders pick a prize bull, say, and duplicate it many times over.

"Anytime you can take more of a cookie-cutter approach to breeding animals like this, people will want to adopt it," says Russell Nugent, a senior geneticist at Tyson Foods Inc. in Springdale, Ark. Tyson scientists plan to watch university breeders closely to see if they can make the Scottish technique inexpensive enough for commercial breeding.

The new adult-cell cloning method, however, has only a spotty track record so far. The Scottish team used almost 300 sheep ova to ultimately produce a single cloned lamb named Dolly.

THE WALL STREET JOURNAL
TUESDAY, FEBRUARY 25, 1997

New Washington Dance: Fix Price Index, Duck Blame

By JACKIE CALMES

Staff Reporter of THE WALL STREET JOURNAL
WASHINGTON — Politicians of all persuasions here have taken to praying for a political miracle.

At the White House and in Congress, Democrats and Republicans privately express faith that they will reach a balanced-budget deal — once they can figure out how to reduce the government's inflation measurement without either side acknowledging parenthood for the change.

Just yesterday, Senate Majority Leader Trent Lott called for Congress and the White House to establish a commission to assess the accuracy of the consumer price index.

Revising the CPI, which is widely held to overstate inflation, would cut hundreds of billions of dollars from the budget over time. But if the potential benefits of a change are plain, so too are the political pitfalls. Annual increases would be lower for Social Security, civil-service and veterans benefits. Most Americans' income taxes would be higher than otherwise, since tax brackets, the standard deduction and the personal exemption also are tied to the CPI. Organized labor is opposed, because many union wages are indexed to the measure.

Why, then, do folks from President Clinton and Congress's GOP leaders on down expect that a CPI change will be part of any agreement for balancing the budget by 2002? The reason is simple: "You can't get there without the CPI," says Rep. Charles Stenholm of Texas, a leading Democratic deficit hawk. He and other conservative House Democrats will propose their own balanced-budget plan tomorrow.

The administration and congressional leaders know that, short of resorting to far more than the usual gimmickry, they can't craft a budget that has room for both Mr. Clinton's spending initiatives and Republicans' deeper tax cuts unless they can count on the billions in savings that a CPI correction would bring. Administration officials have tentatively broached the idea of a reduction in the range of 0.5 to one percentage point in the current inflation rate — which has been about 3% in recent years — to various lawmakers and outside interest groups.

But the Democratic congressional leaders, Sen. Thomas Daschle and Rep. Richard Gephardt, are opposed. And the influential American Association of Retired Persons said: Don't do it.

A full percentage-point change would shave \$141.1 billion from the deficits over five years, by the Congressional Budget Office's reckoning, and \$652.8 billion over a decade. For Social Security recipients, by 2002 the average monthly benefit would be \$37 lower than the \$915 that is now projected. But the change would significantly reduce Social Security's long-term imbalance.

There is a vocal minority among the rank and file in Congress that publicly favors a changed CPI. Conservative House Democrats tomorrow will propose an annual 0.8 percentage-point reduction in the CPI, up from the 0.5 change the group proposed last year. "Let's go ahead and legislate it," says Rep. Stenholm.

In the Senate, a bipartisan group of moderates is pressing for a CPI fix, including most members of the Finance Committee that has jurisdiction over Social Security and taxes. "If we can't fix mistakes to address our long-term fiscal problems, what can we do?" asks Democratic Sen. Kent Conrad of North Dakota.

The finance panel's top Democrat, New York Sen. Daniel Moynihan, has chided the White House for not leading an effort to change the CPI. But GOP leaders are no less timid. "Bless Sen. Moynihan's heart," Sen. Lott, a Mississippi Republican, joked recently. "I said, 'You know, you've got to quit taking these statesmanlike stands. You're putting extra pressure on the rest of us.'"

Wary of public outcry, White House and congressional officials stress that they only want to do what is justified by the consensus of economists.

A panel headed by Stanford University's Michael Boskin, who was President Bush's top economist, said the CPI overstates increases in the cost of living by about 1.1 percentage point a year. Mr. Boskin has been trying to convince Congress that the finding reflects a strong consensus of his peers. In his own small survey of economists and government officials with relevant experience, he found 16 of 18 said the CPI is overstated by one percentage point or more.

But while a new Wall Street Journal survey of a broad spectrum of 320 academic economists on this and other matters turns up widespread agreement that the CPI overstates changes in the cost of living, there is disagreement over how much. Some 13% say the CPI is generally accurate or understates inflation, and 23% say it overstates changes in the cost of living between 0.1 and 0.5 percentage point. Another 35% puts the overstatement between 0.6 and 1.0 percentage point, and only 21% say the CPI is overstated by more than a full percentage point. The remaining 8% weren't sure.

Nonetheless, administration and congressional leaders hope that public attention to the issue will create a receptive climate for a CPI change. The Brookings Institution's Robert Reischauer, who formerly headed the Congressional Budget Office, used to give long odds on the president and Congress agreeing to a change. Now he says the chances are closer to even, "because so many people are talking about it and are willing to be out there publicly advocating it."

Still, the party leaders remain skittish. Beyond deciding how much of a change is justified, they must figure out: How might such a politically hazardous change be imposed?

Politically, the safe route is to let the Bureau of Labor Statistics, which compiles the inflation index, make any changes. Trouble is, those familiar with the BLS's work say that, at most, the technicians are likely to make changes that would shave only 0.4 of a percentage point off the annual changes in the CPI.

The agency is studying ways to reflect the fact that consumers tend to substitute, for instance, chicken for beef when beef prices rise. All sides have already factored in the BLS's announced plan to update by next February the decade-old market basket of goods and services that is the basis of the inflation index. That change will shave 0.2 of a percentage point off the CPI.

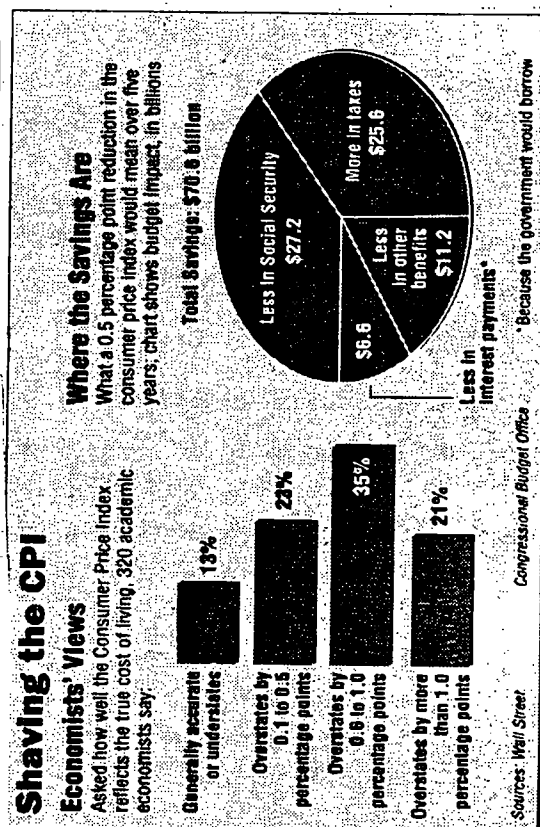
To claim savings now, rather than await the BLS's changes, the politicians could assume some arbitrary reduction the bureau might make and build that figure into their five-year budget plan. Meanwhile, they would give the BLS added funds to initiate its changes and perhaps to create a truer cost-of-living index than the CPI, which is a broader gauge of inflation.

As Sen. Lott's remarks yesterday suggest, there has been talk between the White House and Congress of setting up a commission of outsiders and/or government officials to create a new cost-of-living index. One option under discussion would have the heads of the White House budget office, the Congressional Budget Office, and the Federal Reserve meet annually to update the index to be used for adjusting federal benefits and tax provisions.

Some budget experts suggest the White House and Congress could avoid highlighting a CPI change in any deal they reach by making it part of the mix of economic assumptions that are the foundation of any budget. But change could hardly be hidden, given the issue's prominence.

And no less than House Budget Committee Chairman John Kasich has said he would oppose his own GOP leaders if they negotiate any change in the CBO's economic assumptions, which are more conservative than the White House's. At the same time, however, the Ohio Republican also has strongly espoused a change in the CPI.

—Christina Duff
contributed to this article.



THE WALL STREET JOURNAL
TUESDAY, FEBRUARY 25, 1997

Cloning Faces Few Legal Barriers for Now

By MARGARET A. JACOBS

Staff Reporter of THE WALL STREET JOURNAL

There are few legal obstacles to the cloning of animals or even humans in the U.S., but many ethical questions and commercial disputes are likely to arise if companies start to apply the technology.

Bioethicists say groups representing doctors, farmers and churches are likely to object to any attempts to clone human beings and possibly any type of mammal. They expect them to lobby Congress to pass legislation to prohibit or strictly regulate the process. Indeed, the Foundation on Economic Trends said yesterday that it had organized 400 religious and health organizations world-wide to push for new laws banning human cloning.

President Clinton responded to news that researchers in Scotland had successfully cloned an adult sheep by asking the National Bioethics Advisory Commission, a group he created in 1995, to review the implications. While the discovery offers "potential benefits" for animal and drug research, the president said in a letter to the commission's chairman that it raises "serious ethical" questions if the technology is used on humans. He asked the commission to offer recommendations within 90 days on possible federal action to curb abuse.

"When all is said and done, it's an issue of ethics, not patent law: What sort of society do we want to have?" says Prof. Roger E. Schechter, an intellectual property professor at the George Washington University Law School.

Several roadblocks to commercial development of new medical and biological technologies have already been thrown up around the world. The European Community currently prohibits anyone from patenting genetically altered animals. And last year, the American Medical Association successfully pushed Congress to pass legislation watering down the rights of holders of patents to medical procedures. Federal law currently prohibits federal funds from being used to pay for human embryo research, including cloning.

Because of the funding ban, some bioethicists worry that government oversight of any human cloning research will be inadequate without further federal or state action. Alexander Morgan Capron, a member of the National Bioethics Advisory Commission, frets that fertility centers might begin experimenting with cloning if desperate patients are willing to pay for the research.

Some lawyers who specialize in biotechnology say the government should regulate cloning gingerly, if it does so at all. "We would rather have the National Institutes of Health or other scientific group issue guidelines than have Congress step in and regulate," says Teresa Stanek Rea, an Alexandria, Va., patent lawyer and member of the board of the American Intellectual Property Association, a trade group.

Still, lawyers say researchers currently should be able to get a patent on the cloning process in the U.S., which would give the holder an effective monopoly on the technique for 20 years from the date an application is filed.



In a 1980 decision, the U.S. Supreme Court said the Constitution doesn't prohibit the patenting of living creatures. The court upheld a patent on a single-celled bacterium developed to clean up oil spills. Since that decision, the U.S. Patent and Trademark Office has granted patents on the genes used to produce 29 different types of genetically altered animals, including 23 mice, one rabbit, one sheep, one rat, one bird, one fish and a worm. The animals are used primarily in research, according to Lisa-Joy Zgorski, a spokeswoman for the Patent Office.

The patent provides ownership of the roadmap to understand the gene rather than the gene itself. "We're not in the business of moral judgment," says Ms. Zgorski.

In the case of a cloned animal, however, the patent would likely apply to the technique for creating the sheep rather than the sheep itself, says Prof. Schechter. "It's important to understand that what you're cloning isn't a new creature — in fact, the whole purpose is to clone the old creature," he says. "It's just a medical technique."

Other obstacles may also prevent the technique from being developed commercially. Intellectual property lawyers say researchers will attempt to gain as broad a patent as possible. If a broad patent is granted, it might stifle additional research since other biotechnology companies would then have to license the technology.

Greg Upchurch, a St. Louis patent lawyer, says this occurred when lasers were initially developed. "Once the dominating patent was granted, the whole industry had to go out and get licensed," he says.

Patent lawyers say it would also be very difficult to enforce a patent or license on animals. "Would every farmer who raises a sheep be required to pay a royalty to the patent holder and how could you possibly detect it?" asks Jeff Fine, an attorney with Polsinelli, White, Vardeman & Shalton in St. Louis. While a narrower patent would be easier to enforce, he wonders whether researchers will come up with as many variations of sheep as there are varieties of patented flowers.

Prof. Schechter of George Washington says some creative lawyers might even attempt to get trademark protection for new varieties, arguing that their unusual characteristics amount to packaging. "What if we decide that what we really like are turkey breasts and we develop turkeys with eight breasts? You could make a straight-faced argument that you could protect that under trademark law," he says.

—Ann Davis and Michael K. Frisby
contributed to this article.

THE WALL STREET JOURNAL
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beginning of the NAACP when blacks and Jews worked warmly and successfully together."

Mr. Newman sees it in much the same way. "Mike is in his 70s, and Minister [Farrakhan] is in his 60s, and they both desperately wanted to try to do something to leave this society better for their grandkids," he says. "The dialogue started about how they could begin the process to bridge the gap between the problems of blacks and Jews."

Meeting World Leaders

Mr. Farrakhan told Mr. Wallace that he would appreciate a chance to meet with Jewish leaders, the newsman says. Mr. Wallace called several prominent Jews, but, he says, "none of them would do it." Mr. Wallace then called Mr. Bronfman because, he says, "he had the independence that comes with money." And in fact, Mr. Bronfman has a track record of meeting with world leaders, from Soviet President Mikhail Gorbachev to Romanian despot Nicolae Ceausescu, to plead the cause of Jews around the world. (His World Jewish Congress, with affiliates in 83 countries, has been active recently in demanding that the Swiss government account for bank deposits from Holocaust victims.)

Mr. Bronfman agreed to the overture, and the date was set for the evening of May 12. When the Wallaces' apartment proved unavailable for the dinner — they were in the middle of a move — Mr. Bronfman offered his place.

Mr. Farrakhan arrived with a security detail of one, and with his wife, Khadijah. Mr. Newman and Mr. Muhammad arrived later.

By the end of the evening, Mr. Newman suggested that Messrs. Bronfman and Farrakhan solidify their fledgling relationship by embarking jointly on a business venture, perhaps a hotel.

"It would be a wonderful business example to show that these two sides can work together closely and frankly in a high-profile way," Mr. Newman says. "It is a great embarrassment in the African-American community that we don't own a major full-service hotel."

"No one said, 'Great, let's do it,'" Mr. Wallace says, but it was agreed that their lieutenants would explore the project together. Mr. Newman recalls that Mr. Farrakhan viewed the hotel as something the business people could concern themselves with. "He was interested in pursuing the spiritual, philosophical, cultural barriers that had been put up and ways to break them down," he recalls.

Opening a Wound

Two days after the dinner, the good mood soured. Mr. Wallace received a call from Mr. Bronfman's wife, Ms. Aronson, about a speech Mr. Farrakhan had delivered. It isn't clear what the minister said that was so offensive — and the Bronfmans and Mr. Farrakhan haven't responded to numerous requests for interviews. But on the day after the dinner, Mr. Farrakhan gave a speech in Brooklyn, N.Y., in which he defended his trip to 16 countries, including several that have poor relations with the U.S. During the speech, he compared the deprivations of Iraqis living under United Nations economic sanctions to the fate of Jews in Nazi death camps.

Whatever remarks angered Ms. Aronson, there clearly was a wound: "Mr. Bronfman might have understood Farrakhan's need to court his constituents, but his wife was through," Mr. Wallace says. "As far as the Bronfmans were concerned, it was finished."

Mr. Wallace says he still believes that Mr. Farrakhan was sincere in wanting to reach out to Jews, but he says he has no idea why the Muslim leader continues his inflammatory rhetoric. "The man is a mystery to me," Mr. Wallace says.

There are also questions about who will someday succeed the 63-year-old Mr. Farrakhan, who is battling prostate cancer. Benjamin F. Chavis, the former director of the National Association for the Advancement of Colored People, announced Sunday that he is converting from Christianity to Islam, which could put him in line to succeed Mr. Farrakhan. (Mr. Chavis says talk of Mr. Farrakhan's successor is premature, because the minister is "strong, healthy and vibrant.")

Mr. Chavis, who was an ordained minister in the United Church of Christ, has expressed support for a "trialogue" among Jews, Muslims and Christians, and has generally enjoyed a good relationship with many Jewish groups. He also said in an interview that "obviously" his rhetoric "is different" from that of Mr. Farrakhan and that he had never made any statements he felt could be termed anti-Semitic.

Meanwhile, it is unclear whether the talks that began over dinner last year are really over. Mr. Wallace says he heard from Mr. Muhammad that there had been follow-up discussions about the hotel. A top associate of Mr. Farrakhan says simply that "quiet diplomacy is supposed to be just that—quiet."

As for Mr. Wallace, he says that his role as a mediator is over, and he won't try again: "I can't. I wouldn't. I'm a reporter."

THE WALL STREET JOURNAL
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Human cloning: Unsettling and now perhaps inevitable

OUR VIEW Breakthrough raises many concerns. But the issues are complex. We need dialogue, not a quick ban.

Did he who made the Lamb make thee?

The poet William Blake was asking about the "Tyger! Tyger! Burning bright." But in one newly foreseeable future, you might ask your neighbor the same question. Reports from Scotland that scientists have cloned an adult sheep — a "higher order mammal," as they say — make real the old science fiction that we may someday be able to clone ourselves.

It's a dizzying — and for most, unnerving — prospect. Imagine 100 Michael Jordans, each cloned by an avaricious would-be manager, playing in pro basketball. Imagine 100 Hitlers, to borrow from a 1970s film, being raised by neo-Nazis.

Closer to reality, imagine the bewildering and unsettled ethical implications of replicating a human being — issues of creation and liberty and "ownership" of the clone's genetic coding. And ask yourself: If science can reproduce any individual, will we someday conclude that individual life has no intrinsic value?

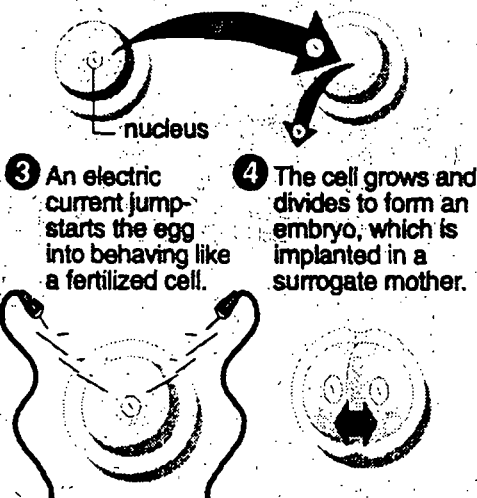
The answer: Who knows? Despite a few brief blips in the past quarter century, science and society have jointly failed to resolve these issues. We barely understand the ethics of cloning sheep, much less humans. Yet here we are, confronted by the possibility. And confronted with calls that Congress ban human cloning, as some European nations have done. Others want to ban animal cloning entirely.

Not so fast. If actually possible, human cloning is years away — plenty of time to assess the benefits and risks. If we ultimately decide that human cloning is not acceptable, fine. But do we really want to cap the line of scientific inquiry before knowing where it leads?

Probably not, especially since so far, the field has proved undeniably fertile. Genetic engineering has allowed scientists to create better vegetables, improve agricultural production, and develop new sources for medical treatments. Ian Wilmut, whose team cloned the sheep, thinks engineered and cloned animals may be able to produce hard-to-make proteins. Others envision animals with special traits being raised as or-

How scientists cloned a sheep

- 1 The nucleus of an adult sheep's mammary cell is starved of nutrients to make it dormant and non-dividing. The nucleus contains the cell's DNA.
- 2 The nucleus of the adult cell replaces the nucleus of an unfertilized sheep egg. Therefore, the adult sheep's DNA replaces the egg's DNA.



Source: USA TODAY research

gan donors for humans, thus ending drastic shortages. Or as test animals to enhance research on cystic fibrosis and other ailments.

And that's all just end product. The research itself can provide new insights into embryology, aging and disease management. Stymie the technology now by overreacting to the cloning of animals, and who knows what may be lost?

As for human cloning, what about the family that seeks to replace a lost child? Recreating the body is not the same as recreating the person, but for some it may be a start. And who's to say what rights an individual has to copy his own genetic coding?

President Clinton ordered a 90-day review of these and other subjects Monday. In the meantime, Wilmut and others say they find no ethical justification for human cloning and that instinctual opposition is sufficient for now.

Not all scientists have so much integrity, of course. Yet outlawing the technology before it is fully understood is no answer. The science is out of the test tube, and Dr. Frankenstein will work it if he wants. Better we know what tyger he is making before we lay our science down with lambs.

USA TODAY •

TUESDAY, FEBRUARY 25, 1997

Sun sets on once-powerful Japan Inc.

By Paul Krugman

Remember when we were afraid of Japan?

Not long ago, many Americans were terrified of Japan's growing economic power. In fact, Michael Crichton thought the Japanese were as scary as velociraptors. In 1992 he decided to follow up his smash 1990 best seller *Jurassic Park* with *Rising Sun*, a thriller about Japanese businessmen scheming to take over America. (Luckily, Sean Connery was on hand to save us.) And Crichton wasn't alone; the newspapers and magazines were full of stories about Japanese exports taking away our jobs and Japanese investors buying up our companies. America, the pundits told us, was going to have to imitate Japan if we wanted to survive in global competition.

How the mighty have fallen! In the past few weeks the headlines have focused on Japan's tumbling stock market, but behind the crashing Nikkei lies an economy that seems to be going nowhere fast. In the five years since the publication of *Rising Sun*, Japan's economy grown only 4%, compared with more than 20% in the USA. Almost no new jobs have been created, and Japan's budget deficit is running out of control. Actually, Crichton was

sort of right. These days the Japanese do look a bit like dinosaurs, after all.

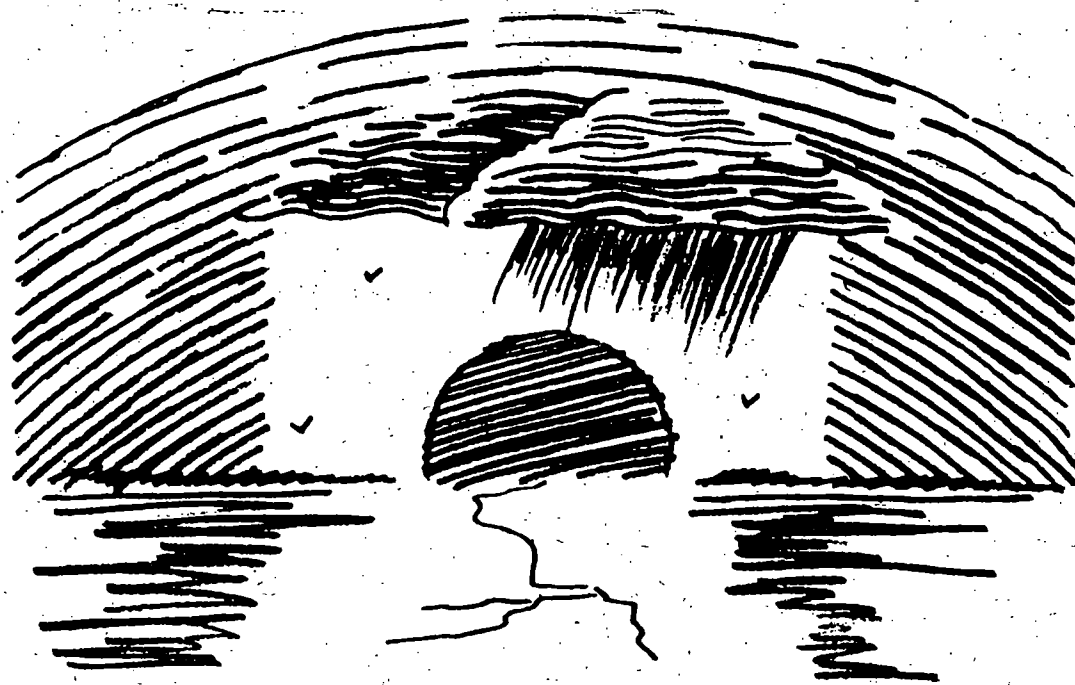
What went wrong?

Japan's strengths weren't all fictional. Japanese engineers are still second to none in their ability to design first-rate consumer goods; Japanese managers and workers still know how to run a factory as well as or better than anyone else. Whether in consumer electronics or in automobiles, Japanese companies are still formidable competitors. True, Japanese business has some compensating weaknesses. It lags far behind the U.S. in applying computers, especially networks, to office work; and Japan's service sector is a mix of overpriced department stores and tiny, inefficient mom-and-pop operations that would drive American shoppers wild with frustration.

Still, we have our own troubles; the implosion of Japan's economic performance cannot be blamed on its private sector.

No, the trouble with Japan lies neither in its businessmen nor in its workers, but in its bureaucrats, who have mismanaged its economy into the ground.

The funny thing is that during the days when Japan was feared and admired, those bureaucrats often got credit for the country's success. Japan, the experts told us, was beating



By Elys A. McLean, USA TODAY

us because it wasn't hung up on free-market ideology; instead, powerful and farsighted officials at the Ministry of International Trade and Industry and the Ministry of Finance took a hands-on approach, promoting new technologies, directing investment into the industries of the future, and keeping the financial system humming. Japan was not a disorganized free-for-all. Like

America; it was Japan Inc., a tightly run system aimed at conquering the world market.

Well, I never bought that line. Partly that was because, as a professional economist, I have a healthy respect for the free market and was skeptical about whether even the best and brightest bureaucrats could really hope to make better decisions than investors putting their own money on

the line. But I also wondered whether Japan's bureaucracy was anywhere near as competent as it was supposed to be.

Back in the 1980s, when the reputation of Japan's bureaucrats was at its height, I had an unusual opportunity to get a peek at the realities of Japanese government. I had given a lecture at the all-powerful Ministry of Finance, and some of the staff economists wanted

to continue the discussion. And so I got to spend a couple of hours back in their offices, and I formed a few impressions.

Now it's true that appearances can be deceiving. Still, for what it's worth, what the Ministry of Finance looked like was, well, Boston's Department of Motor Vehicles. Staffers wandered around in their socks, gossiping or smoking, while their desks were heaped high with disorderly stacks of yellowing paper. Many of the dusty, frosted-glass partitions were covered with taped-up centerfolds (I hear they have finally cracked down on that); broken chairs gathered dust in the hallways. This was the nerve center of the world's most dynamic economy?

Right then I decided that Japan had succeeded in spite of its bureaucrats, not because of them. And the performance of the Ministry of Finance and other agencies since 1992 has confirmed that low estimate of their competence.

Every economy can expect to go through a bad patch now and then; the test of its economic officials is whether they respond decisively and effectively. Japanese officialdom has failed that test with flying colors.

To outsiders, it seems obvious what the Japanese government needs to do. It needs to

deregulate and liberalize its economy to give the talent and work ethic of its private sector some room to flourish; and it needs at the same time to jump-start that economy out of its stagnation, expanding credit (if necessary simply by printing money) to get people spending again.

But nothing ever seems to happen. Ask where and how the economy will be liberalized, and you get much talk about the need for careful study. Ask why the credit-starved economy has not been given a boost, and you get philosophical discussions about the need for sound financial policy. (Japanese officials seem mesmerized by the memory of the "bubble economy" of the late 1980s, a wild, speculative increase in stock and land prices, which, with some justice, they blame for the country's current woes. But today stocks are sagging, not soaring; credit is inadequate, not excessive. Like bad generals, Japan's monetary officials are determined to fight the last war.)

Will Japan ever pull out of its funk? Only when it gets its bumbling bureaucrats out of the way.

Paul Krugman is a professor of economics at MIT and a member of USA TODAY's board of contributors.

USA TODAY

TUESDAY, FEBRUARY 25, 1997

Say no to playing God

OPPOSING VIEW

The prospect of cloning humans is frightening. We must never allow this to happen.

By Jeremy Rifkin

The announcement of the cloning of the first mammal in history raises profound moral, social, cultural and economic questions. For the first time in history, the technological possibility now exists to clone mammals, including human beings.

Animal cloning is a fundamental departure from both natural evolution and classical breeding and ought to be prohibited on both ethical and environmental grounds. It risks undermining biological diversity within each species, and short-term commercial benefits could threaten long-term survivability of our fellow creatures.

Human cloning represents a turning point for civilization. The new technology makes possible self-replication, allowing individuals to clone an unlimited number of identical copies of themselves.

Implications are incalculable. The very act of conception itself, which until now required the union of male and female, sperm and egg, is now merely an option.

We need to bear in mind that the foundation of human civilization is based on the coming together of male and female in family, kin and extended social order. In the "brave new world" of human cloning, how are we to define family and society?

Should individuals be allowed to clone loved ones or even strangers without their consent? After all, you merely need to scrape a few cells from another person's body — even without his or her knowledge — and you have the blueprint for cloning an identical copy. What's to prevent an organization, or a whole society, from cloning armies of "perfect" warriors and athletes, "superior" scientists and intellectuals?

Human cloning brings us into a new and dangerous era. This new technology raises a specter of both mass and customized production of identical human beings, assuring a degree of design predictability and quality control long associated with industrial-based products.

Human cloning raises the ultimate question of who should play God.

Should individuals be granted license in the open marketplace to create their own clones or those of others to serve either narcissistic or expedient ends?

We need to pass immediate legislation in every country to outlaw human cloning and to make the penalty for violation so severe that those considering it would think twice before going ahead. We've reached a point with the new biotechnologies where we need to say that just because it can be done doesn't mean it should be done. It's time to take a stand on behalf of the human race and all the other creatures we travel with here on Earth.

Jeremy Rifkin is president of the Foundation on Economic Trends in Washington, D.C.

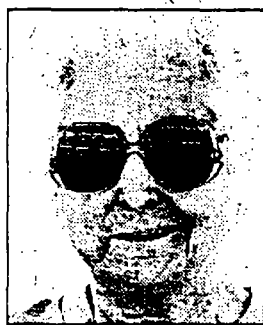
USA TODAY
TUESDAY, FEBRUARY 25, 1997

Voices: What will it take to get people more involved in their communities?

A national campaign to promote volunteerism, The Presidents' Summit for America's Future, begins in April. Led by Colin Powell, President Clinton and George Bush, the summit will encourage individuals, businesses and nonprofit groups to do more community volunteer work. USA TODAY asked readers how to make the bipartisan effort a success.



Katrina Mitchell, 18
Student
Bakersfield, Calif.



Viola Bottrell, 70
Homemaker
Palm Bay, Fla.



Roger Adams, 27
Athletic director
Roanoke, Va.



Slaughter James, 34
Pastor
Chicago, Ill.



Jerry Di Trollo, 42
Customer service rep.
Philadelphia, Pa.

This bipartisan volunteer program won't work because people don't volunteer for the right reasons anymore. Most high school and college students volunteer so they can put it on their resumes. Volunteering should be people using their skills to help.

It's an excellent program that will work, especially with Colin Powell as chairman and past and present presidents promoting it. Most people don't mind volunteering as long as they know something about the program. I have been volunteering for 35 years.

It takes individuals assuming responsibility for their own actions, lives and communities. Volunteerism is something that can't be mandated or required by the government. Lately, a lot has been said about people being pressured into volunteering.

African-Americans have to be careful about accepting these programs in our communities. Our experiences have been that once we use these programs, resources are cut. We need dialogue among leaders, parents and others in our community.

Colin Powell is without question the right individual to chair this volunteerism promotion. He is well-respected throughout the nation and a role model. My hope is that he will make a special effort to go out into the communities.

Top of page:

Col 1: The rise in investing by and for women is the leading edge of a surge in socially responsible investing in which you consider an investment's profit possibilities as well as its potential impact on society. (INVEST, moving Tuesday).

Cols 2-6: The nation's train whistles blow and factory sirens wail as China marks the end of an era in a memorial ceremony for Deng Xiaoping in the Great Hall of the People. (with art). (CHINA-TIMES, moved).

Above fold:

Cols 2-3: The Justice Department is investigating evidence that some 180,000 immigrants were naturalized over the past two years without undergoing the criminal background checks mandated by law, a House subcommittee discloses. (IMMIG, moved).

Col 4: The Food and Drug Administration declares that high doses of standard birth control pills provide a safe and effective way to prevent pregnancy when used as "morning after" pills following unprotected sex. (PILL-TIMES, moved).

Col 6: In their first talks with a senior Western diplomat since the death of Deng Xiaoping, China's president, premier and foreign minister underscored their interest in China's having a positive relationship with the United States. But in more than four hours of talks with Secretary of State Madeleine Albright, the Chinese gave her no hint of immediate breakthroughs on specific issues, including the contentious subject of human rights. (ALBRIGHT-TIMES, moved).

Below fold:

Col 3: In an unusual alliance, a group of California banks and thrifts have banded together to protest new surcharges levied by industry giants Bank of America, Wells Fargo and Home Savings. The group, led by Union Bank, says it will no longer levy surcharges on non-customers who use their ATMs. (ATMFEEES, moved).

Cols 5-6: Story on local law enforcement consolidation.

Bottom of page:

Cols 1-2: In public, President Clinton and first lady Hillary Rodham Clinton have for nearly three years maintained a distance from ex-Associate Attorney General Webster L. Hubbell since their longtime friend pleaded guilty to fraud and tax evasion charges. But in private, the Clintons have stayed in touch with Hubbell through a White House aide who has acted as a go-between. (CLINTON-HUBBELL, moved).

Cols 4-6: Nearly six years after a brilliant but emotionally troubled Los Angeles businessman committed suicide, his lover finally gets custody of 12 vials of sperm that he willed her so she could have his child after his death. (with art). (SPERM, moved).

Clinton's Used Aide to Stay in Touch With Hubbell (Washn) By David Willman © 1997, Los Angeles Times

WASHINGTON In public, President Clinton and First Lady Hillary Rodham Clinton for nearly three years have maintained a firm distance from former Associate Attorney General Webster L. Hubbell since their longtime friend resigned and pleaded guilty to fraud and tax evasion charges. But in private, the Clintons have stayed quietly in touch with Hubbell through a trusted White House aide who has acted as a confidential go-between.

During the 16 months that Hubbell spent in prison, the White House aide, Marsha Scott, frequently visited him. Scott, according to several of their friends, checked on him and reassured him of the first family's concern.

And, when Hubbell was first appearing before a grand jury investigating the Whitewater controversy, Scott traveled to Little Rock, Ark., to confer with him.

"Marsha would drop by and visit when Webb was in town to meet with the independent counsel people," said Breda M. Turner, a friend at whose residence Scott and Hubbell met to talk.

Clearly, Scott is a personal friend of long standing with the Clintons, Hubbell and his wife, Suzanne. Scott and Hubbell were in the same graduating class at Little Rock's Hall High School. She and Clinton have known each other for 30 years.

"We were brought up here to say, 'If he's my friend he's my friend,'" said Michael C. Schaufele, Hubbell's close friend and accountant in Little Rock. "Yes, he made mistakes. But that might be the time he needs you the most."

Yet Scott's visits with Hubbell in late 1994 through 1996 and her relaying of any messages from the Clintons are certain to stir controversy.

In the more than two years since an independent counsel began investigating Whitewater, suspicion has hung over Hubbell and the Clintons intensified by Hubbell's announcement this month that he would not cooperate with federal investigators.

Prosecutors have long been frustrated by Hubbell's insistence that he could not recall certain transactions involving himself and Mrs. Clinton when both were partners at the Rose Law Firm in Little Rock. Last week Hubbell invoked his right against self incrimination, declining to provide documents to a House committee.

Meanwhile, investigators are trying to determine how Hubbell obtained a number of well-paying business engagements after he resigned his No. 3 job at the Justice Department, including a deal with an affiliate of Indonesia's Lippo conglomerate.

Hubbell has maintained that the deals are his private business. But some Republicans have flatly asked whether they amounted to "I money." Scott's visits may provoke new questions about the possibility of a support network connected to the White House that has sought to buoy Hubbell's resolve during the investigation and assure him that he had not been abandoned.

As the Whitewater inquiry winds toward its end and Hubbell tastes his first weeks of freedom since being released from his federal sentence, his friends say that he now believes he may be a target for further prosecution.

"His first priority is to find a job," said Schaufele, a friend since high school. "He wants to get his life straight. But right now, a lot of things cloud that issue."

Scott referred questions Monday to others at the White House. Lanny J. Davis, a White House special counsel, said that Scott kept in regular touch with Hubbell "purely on a personal level, as an old friend, not in an official capacity. She certainly did not carry messages to and from anyone."

Laura Shores, Hubbell's lawyer, said that her client and Scott are "very good friends." Shores declined to discuss the matter further.

Hubbell resigned from the Justice Department in March 1994. He was imprisoned the next year on fraud and tax charges stemming from his bilking of \$482,410 from former clients and partners at Rose, where he and Mrs. Clinton had been partners. He was released from federal supervision this month.

Scott, 49, worked 30 years ago with Bill Clinton on the staff of Sen. J. William Fulbright, D-Ark. Scott later moved to Santa Cruz, Calif., where she later helped lead Clinton's 1992 presidential campaign in Northern California, and is now a top political affairs aide.

Another senior White House aide, Deputy White House Counsel Bruce R. Lindsey, acknowledged before a Senate investigating committee last year that he and Scott occasionally talked about the Hubbell family's situation, but added: "We certainly never had any discussions about anything that could be done about it simply sort of commiserated about how tough it is on them all."

Cloning for Good or Evil

The startling news that scientists have cloned an adult sheep, producing a younger, genetically identical "twin" of the original, is a reminder that reproductive technologies are advancing far faster than our understanding of their ethical and social implications. Just a few years ago, researchers seemed confident that such cloning lay far in the future, giving ample time to wrestle with the consequences. Now a little-known team from Scotland has breached the barrier and entered a realm that fiction writers have long suggested is rife with potential for evil. The possibility of making carbon copies of humans is no longer quite so far-fetched.

What the scientists did was take a cell from an adult ewe, fuse it with another sheep's unfertilized egg from which the nucleus had been removed, and then jolt it with a spark of electricity to start the egg dividing into an embryo.

The immediate goal is to produce better animals for agriculture — by cloning the best milk producers in a dairy herd, for example, or genetically altered animals whose milk would contain therapeutic proteins. Whether this will be a boon or a bust may depend on the economics. The long-term dangers are that cloning will reduce the genetic diversity of herds, rendering them more susceptible to wipeout by disease, and that cloning might inadvertently put a ceiling on future advances in animal husbandry. Traditional breeding produces better animals through mixing genes from two different parent animals to produce a specimen superior to both. Cloning might settle for copying the best existing animals.

The most troubling issues involve the potential for cloning adult humans. Nightmares envisioned in literature and popular entertainment have ranged from cloning dozens of Hitlers to cloning hordes of drones to perform menial work. Would some entrepreneur seek to clone enough Michael Jordans to make an unbeatable basketball dynasty? Would societies try to engineer a more "perfect" population by replicating geniuses or athletes or the most beautiful by current norms? Would a wealthy ego-maniac want his legacy to be not a foundation or a university building, but a copy — or multiple copies — of his very own self?

The technology of the sheep cloning, though crude and not very effective at this point, appears straightforward and the cost moderate. Still, it is hard to escape the thought that most such experiments in humans could backfire, given the crucial role that environment plays in human development.

The mere thought of cloning provokes a revulsion in many people who see it as arrogant tinkering with Mother Nature and a dangerous interruption of the gene flow from which the human race has evolved. But in some respects the latest achievement is only a step beyond technologies already in use in animal husbandry, such as the genetic altering of animals to produce drugs or the cloning of animal embryos to produce multiple copies of cattle. Like most technologies, cloning is bound to have both virtues and vices. But before these advances get too far ahead of us, society will need to sort through what is acceptable and what is the nightmare beyond.

Madeleine Albright's Visit to China

The coincidence of Deng Xiaoping's death and the beginning of Bill Clinton's second term offers the hope that relations between the United States and China can be put on a more stable, productive track. Madeleine Albright made a good start in her brief visit to Beijing yesterday by talking candidly to the Chinese leadership about its continued abuse of human rights.

Ms. Albright left Beijing without any commitments from the Chinese, but she did not flinch from reviewing China's dismal human rights record. Her hosts, for a change, did not rudely dismiss the American concerns. That does not mean Washington has restored human rights issues to the center of its agenda with China, much less gained agreement from the Chinese to tolerate democracy and dissent. But at least Ms. Albright did not neglect the issue, too often the practice of American officials during the last four years.

Chinese leaders are clearly not ready to take the specific human rights steps Washington requires as a condition for ending its co-sponsorship of a resolution condemning Chinese practices at a United Nations panel next month. Yet they seemed to go out of their way to tell Ms. Albright they were eager to improve relations. Beijing's caution is not surprising after the death of Mr. Deng.

Members of the leadership will be maneuvering for position in the months leading up to the next Communist Party Congress in October. While domestic issues will be crucial to this contest, leaders like President Jiang Zemin and Prime Minister Li Peng will also be judged on their ability to manage relations with the United States.

Since the Clinton Administration backed away from linking trade to human rights three years ago it has been sending Beijing a series of mixed and generally ineffective messages. While rightly affirming America's own preference for "engagement," Washington has failed to convey what China must do to assure closer ties.

Ms. Albright offered clearer guidelines, discussing the progress Washington would like to see in the human rights, weapons sales and trade areas. She also stressed America's concern that China refrain from further military intimidation of Taiwan and respect the international agreement guaranteeing substantial autonomy to Hong Kong after it reverts to Chinese control this July 1.

These same issues need to be taken up again by Vice President Gore when he visits Beijing next month. With China entering a time of political uncertainty, consistency and clarity from Washington are more important than ever.

The New York Times

TUESDAY, FEBRUARY 25, 1997

On My Mind

A. M. ROSENTHAL

But He Was a Killer

HONG KONG

When Joseph Stalin died, Western newspapers carried stories about the sorrow that was supposed to have gripped the Soviet people and how they would miss him.

Now things are different. The Chinese people are deliciously casual about the death of the man who headed the Communist dictatorship so

Does it matter?

long. The mourning about Deng Xiaoping comes from the West.

A cortege of chiefs of state, diplomats and journalists tell us how much he will be missed and how they hope the next resident dictator will match up to him.

Deng Xiaoping was a killer. Does it matter?

He was a leader flexible enough to remodel the economic system becoming dangerous to his party but keep intact the police-rule system on which it depends to rule, also to stay alive.

Deng's flexibility, and the West's frantic desire to cash in on it, created economic growth for some parts of China and sections of the population.

But he was also a killer. Does it matter? It was Deng who ordered the shooting of the students in Tiananmen Square in 1989. It was he who then ordered more police terrorism to make sure everybody understood. More dissidents died under prison torture or by execution.

By then he had long experience. Throughout his regime the hideous brutalities of the laogai, the Chinese gulag, had killed thousands of prisoners and everlastingly marked with pain the lives of millions.

He ordered and guided a massacre of a nation and people. He directed the occupation of Tibet in 1949 and the slaughter of its people and civilization, continuing today. So murderously did he hammer Tibet's society and Buddhist religion that even Mao Zedong, then his chief, asked him to go easier, for a bit. He did not.

It was a quintessential colonial ethnic cleansing: occupy, make rebellion inevitable, wipe it out, move Tibetans out of their land, move Chinese in.

Here's a letter from Wei Jingsheng published in the West. He is a

hero. Sentenced to 14 years for dissident writings, he wrote a letter to Deng that got him 14 more. It was about what had befallen Tibet: "The orchestrator of this tragedy is no other than you, Deng Xiaoping."

Is there a statute of limitations for the killings? The West has decided it does not matter. Trade profits, even the hope of them, that's what counts.

What the leaders, business executives and journalists who mourn Deng are saying is this:

Westerners are sophisticated enough to handle food and freedom at the same time. Chinese are not. Under Communist direction we will help China build its economy; freedom is not our product. Hong Kong? The people will accept destruction of their freedom. Chinese troops and local financiers will see to that beginning July 1. Forget Tibet. How much money can we make out of Tibetans? It's a laugh.

Thus speaks our brave new West — "freedom is important to us, but those Orientals would rather have VCR's and stability. We can't shape their country in our political image or try to contain it."

The arguments amount to double-standard racism and are fraudulent.

Historically the great economic progress has been created in free countries, not tyrannies.

No fighter for human rights suggests that China copy any other country — just let its people talk, write and worship without fear of torture or death.

Struggling for human rights — beyond the release of a few prisoners — does not "contain" China but gives it the only chance for a genuine opening to the world's mind, not just its cash register. It is the only hope of preventing Beijing from drumming up a nationalism that will bring explosions with neighbors or other targets.

"Foreign investors will find themselves in an ever more hazardous and unpredictable environment as central authority declines, corruption spreads and each locality makes its own rules," writes the journalist James Miles in "The Legacy of Tiananmen: China in Disarray" (University of Michigan Press).

But Wei Jingsheng will live on in the mind and love of good people, long after the money-motivated apologists for Communist China's terrorist rule have gone on to richly deserved obscurity.

"No other than you, Deng Xiaoping." He was a killer, and yes it matters. □

The New York Times

TUESDAY, FEBRUARY 25, 1997

Scottish Scientists Clone Adult Sheep

Technique's Use With Humans Is Feared

A1

By Rick Weiss
Washington Post Staff Writer

Researchers for the first time have cloned an adult mammal, a controversial feat that could presage the ability to clone human beings.

The startling achievement, long thought to be biologically impossible, was accomplished with sheep, the first of which, named Dolly, was born in July in Edinburgh, Scotland.

A total of nine cloned lambs have been born so far using the new technique, each an identical genetic "twin" of the parent from which it was cloned. In theory, the same technique could be used to make unlimited copies of any single adult animal, the researchers said.

The Scottish scientists who conducted the work said their goal was not to clone humans, but to create large herds of specially engineered farm animals—including some that would produce human medicines in their milk and others that would contain "humanized" organs suitable for transplantation into people.

Herds of cloned animals custom-made to have human diseases could also prove useful in the search for cures for those human ills, they said. Eventually, for example, barns filled with identical sheep all suffering from cystic fibrosis could replace the cages full of mice that are now the workhorses of such research, allowing testing of new drugs on animals whose lungs resemble human lungs much more than mouse lungs do.

The researchers acknowledged, however, that there was no reason in principle why the surprisingly simple technique they used could not be applied to human cells. That could allow virgin women to give birth to identical copies of themselves and might even allow the "resurrection" of genetic duplicates of the recently deceased.

Medical ethicists and others said they could not think of a justification for using the technology on people.

"Most people who have thought about this believe it is not a reasonable use and should not be allowed," said George Annas, a bioethicist and professor of health law at Boston

CLONE, From A1

University. "The real question is: How can it be prevented? You can't very well stop a rich person from setting up a lab on some tropical island. You can imagine a wealthy eccentric who thinks there's no one worthy of his inheritance except himself."

Annas said even some of the more compassionate applications, such as using the technique to make a duplicate of child who has died in a tragic accident, were beyond the pale of what most Americans—including scientists—believe to be ethical.

"This is not a case of scientific freedom versus the regulators," he said. "I don't think even the Army wants a clone of a special commando unit."

The Scottish researchers denied any interest in making copies of people. "We're simply not interested in working with human material, and we think it would be ethically irresponsible to do so," said Ian Wilmut, who with Keith H.S. Campbell of the Roslin Institute in Edinburgh led the research.

Such research is prohibited in Britain and some other countries, Wilmut said. In the United States, federal funds cannot be used to conduct human embryo research, but there are no legal restrictions on such work done with private funds—a loophole that some ethicists say should be closed by new laws.

Controversial human applications aside, scientists in this country said they were astounded by the success and overwhelmed by the potential for agricultural and medical advances made possible by the new method. Researchers have tried to clone adult mammals for many years with no hints of success, and most had all but given up.

"It flies in the face of biological dogma," said Neal First, an animal biotechnologist and chairman of reproductive biology at the University of Wisconsin in Madison. "Work in mice and other animals had convinced us all it couldn't be done."

In 1994, First was the first to clone cattle, but he did so by using cells from cattle embryos—a method that others have used to clone other animals including mice. That technique can be used to create multiple identical animals. But scientists using that method do not know exactly what traits their clones will have because the clones are made not from the genetic material of a single known, existing adult but from undeveloped embryos that are made from a mix of genes from a father and mother.

By contrast, the new work creates identical copies of an adult animal, whose characteristics are known and deemed desirable, using only its genes.

The Washington Post

MONDAY FEBRUARY 24 1997

An Inside Job

By Al Kamen
Washington Post Staff Writer

Several Loop Fans have been wondering what's taking the Interior Department so long to fill some key jobs. Well, there's been a bit of a tussle between Interior Secretary **Bruce Babbitt** and the White House politicians over some candidates, with Babbitt learning toward career types and the Clintonites favoring more politically attuned candidates.

One intense negotiation involved **Ken Smith**, a biologist and natural resources adviser to **Bill Clinton** in his Arkansas days. Smith came to Washington with Clinton to be deputy director of the Fish and Wildlife Service at Interior and is now director of external affairs. He was looking to move up to be director of Fish and Wildlife.

Babbitt, however, favored a career employee, **Jamie R. Clark**, who is assistant director for ecological services at Fish and Wildlife, dealing with endangered species and the like.

Okay, the political folks said, what about assistant secretary for fish and wildlife and parks?

No. Babbitt wants **Donald J. Barry**, a counselor to the assistant secretary, to move up to that job. Colorado Gov. **Roy Romer** also has a candidate, **David Getches**, who has done some think tank-type work for Babbitt and is a law professor at the University of Colorado. Babbitt wanted Smith to be deputy to Barry.

Smith, given his Arkansas ties to Clinton, checked in with fellow Razorbacks such as Federal Emergency Management Agency Director **James Lee Witt** and, more important, White House personnel chief **Robert J. Nash** to get some political help.

Clinton is said to have told Nash to tell Babbitt to give Smith what he wanted. But when called by the White House, Babbitt, as he usually does, said, "Have the president call me."

Apparently Clinton didn't, so last word had it that Babbitt had prevailed and convinced Smith the deputyship was a good spot.

Two other likely nominees didn't spark much internal tussle. **Kathy Karpan**, who lost a Senate bid in November against **Mike Enzi** (R-Wyo.), is undergoing final background checks before she's announced as the nominee to be director of the Office of Surface Mining. Salt Lake City trial lawyer **Patrick A. Shea**, a Democrat who loyally ran as the sacrificial lamb against Sen. **Orrin G. Hatch** (R) in 1994, is the pick to fill the long, long vacant job of director of the Bureau of Land Management.

One other top opening has yet to be worked out—National Park Service director. Babbitt is reported to have settled on **Robert G. Stanton**, a career employee who is now field director of the National Park Service field areas.

But there is word from the White House that former deputy chief of staff **Harold Ickes** may still be interested in the job and that someone in the administration thinks that the Senate would confirm Ickes.

This would serve as further evidence that a

particularly potent form of marijuana has made its way to major urban areas.

Staying in Dublin

■ The recent White House directive to a few dozen noncareer ambassadors to move out this summer isn't going down well in some quarters. Sources say Sen. **Edward M. Kennedy** (D-Mass.) has been working on trying to get his sister, **Jean Kennedy Smith**, an extension of her stay in Dublin.

Kennedy was spotted earlier this month at a Democratic function at the White House, where he afterward cornered Clinton and said he wanted to talk to him about "Jean's staying on in Ireland."

Clinton is said to have demurred, suggesting another time for that chat, but Kennedy insisted, saying it was most important to him that his sister could stay on in Ireland. So they chatted.

Kennedy apparently prevailed because even though the official directive says people should leave about June 30, Clinton is allowing Smith to stay until the end of the year. The public reasons are that with the British elections in May and a new Labor government likely to be installed, there's some reason to keep Smith on for transition during the peace talks.

Or something like that.

Others wishing to hang on might want to check election schedules in their countries—or neighboring countries—and make a pitch for continuity.

Reno's 10 Minutes

■ She's coming baaack. Attorney General **Janet Reno** says she was "very gratified" last week when the Supreme Court went her way and ruled 8 to 1 that police may order passengers, not just drivers, out of stopped cars. The ruling is in keeping with a long line of high court decisions that say "if it rolls, floats or flies," forget constitutional protections.

Fresh from that victory, Reno is thinking of a repeat performance. "I was very glad" last time, she told reporters, "that I would only have 10 minutes" of the 30-minute government argument, "because I thought, well, I can't make too much of a fool of myself in 10 minutes."

"But when the light went on and I had to sit down, I was sorry," she said. "So I've talked to [Solicitor General] **Walter Dellinger** about what I might do for the future."

Maybe another case to chip away at the little bit left of the old Fourth Amendment?

Generally Speaking

■ It's not done yet, but it appears that **David Satcher**, the first African American to head the Centers for Disease Control and Prevention in Atlanta, looks to have a lock on a nomination to be the next surgeon general.

That office has been much eviscerated since Clinton decided not to try again after the **Henry Foster** nomination debacle, but a pulpit is a pulpit.

The Washington Post

MONDAY, FEBRUARY 24, 1997

To do so, the Edinburgh team and researchers at Roslin-based PPL Therapeutics took unfertilized eggs from sheep and removed all of the eggs' DNA, leaving behind just the gutted cell with the nutrients and cellular machinery needed to foster embryo growth.

Under normal circumstances, the maternal genes that the scientists removed would have been joined by genes from a sperm, providing a full set of DNA necessary to trigger embryo growth. Instead, the researchers added a full dose of genes from a single mature cell removed from the udder of an adult sheep.

With the egg thus endowed with a full complement of genes, a mere spark of electricity from a lab technician was sufficient to start the egg dividing into an embryo, the researchers found. After a few days in a culture dish, the resulting embryos were transplanted into the wombs of surrogate mother sheep. Each resulting ewe, born a few months later, was genetically identical to the animal that had donated the DNA.

Although scientists have tried similar techniques in the past, they failed to recognize one key requirement, Wilmut said: The donor cell must first be treated with chemicals that "reset" that cell's biological clock in a way that leaves its DNA poised to divide anew.

There is no reason why the same approach couldn't be done with human eggs and cells, inserting the genes of any living—or perhaps dead—man or woman into unfertilized eggs and implanting them into a surrogate mother to allow them to develop normally.

Details of the work will appear in Thursday's issue of the journal *Nature*, but were reported over the weekend by the *Observer* of London, immediately sending shock waves through scientific and bioethics communities worldwide.

In the United States in particular, where human embryo research has become a political football in recent years, scientists' excitement over the unexpected success was surpassed only by their fears that the feat could lead to overly restrictive limits on related but less controversial areas of research.

"I think some embryo research should be allowed," because it could lead to new treatments for infertility and an understanding of certain inherited diseases, said James Thomsen, a researcher at the University of Wisconsin. "But because emotions are so strong on the subject, this could end up harming good research."

In December 1994, a panel convened by the National Institutes of Health determined that the cloning of humans raised overwhelming ethical concerns and should not be allowed, but that certain kinds of human embryo research were ethical

and scientifically valid and ought to be permitted with federal funding.

President Clinton disagreed and immediately directed the NIH not to fund any human embryo research. That move created a regulatory vacuum for privately funded embryo researchers at fertility clinics and universities, who often voluntarily follow whatever guidelines the NIH promulgates. Unwilling to kill their research programs altogether, private research institutes in this country now pursue embryo research without answering to anyone.

Biotechnology industry representatives yesterday tried to assure the public of the industry's high ethical standards.

"We've been opposed to human cloning since the days that it was

still a theory, and now that there's an indication it may be possible, we urge it not be done," said Carl Feldbaum, president of the Biotechnology Industry Organization.

"For now, we ought to do what researchers did in the '70s when they weren't sure of the consequences of genetic engineering: They called for a voluntary moratorium on that kind of work. If voluntary restrictions are not sufficient, then perhaps it ought to be prohibited by law," Feldbaum said.

Wilmut of the Roslin Institute said it was still too soon to envision the possibility of generations of identical human clones. "Right now it's a thing for fiction, for films and books. We simply don't know if it's possible," he said.

The Washington Post

MONDAY, FEBRUARY 24, 1997

2/2

The Man Who Rebuilt Moscow

Mayor Luzhkov's Capitalist Style Could Launch Him Toward Kremlin

A1

By David Hoffman
Washington Post Foreign Service

MOSCOW—Stroll down broad Tverskaya Street toward the Kremlin in the heart of this capital and stop for a hot *pirozhok* pie and cup of *kvas* at Russkoye Bistro, where the food is cheap, the service swift and the motif thoroughly Russian.

The smart orange uniforms, the borscht and tea, even the architecture of Moscow's newest fast-food restaurant were chosen painstakingly by one man. He personally selected the store emblem: a 19th-century Russian Cossack officer.

He then erected a 72-foot-high electric sign in giant Russian letters declaring "Russkoye Bistro." And the money began rolling in.

Russkoye Bistro restaurants are now sprouting up all over Moscow, and no wonder. The man behind them is Yuri Luzhkov, the vigorous, bullying, populist mayor of this metropolis of 10 million people. The

squeaky-clean, chrome-and-glass restaurants are just a small glimpse of how Luzhkov is marshaling a new kind of capitalism onto the Russian scene. It is state capitalism, in which the government is the powerhouse—choosing between winners and losers in the market; and becoming a big business by itself—and Luzhkov is the muscle man.

Soon it may launch Luzhkov toward the Kremlin.

From the modern look of Russkoye Bistro, to the golden cupolas of the restored Cathedral of Christ the Savior on the Moscow River, to the massive roof being stretched over Luzhniki Sports Arena, to the giant underground shopping mall nearing completion at Manezh Square—Luzhkov has had a hand in all of them—no detail of Moscow's post-Soviet rebirth escapes his attention.

He has become the undisputed boss of Russia's capital, with its lively commercialism, sea of peddlers and traders, and pervasive corruption.

See LUZHKOVA, A16, Col 1

LUZHKOVA, From A1

President Boris Yeltsin's long illness has fueled speculation that another power struggle, and possibly a presidential election, looms for control of Russia. If so, Luzhkov, 60, barrel-chested and bull-headed, a one-time Soviet administrator who transformed himself into a disciple of profit, is increasingly described as the candidate who could represent the moneyed and progressive interests of today's Russia—those who, broadly speaking, want to continue the transition to free markets and democracy.

The fight for power in Russia is a contest between powerful clans, and Luzhkov sits atop one of the mightiest of these ruling oligarchies, a Moscow group of politicians, city agencies, banks, businessmen and security forces. He faces one serious liability: In the decaying provinces, there is resentment of the prosperous capital. But Pavel Bunich, an adviser to Luzhkov and member of parliament, predicted this envy would recede "once people see there are no potholes on the roads."

In recent months, Luzhkov has been sounding off on national themes, and polls show his ratings are inching upward. Among Moscow's political elite, he is increasingly seen as the only political figure capable of doing battle with Alexander Lebed, the popular but authoritarian retired general who also hungers for the presidency.

"I'm not planning to join this wild, false start of a race," Luzhkov protested recently. But he added, "The absence of the president for such a very long time will leave its mark."

The Builder

Just after the 1991 coup attempt, then-Soviet President Mikhail Gorbachev was equivocating about whether to resign from the Communist Party when he was visited by Gavril Popov, a mild-mannered professor who was then Moscow's mayor, and his deputy, Luzhkov. It looked like Gorbachev would try to hang on, Popov recalls in a new memoir.

"Then Yuri Luzhkov began to speak," he said, "with all of that manager's forcefulness of his. Luzhkov's vigor turned out to be a complete surprise. The decision to leave the party was taken." He "practically dictated the text" of Gorbachev's departure statement.

Luzhkov's forcefulness soon came to dominate the city. A one-time manager in the Soviet chemical industry, he succeeded Popov as mayor in 1992. He saw that results mattered, not showcase statistics. Amid the chaos of those first years after the Soviet collapse, Luzhkov was an achiever, a builder—and people noticed.

"We see a person who gets things done, a strong person, an independent person, one who practically has no doubts, who quickly solves concrete problems," said Alexei Venediktov, news director of Echo of Moscow, a radio station.

Residents found that the city became cleaner, and more functional, than at any time in memory. Luzhkov opened new subway stations. He paved rutted roads. He began rebuilding the treacherous Moscow beltway into a 10-lane super-highway. Food became plentiful at outdoor wholesale markets, though many of the burgeoning street markets became unruly magnets for criminals.

Most importantly, he struggled to alleviate the pent-up demand for housing. He built 32 million square feet of new apartment space each year. He sold apartments to the rich and used the proceeds to pay for fresh housing for tens of thousands of families who had been on municipal waiting lists for years. It was a classic Luzhkov trade-off, soaking the rich to help others.

Luzhkov had a powerful helping hand: Moscow was ripe for change. It became a magnet for all the entrepreneurs and wealth of the post-Soviet era. It gave more money to the federal budget than did any region. Moscow has the most reform-minded electorate in the country and last year returned Luzhkov to office with 88 percent of the vote.

But he has had his failures, especially runaway crime. The city is rife with mafia gangs and protection rackets; bribery, kickbacks and secret overseas bank accounts are day-to-day facts of life; car bombs and contract murders have become common ways to settle disputes; and neither the corruption nor the violence has been brought under control by the city's weak law enforcement authorities. Last year, an American businessman, Paul Tatum, who was involved in a legal dispute with a city agency over a hotel property, was slain on the street. His killer was never found. Corruption here begins with traffic police who demand bribes and reaches into the higher echelons of business and government.

Luzhkov has sanctioned brutal tactics against the city's homeless, forcibly removing them to distant villages, and the police often arrest and rough up dark-skinned people, usually from the Caucasus region.

With an eye on Moscow's 850th anniversary celebration this autumn, Luzhkov has been erecting monuments to Russia's revival, both spiritual and commercial. In the tradition of Robert Moses, who shaped much of 20th-century New York City, Luzhkov has been the driving force behind several projects that are already reshaping Moscow's skyline.

Gangly construction cranes now tower over Luzhniki Stadium, where a 10,000-ton steel ring is being put in place to support a 140-foot-high, 12-acre sliding roof of glass-reinforced plastic. It will be Europe's largest roofed stadium. Although short of cash, the city has already poured \$36 million into the project.

Not far away rises the 334-foot-tall dome of the ornate Cathedral of Christ the Savior. Built by the Russian Orthodox czars in the 19th century to commemorate the victory over Napoleon, the cathedral was dynamited by Stalin in 1931. It has been elaborately—and critics say excessively—reconstructed. The finances are murky, but the final cost has been estimated at \$300 million.

A1 By GINA KOLATA

When a scientist whose goal is to turn animals into drug factories announced on Saturday in Britain that his team had cloned a sheep, the last practical barrier in reproductive technology was breached, experts say, and with a speed that few if any scientists anticipated.

Now these experts say the public must come to grips with issues as grand as the possibility of making carbon copies of humans and as mundane, but important, as what will happen to the genetic diversity of livestock if breeders start to clone animals.

For starters, quipped Dr. Ursula Goodenough, a cell biologist at Washington University in St. Louis, with cloning, "there'd be no need for men."

But on a more serious note, Dr. Stanley Hauerwas, a divinity professor at Duke University, said that those who wanted to clone "are going to sell it with wonderful benefits" for medicine and animal husbandry. But he said he saw "a kind of drive behind this for us to be our own creators."

Dr. Kevin FitzGerald, a Jesuit priest and a geneticist at Loyola University in Maywood, Ill., cautioned that people might not understand clones. While a clone would be an identical, but much younger, twin of the adult, people are more than just the sum of their genes. A clone of a human being, he said, would have a different environment than the person whose DNA it carried and so would have to be a different person. It would even have to have a different soul, he added.

The cloning was done by Dr. Ian Wilmut, a 52-year-old embryologist at the Roslin Institute in Edinburgh. Dr. Wilmut announced on Saturday that he had replaced the genetic material of a sheep's egg with the DNA

a 6-year-old adult's. The cells were put into tissue culture and manipulated to make their DNA become quiescent. Then Dr. Wilmut removed the nucleus, containing the genes, from an egg cell taken from another ewe. He fused that egg cell with one of the adult udder cells.

When the two cells merged, the genetic material from the adult took up residence in the egg and directed it to grow and divide. Dr. Wilmut implanted the developing embryo in a third sheep, who gave birth to a lamb that is a clone of the adult that provided its DNA. The lamb, named Dolly, was born in July and seems normal and healthy, Dr. Wilmut said.

In an interview, Dr. Wilmut said he wanted to create animals that could be used for medical research, and he dismissed the notion of cloning humans. "There is no reason in principle why you couldn't do it," he said. But he added, "All of us would find that offensive."

Yet others said that might be too glib. "It is so typical for scientists to say they are not thinking about the implications of their work," said Dr. Lee Silver, a biology professor at Princeton University. Perhaps, he added, "the only way they can validate what they are doing is to say they are just doing it in sheep."

Few experts think that sheep or other farm animals would be the only animals to be cloned. While cloning people is illegal in Britain and several other countries, John Robertson, a law professor at the University of Texas at Austin who studies reproductive rights and bioethics, said there were no laws against it in the United States.

If such a law was passed, Dr. Silver said, doctors could set up clinics elsewhere to offer cloning. "There's no way to stop it," Dr. Silver said. "Borders don't matter."

Dr. Ronald Munson, an ethicist at the University of Missouri at St. Louis, said the cloning itself was relatively simple. "This technology is not, in principle, policeable," he said. "It doesn't require the sort of vast machines that you need for atom-smashing. These are relatively standard labs. That's the amazing thing about all this biotechnology. It's fundamentally quite simple."

One immediate implication of cloning, Dr. Silver said, would be for genetic engineering: custom-tailoring genes. Currently, scientists are unable to take a gene and simply add it to cells. The process of adding genes is so inefficient that researchers typically have to add genes to a million cells to find one that takes them up and uses them properly. That makes it very difficult to add genes to an embryo — or a person — to correct a genetic disease or genetically enhance a person, Dr. Silver said. But now, "it all becomes feasible," he said.

After adding genes to cells in the laboratory, scientists could fish out the one cell in a million with the right changes and use it to clone an animal — or a person. "All of a sudden, genetic engineering is much, much easier," Dr. Silver said.

Dr. Wilmut is hoping that the genes for pharmacologically useful proteins could be added to sheep

mammary cells and that the best cells could be used for cloning. The adult cloned sheep would produce the proteins in their milk, where they could be easily harvested.

Because cloning had been considered so far-fetched, scientists had discouraged ethicists from dwelling on its implications, said Dr. Daniel Callahan, a founder of the Hastings Center, one of the first ethics centers.

In the early 1970's, "there was an enormous amount of discussion about cloning," Dr. Callahan said, and ethicists mulled over the frightening implications. But scientists dismissed these discussions as idle speculation about impossible things, Dr. Callahan recalled, and urged ethicists not to dwell on the topic.

"A lot of scientists got upset," Dr. Callahan said. "They said that this is exactly the sort of thing that brings science into bad repute and you people should stop talking about it."

In the meantime, however, cloning had captured the popular imagination. In his 1970 book, "Future Shock," Alvin Toffler speculated that "cloning would make it possible for people to see themselves anew, to fill the world with twins of themselves."

Woody Allen's 1973 movie "Sleepers" involved a futuristic world whose leader had left behind his nose for cloning purposes. Mr. Allen played a character charged with cloning to bring the leader back. A later movie, "The Boys From Brazil," released in 1978, involved a Nazi scheme to clone multiple Hitlers. That same year, a science writer, David Rorvik, published a book, "In His Image: The Cloning of a Man," that purported to be the true story of a wealthy man who had secretly had himself cloned but was found to be a hoax.

But gradually, the notion disappeared from sight, kept alive only in the animal husbandry industry, where companies saw a huge market for cloned animals and where the troubling ethical implications of cloning could be swept aside.

Now these questions are back to haunt ethicists and theologians.

Clones of animals, Dr. FitzGerald said, might sound appealing — scientists could clone the buttery Kobe beef cattle or the meatiest pigs, for example. But these cloned creatures would also share an identical susceptibility to disease, he cautioned. An entire cloned herd could be wiped out overnight if the right virus swept through it.

Dr. FitzGerald wondered if people would actually try to clone themselves. "Because we have all this technology and we have this ability," he said, "we can spin off these fantasies. But that doesn't mean we'd do it. It would be going against everything we desire for the human race."

Others are less sure. Mr. Robertson can envision times when cloning might be understandable. Take the case of a couple whose baby was dying and who wanted, literally, to replace the child. Mr. Robertson does not think that would be so reprehensible.

Cloning might also be attractive to infertile couples who want children and who "want to be sure that whatever offspring they have has good genes," Mr. Robertson said.

Of course, there are legal issues, Mr. Robertson said, like the issue of consent. "Would the person being cloned have an intellectual property right or basic human right to control their DNA?" he asked. If the person did, and consented to the cloning, would cloning be procreation, as it is now understood?

Mr. Robertson thinks not. After all, he said, "replication is not procreation."

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from an adult sheep and created a lamb that is a clone of the adult. He is publishing his results in the British journal Nature on Thursday.

While other researchers had previously produced genetically identical animals by dividing embryos soon after they had been formed by eggs and sperm, Dr. Wilmut is believed to be the first to create a clone using DNA from an adult animal. Until now, scientists believed that once adult cells had differentiated — to become skin or eye cells, for example — their DNA would no longer be usable to form a complete organism.

Dr. Wilmut reported that as a source of genetic material, he had used udder, or mammary, cells from

The New York Times

MONDAY, FEBRUARY 24, 1997

Voices in Each Party Call for Special Counsel on Fund Raising

By STEPHEN LABATON

WASHINGTON, Feb. 23 — A rising chorus of prominent Democrats and Republicans predicted today that Attorney General Janet Reno would ultimately have no choice but to recommend the appointment of an independent counsel to investigate the growing number of questionable campaign fund-raising practices by Democrats.

That an independent counsel was necessary appeared to be the unanimous view of four guests on NBC's "Meet the Press" today: Senators Russell D. Feingold, John McCain and Mitch McConnell and former Senator Bill Bradley. And Roy Romer, the new chairman of the Democratic National Committee, said, "If there needs to be a special counsel, I'm for it."

"I want to get everything out on the table," Mr. Romer said on ABC's "This Week." "We've got to clean this thing up so we can get on with running these two parties the proper way."

The White House declined to respond to the positions advanced on the talk shows. But the newly emerging bipartisanship on the issue is certain to put new pressures on Ms. Reno, who for weeks has denied requests from some Republican lawmakers and campaign watchdog groups for an independent counsel.

The Attorney General has responded by setting up a task force of prosecutors from the Justice Department's public integrity section, who are being assisted by agents from the Federal Bureau of Investigation. The task force has been examining improper donations to the Democratic Party, many of which were solicited by John Huang, a former senior fund-raiser at the Democratic National Committee. Investigators are also studying whether the Chinese Government or its agents may have tried to funnel money illegally into the Democratic National Committee.

Though Mr. McCain, Republican of Arizona, has for months been the leading voice from his party to call for an independent counsel, there was no significant Democratic support for one until last week, when Senator Daniel Patrick Moynihan of New York broke ranks with his colleagues and said that he believed that such an appointment was necessary.

Today, other Democrats began to endorse his position.

"Regrettably, I think we've come to the point where, under the discretionary powers of the Attorney General, we probably do have to go to special counsel," said Mr. Feingold, Democrat of Wisconsin.

Mr. Bradley, the New Jersey Democrat who recently retired from the Senate, said the appointment of an independent counsel was "the only way to clear the air."

New pressure to look into campaign donations.

"I think that ultimately the Administration will see that," he said.

But there is no consensus on what an independent counsel would investigate. Mr. Feingold, for instance, said he believed that the prosecutor should examine both Democrats and Republicans. On the other hand, Mr. McConnell, Republican of Kentucky, said the counsel should look only at potential criminal activities, as the independent counsel law requires, and not strive for some contrived balance between the two parties.

"There's a big difference between illegal participation and legal participation in the American political system," Mr. McConnell said. "We need an independent counsel to go after illegal behavior."

Ms. Reno has not ruled out recommending the appointment of a counsel if evidence arises that one is required. She came under criticism from some White House aides during the first four years of the Clinton Administration for being too quick to recommend the appointment of other independent counsels.

During that period, Ms. Reno sought four independent counsels to examine Mr. Clinton and his Cabinet.

Aides to one special prosecutor today disputed part of a Los Angeles Times report that said the White-water independent counsel had completed a final report confirming earlier investigations that Vincent W. Foster Jr., the former White House deputy counsel, had committed suicide nearly four years ago.

The aides said that the counsel, Kenneth W. Starr, would not be releasing a report any time soon about Mr. Foster's death. The independent counsel is required by law to file a report with the Federal court that supervises it at the conclusion of the investigation, which is still months away. The court would decide how much of the report to make public.

As previously reported, investigators in Mr. Starr's office concluded many months ago that Mr. Foster had committed suicide in a Virginia park across the Potomac River from Washington. Their findings are consistent with those of the Federal Bureau of Investigation, the United States Park Police, a coroner in Virginia, a Congressional committee and Mr. Starr's predecessor, Robert B. Fiske Jr.

The New York Times

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