he will outline the results of those efforts. Like all Americans, I am eager to hear the President's plan.

If there is one message in our success so far in the global war on terrorism it is this: When we stand together, terrorism cannot win. Right now, at this very moment, Afghanistan's new leaders are meeting in Kabul to choose a new government, a government that will represent Afghans of all ethnic backgrounds. They are sending a message of hope that the Taliban and al-Qaida never could: Terrorists can only destroy, democracies build. We want the Palestinian people to know that if their leaders will take the necessary steps to end the violence in their region, we are ready to build in the West Bank and Gaza too.

This afternoon I want to talk briefly about three principles that I believe should guide our efforts to help bring security, stability, and, ultimately, peace to this troubled region.

First, after 68 homicide bombings, the debate over whether Chairman Arafat is unable or unwilling to stop terrorism is unproductive and irrelevant. It is no longer important. What matters is that Chairman Arafat has clearly and consistently failed the test of leadership. If Chairman Arafat would take consistent, decisive actions against terrorist violence, circumstances would be different. But he has been unwilling to exercise this basic authority that is required of his office and required by the agreements he has signed and the commitments he has made on behalf of the Palestinian people. He has undermined his own credibility as the leader of the Palestinian people.

The second principle that should guide our efforts is this: Words alone are not enough. Reform demands results. Saudi Arabia, Egypt, and Jordan are all pushing for reforms of the Palestinian Authority. Their efforts are commendable. Unfortunately, their demands—and the demands of the Palestinian people—seem to be falling on deaf ears. Chairman Arafat has put a figurehead in control of the security services, leaving the power in his own hands. He signed the Basic Law but has done nothing to implement it. He added five new faces to his Cabinet, none of whom has the power to affect real change. And he announced new elections but set no date for them.

It is time to demand results, beginning with a democratic Palestinian leadership that confronts corruption and provides security for the Palestinian people and their neighbors. We want the Palestinian people to know: Such changes will garner support—in this country and in this Congress. America's people and political institutions will help rebuild the West Bank and repair the infrastructure of Palestinian society when the Palestinian leadership rejects violence and moves toward real, democratic reform. Such leadership, I am convinced, will also find a willing partner in Israel, which has time and again taken risks for peace. Rabin did it at Oslo, Netanyahu at Wye, and Barak at Camp David. And earlier this week, in this very building, Prime Minister Sharon made it clear he would be willing to make the sacrifices necessary to add his name to this distinguished list of warriors who fought for peace, if he is convinced there is a committed partner on the other side of the peace table.

The third and final principle is this: America's commitment to peace in the Middle East must be clear and consistent. It must never wane. President Harry Truman recognized Israel as a valued ally 6 minutes after Israel was created. Every American President since Harry Truman has known that the best hope for peace and positive reform in the region lies in sustained and decisive American engagement.

Every President since Harry Truman has made such engagement a cornerstone of American foreign policy. The current violence in the Middle East does not diminish the importance of U.S. engagement, it increases it. If there is to be any lasting peace, any chance for regional stability, Israel must be secure enough to make peace and strong enough to enforce it. That is a commitment the United States has made—and will keep. But there is another commitment we must honor as well, and that is our commitment to stand by Israel when she takes risks for peace, and stand with all parties who embrace peace as their goal—Israelis and Palestinians.

The United States is, and will remain, Israel's best friend. We are also the best hope for bringing all of the parties in the region together at the peace table. No other country in the world is in a better position to facilitate a dialog. We must remain actively and consistently engaged in the search for peace. We do not, for one minute, underestimate the difficulty of this task. The challenges, and the risks, are enormous. But the probable cost of doing nothing or vacillating from our historic course is far greater. It is too great a price to even consider.

I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The assistant legislative clerk proceeded to call the roll.

Mr. BROWNBACK. Mr. President, I ask unanimous consent the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

TERRORISM RISK INSURANCE ACT OF 2002—Continued

Mr. BROWNBACK. Mr. President, I ask unanimous consent the pending amendment be set aside.

The PRESIDING OFFICER. Without objection, it is so ordered.

AMENDMENT NO. 3843

(Purpose: To prohibit the patentability of human organisms, and for other purposes)

Mr. BROWNBACK. Under the previous unanimous consent agreement, I send an amendment to the desk.

The PRESIDING OFFICER. The clerk will report.

The assistant legislative clerk read as follows:

The Senator from Kansas [Mr. BROWNBACK] proposes an amendment numbered 3843:

At the appropriate place add the following:

SEC. ___. UNPATENTABILITY OF HUMAN ORGANISMS.

Section 101 of title 35, United States Code, is amended—

(1) by inserting ''(a) IN GENERAL.—'' before ''Whoever''; and

(2) by adding at the end the following:

''(b) UNPATENTABILITY OF HUMAN ORGANISMS.—

''(1) DEFINITION.—In this subsection, the term 'human cloning' means human asexual reproduction, accomplished by introducing nuclear material from one or more human somatic cells into a fertilized or unfertilized oocyte whose nuclear material has been removed or inactivated so as to produce a living organism (at any stage of development) that is genetically virtually identical to an existing or previously existing human organism.

''(2) UNPATENTABILITY.—A patent may not be obtained for—

''(A) an organism of the human species at any stage of development produced by any method, whether in vitro or in vivo, including the zygote, embryo, fetus, child or adult;

''(B) a living organism made by human cloning; or

''(C) a process of human cloning.''.

The PRESIDING OFFICER (Ms. CANTWELL). The Senator from Kansas.

Mr. BROWNBACK. Madam President, we are going to open a debate in the U.S. Senate on the future of humanity. I asked the clerk to read the entirety of the amendment because I wanted people to know what is pending now. The issue is a very narrow and a very clear one. It is about whether or not we allow the patenting of people.

This is an issue that is pending. There are at least three different patents in front of the Patent Office. The issue of whether you can patent human life or the process of creating human life is a question that is a live one in front of our Government, in front of our people. As I mentioned, there are three pending today. There are likely to be many more.

This is a narrow subsection of the overall issue on human cloning. This is not the issue about a moratorium on cloning. It is not the issue about a ban on human cloning. It is not the issue about therapeutic cloning. This is about whether or not we as a government will allow a person, a human in any stage or age of its development and growth, to be patented.

Currently, the Patent Office is rejecting these patents, saying they have that authority under the 13th amendment to the Constitution. That is the amendment that bans slavery. I happen to think the Patent Office is on good ground to be able to say that they cannot allow these patents because this would be slavery.

There are others who are contending that the young human at various stages—an embryo—is not a person, therefore is patentable; that a person can be patented because it is a piece of property. It is, in essence, livestock.

It is alive, we know that. But they would contend or say that it is not a person, so therefore we are putting this forward to make it clear to the Patent Office, for the people of America, the people around the world, that you can't patent a person at any stage or age of its development and growth. That is the entirety of the amendment. The clerk read the entire amendment.

Ultimately, the question that will be put before this Senate and this country, indeed the world, will be this: Shall we use human life for research purposes? Shall we use human life for commercial purposes? We are taking this as a narrow issue now on the issue of patentability.

In this debate we will have to answer whether or not the young human at his or her earliest moments of life is a person or is a piece of property. That is the narrow and the focused issue that is in front of us.

Cloning proponents will argue that the young human is a piece of property that can be created or destroyed at the whims of society for the benefit of others. I will argue that the young human is a person; that it is wrong to treat another person as a piece of property that can be bought and sold, created and destroyed, all at the will of those in power.

I think we all understand that human cloning is an issue of vast importance to our society and for humanity. This issue, unlike others, reveals the value we hold and the worth we place on human life. It is a decision that one generation of mankind will be making for all future generations of mankind.

I would also argue it is an issue that will determine what kind of future we will give to our children and grandchildren and their children and their children's children. The essential question is whether or not we will allow human beings to produce, to preordained specifications for eventual implantation or destruction, dependent upon the intentions of the technicians who create them; whether or not we will allow life to be created just to be destroyed and researched upon.

The question and its corollary must be addressed before the technology overtakes our public discourse. Indeed, today we have many of these capacities to do this to us now. We are doing it to animals and mammals. We can do this in humans. The question is, Should we do this? Is it right for us to do this? Is it the point in time that we want to make this decision to do this? Do we want to make this decision for all future mankind or do we want to pause? Do we want to stop here for just a moment and say, Wait? We should really think about such a monumental step and such a monumental move.

I would like to begin by making a few observations.

First, as we debate the issue, we need to debate the science along with the biological reality of the human embryo from his or her earliest moments of life. We all know that the human embryo is a life. But some question whether it is a life or a person.

Clearly, the human embryo—whether brought into being in a woman, whether artificially created in a test tube by fertilization, or by cloning—is seen by observation to be a new being of human genetic constitution and a unified life principle that in all normal circumstances of implementation and development will grow into an adult who will one day die. Because we call the adult a human person and because there is an essential, unified, biological continuity between him or her—by that I mean once you are alive you grow along that continuum until you die—and the initial one-celled embryo, it is clear that the one-celled embryo is an inviolable human person.

If you allow it to survive and to grow, it becomes a full-scale human being under anybody's definition. As some have attempted to discount this clear understanding of the biological continuity of the human person in order to justify some human experimentation in some circumstances, I note that the people who support this are supporting it for reasons that are very good, true, altruistic, to try to find cures for others' debilitating, terrible diseases, for which I want to find a cure. But I don't want to find that cure at the cost of somebody else's life. I don't want to find that cure at the cost of my life or Senator SPECTER's life or Senator REID's life or at the cost of anybody else—or young people yet to come and to be born. That is why I believe we should start with some basic definitions.

Human cloning is human asexual reproduction. It is accomplished by introducing nuclear material from one or more human somatic cells into a fertilized or unfertilized oocyte whose nuclear material has been removed or inactivated so as to produce a human living being—at any stage of development—that is genetically virtually identical to an existing or previously existing human being—the human being from whom the nuclear material was taken.

In essence, if we take nuclear material from the Presiding Officer or from myself and put it inside an egg and start the egg growing, there is a human of identical genetic material to me, to the Presiding Officer, and to anybody else in this room.

Roughly, the debate over human cloning has fallen into two categories, misleading as those categories may be: reproductive cloning and so-called research or therapeutic cloning.

Two-thirds of the American public, the President of the United States, a large majority of the House of Representatives, Senator LANDRIEU, and myself hold the position that all human cloning should be banned. It is a position based in large part on the principle that you should not create human life as a means of something else, especially purposely to destroy it, the point being—and the President put it very well—we should not be creating life just to destroy it or do research on it.

Some in the Senate don't want a full ban. They want a limited ban—what they refer to as ''preproductive cloning,'' but not on so-called research or therapeutic cloning.

All cloning is, of course, reproductive; that is, all human cloning produces new human life. That is the very nature of it. If you produce a human clone, it is a young human something. It is a human person; it is a human life. If you allow it to grow, it is not going to grow into an elephant or a tomato. It is going to grow into a human, if you allow it to grow.

I think the notion that human cloning can be therapeutic is both misleading and disingenuous. ''Therapeutic'' cloning, as some proponents of cloning refer to it, is really the process by which an embryo is specially created for the directly intended purpose of subsequently killing it for its parts. Some proponents of human cloning claim an embryo created in this manner will have cells for a genetic match to the patient being cloned and thus would not be subjected to the patient's immune system. I will address this issue of transplantation rejection later. Let me say that this particular claim is not scientifically true.

To describe the process of destructive human cloning as ''therapeutic'' when the intent is to create a new human life destined to its virtual destruction is misleading. However, one would like to describe the process of destructive cloning, it is certainly not therapeutic for the clone that has been created and them disemboweled for the purported benefit of its twin.

All human cloning is reproductive, regardless of the intention of the researchers and the technicians who have created that life or copied it.

I do not believe we should create human life to be used by others and, in the process, destroy it. Yet that is exactly what is being proposed by those who support cloning in limited circumstances. And however they might name the procedure—whether they call it nuclear transplantation, therapeutic cloning, therapeutic cellular transfer, DNA regenerative therapy, or some other euphemism—it is simply destruction.

The cloning of a human embryo is wrong in all circumstances, whatever it is called. Human cloning is wrong. Yet proponents of so-called therapeutic cloning claim that with the use of this controversial technique we will be able to cure a whole host of dread diseases that plague humanity—diseases that I want to cure, diseases that I helped double the funding for at the National Institutes. I am cochairman of the cancer caucus in the Senate. I want to see these cured. Cancer runs in my family. I want to see these things cured, but not at the cost of other people's lives.

I wish to take a minute to explain why some of the claims of those who support cloning are overhyped.

First, the argument that so-called therapeutic cloning will solve the immuno-response rejection problem is questionable.

Second, the reliance on this type of cloning as a treatment for those who are suffering will ultimately only be realized by heavily relying on the exploitation of women.

We should also not forget that this practice would be available only to the rich.

First, the myth of therapeutic cloning: It is becoming increasingly obvious that the so-called therapeutic purposes lack the evidence to back up their claims for the purpose of their technique of supposedly a ''regenerative'' type of medicine.

The promise that some have held out that the use of cloning technologies produce rejection-proof cells is starting to crumble under closer scrutiny.

This is the argument. If we just clone a person, they will have cells that are genetic matches and you will be able to put those back into your body and the body itself will not reject them because it is saying these are my cells. It would get around this immune-repressive problem we have with heart transfers or other organs or tissue transfers that have immuno-repressive problems. The problem is that under closer scrutiny, cloning does not work that well.

We know that cells derived from clonal embryos created for the purpose of stem cell transplantation contain mitochondrial DNA—that DNA passed through the maternal contribution to the zygote.

In other words, this is from outside the genetic material. To say the Presiding Officer provided it encased in mitochondrial material that is from a different person, it is a different person. Therefore, it is not genetically identical to the donor/recipient. This nonidentity can trigger an immune-response rejection.

If you take an outside egg, take your genetic material, put it in this egg and grow the cells up to a certain age, and kill this embryo for those cells, then you put it back in you, the problem is the egg isn't your matching genetic material. Some of that carries over to the characteristic of this genetic material of test cells that you are putting into your body. It still triggers the immune-response problem. That is one problem.

Further, there is not one animal model that shows this is not the case. In other words, we don't have an animal model that says if you just clone a person you can inject it right back into the person. We don't have a single animal model that says we get around this problem—none. Yet we are going to move forward on this theory that this works when we don't even have a single model that that works?

In fact, Dr. Rudolph Jaenisch, one of the leading vocal proponents of cloning admits that his study into the therapeutic value of cloning in animal models ''raise[s] the provocative possibility that even genetically matched cells derived by therapeutic cloning may still face barriers to effective transplantation.''

This is one of the leading advocates who is saying, early on, we don't get around immuno-suppressant problems, one of the leading claims of the cloning advocates.

In addition, it is now known that there are problems with gene expression and gene imprinting that can cause cell deterioration as well as other abnormalities in the clonal embryos.

Also, there are practical considerations, considerations that have led many of the advocates of cloning to concede the impracticality of efforts to custom make stem cells. That is what cloning is really about: Custom making stem cells for me, the Senator from Nevada, the Senator from Washington, and others. It is saying: OK, we are going to make some cells just for me. These are going to be custom made to fit what I need.

In an article by Peter Aldhous, entitled ''Can They Rebuild Us?'', published in Nature Magazine, the author notes that:

> [I]t may come as a surprise that many experts do not now expect therapeutic cloning to have a large clinical impact—many researchers have come to doubt whether therapeutic cloning will ever be efficient enough to be commercially viable. It would be astronomically expensive, says James Thomson of the University of Wisconsin in Madison, who led the team that first isolated E[mbryonic] S[tem] cells from human blastocysts.

For the advantage of my colleagues, I yield the floor so that colleagues can take advantage of some of their time.

I yield to the Senator from Nevada.

The PRESIDING OFFICER. The Senator from Nevada.

AMENDMENT NO. 3844

Mr. ENSIGN. Madam President, I rise to speak on behalf of the amendment of the Senator from Kansas.

We deal with issues around this body often. We deal with issues that, frankly, sometimes don't seem very important. But this issue is an issue of critical importance. This issue is really what the human species is all about.

I am a veterinarian by profession. I have studied embryology, as all veterinary students do, as all medical students do. We study it in detail. As a matter of fact, we study it in species after species.

I have studied the cloning of the famous Dolly clone that we are all familiar with, Dolly the sheep. When that first happened, there was something very disturbing that went off in my brain. It was not because of the cloning of an animal, it was because cloning put people in the future.

When Dolly was first announced, everybody said: No, we cannot clone people. We will never go there.

Last year, during the whole issue dealing with embryos that people were talking about, they were saying: No. You know what. We will not have cloning. We will ban cloning.

Everybody agreed, at that time, it seemed, that we were going to ban cloning. But now, as some of the research has gone forward, people are starting to say: You know what. Now we are just going to do therapeutic cloning. We are not going to do reproductive cloning.

Well, as the Senator from Kansas has pointed out, we are not dealing with just therapeutic cloning. It is all reproductive cloning. Dolly was produced by the same technology that therapeutic cloning will be produced from. It is the same, exact technology. It is cloning.

You can call it by any name you want to call it, but it is cloning.

I know there are other Senators who want to talk tonight, so I will not talk too much more on this.

But, Madam President, I send a second-degree amendment to the desk and ask for its immediate consideration.

The PRESIDING OFFICER. The clerk will report the amendment.

The legislative clerk read as follows:

The Senator from Nevada [Mr. ENSIGN] proposes an amendment numbered 3844 to amendment No. 3843.

Mr. ENSIGN. Madam President, I ask unanimous consent reading of the amendment be dispensed with.

The PRESIDING OFFICER. Without objection, it is so ordered.

The amendment is as follows:

(Purpose: To prohibit the patentability of human organisms, and for other purposes)

Strike all after the first word and insert the following:

UNPATENTABILITY OF HUMAN ORGANISMS.

Section 101 of title 35, United States Code, is amended—

(1) by inserting ''(a) IN GENERAL.—'' before ''Whoever''; and

(2) by adding at the end the following:

''(b) UNPATENTABILITY OF HUMAN ORGANISMS.—

''(1) DEFINITION.—In this subsection, the term 'human cloning' means human asexual reproduction, accomplished by introducing nuclear material from one or more human somatic cells into a fertilized or unfertilized oocyte whose nuclear material has been removed or inactivated so as to produce a living organism (at any stage of development) that is genetically virtually identical to an existing or previously existing human organism.

''(2) UNPATENTABILITY.—A patent may not be obtained for—

''(A) an organism of the human species at any stage of development produced by any method, whether in vitro or in vivo, including the zygote, embryo, fetus, child or adult;

''(B) a living organism made by human cloning; or

''(C) a process of human cloning.''.

''(3) EFFECTIVE DATE.—This section shall become effective 30 days after the date of enactment.''

Mr. ENSIGN. Madam President, the issue of human patenting in this whole issue of cloning. And the whole cloning debate is really an egregious one because the idea of being able to patent a human being or the making of a human being is probably one of the most egregious parts of this whole issue.

This really is a time when we are confronting a brave new world. The prospect of people in corporate America owning people and trading and buying and selling people as if they were

property is something that should give us all a chill.

So, Madam President, I think all of us should support the Senator's amendment, and the second-degree amendment as well.

Madam President, I yield the floor.

The PRESIDING OFFICER. The Senator from Kansas.

AMENDMENT NO. 3843

Mr. BROWNBACK. Madam President, I want to proceed to the discussion of this issue on the overall patenting because that is the narrow issue on which we are focused and it ties in, very closely, with this issue of cloning.

I was mentioning the Nature Magazine article about whether this will work because the issue of patents will be that people are seeking to create these humans, and then own them through the patenting process; that people will research and invest commercially in them. It should really send a chill through all of us.

I think the question one should be asking, even ahead of that, is: Will this even work? If we are going to allow this to take place, one might advocate, well, OK, this is going to work and create all these cures for diseases; therefore, maybe we ought to risk this to humanity.

I say, even on the science of this, the very basic science of this, the science says this isn't going to work either, so that we would be subjecting humanity to the notion that you can patent people, when it does not even work. And it is not going to proceed.

Here is the quote I was talking about by Peter Aldhous, entitled ''Can They Rebuild Us?'' in Nature Magazine, dated April 5, 2001:

It may come as a surprise that many experts do not now expect therapeutic cloning to have a large clinical impact—many researchers have come to doubt whether therapeutic cloning will ever be efficient enough to be commercially viable. It would be astronomically expensive, says James Thomson of the University of Wisconsin in Madison, who led the team that first isolated E[mbryonic] S[tem] cells from human blastocysts.

The article continues:

[M]ammalian cloning is inefficient, even in the hands of the most skilled scientists. Of the 277 cells from Dolly's mother that were fused with donor egg cells—

This is 277 eggs. And then because you had to make 277 of these, 277 eggs—

less than 30 developed to the blastocyst stage.

That is the early stages of development.

At the time experts believed efficiency would improve. But despite feverish efforts by groups worldwide, progress has been disappointing. We don't at the moment have any real handle on how to greatly increase the efficiency, admits Alan Coleman of PPL Therapeutics near Edinburgh, the company involved in the Dolly experiments.

So 277 eggs, to get to 30 developed to the blastocyst stage, to eventually get to one Dolly. So 277 to one, that is how many eggs we are going to have to have from women to be able to start these, to be able to get some sort of development moving along. You are talking about a very inefficient process, and one where you have to have a lot of women superovulating, collecting these eggs so we can get more of these clones going. At what price to women? At what price to humanity?

Also, in a recent LA Times interview—this is from May 10, 2002, about a month ago—Thomas Okarma of Geron Corporation said that cloning for customized stem cell treatments would take, ''thousands of [human] eggs on an assembly line'' to produce a custom therapy for a single person. He says, ''This proceeds as a non-starter commercially.'' The odds favoring success ''are vanishingly small.'' He said this. He is one of the lead researchers from Geron Corporation. The possibilities of success ''are vanishingly small.'' Yet we want to take this step for humanity on the science where the science says the opportunities, the possibilities ''are vanishingly small''? We want to go ahead and step forward and say: Yes, we should do research, we should patent people on an opportunity that is ''vanishingly small''?

That is not a wise step to take on the science of it, let alone how you view the human person, whether or not you should allow patenting of people on the science of it. It argues we should not.

This leads me to my second point which is, in order to be effective, therapeutic cloning must rely on the exploitation of women and the practice will be available only to the rich. This practice will have to rely upon the exploitation of women and will be available only to the rich. Aside from being highly impractical, the claim that therapeutic cloning will lead to cures is one that can ultimately only be realized with the blatant exploitation of women.

In order to conduct so-called therapeutic or research cloning on a scale that would yield just a portion of the benefits cloning advocates promise, one would need to harvest a vast number of human eggs. The only place you get those is from women.

As noted by Dr. David Prentice, a stem cell researcher at the University of Indiana:

More than 100 million people in the United States suffer from medical conditions for which embryonic stem cell therapies are being promoted as promising—Parkinson's disease, stroke, multiple sclerosis, spinal cord injuries, juvenile diabetes, ALS, and more. If 20 percent of cloning attempts succeeded in reaching the blastocyst stage of development—the success rate in animal cloning—and stem cells are derived from 10 percent of these clon[al] embryos—a rate consistent with such success rates in deriving embryonic stem cell lines from non-cloned embryos—how many eggs will we need?

Based on these assumptions, just his assumptions, saying OK, let's take our animal models on cloning, that we are going to say we can be just as successful with human cloning as we can in our animal models, and we will try to derive stem cells for just 10 percent of the people who suffer from one of these diseases, based on these assumptions it would take 800 million human eggs to treat just 16 percent of the Americans who suffer from conditions for which these therapies involving embryonic stem cells have been promised, to be able to address the treatments needed for just 16 percent of Americans suffering.

I am just saying, only the rich can afford this. It is going to be very expensive. Let's just say the top 16 percent of those who suffer can afford to do this. We will be able to treat those. With current knowledge and our ability, and even including a factor of favorability, saying we will be able to get this done efficiently from being a human egg to being a clone, because you to have make that transition, you will need 800 million eggs from women. Where are you going to get those? If 10 eggs are harvested per woman, then 80 million women of child-bearing age would have to submit to the risk of drugs and hyperovulation and surgical extraction procedures, providing the eggs that would be needed to develop therapies for just a fraction, 16 percent of those who are suffering from these conditions.

The egg dearth is a mathematical certainty and is one reason researchers say therapeutic cloning will not be generally available for medical treatment.

For example, a year ago biotech researchers Jon Odorico, Dan Kaufman, and James Thompson admitted the following in the research journal Stem Cells. They said: The poor availability of human eggs, the low efficiency of the nuclear cell procedure, and the long population-doubling time of human embryonic stem cells make it difficult to envision this, therapeutic cloning to obtain stem cells, becoming a routine clinical procedure, even if ethical considerations were not a significant point of contention.

James Thompson is the person who developed the embryonic stem cell, first found those in humans. He is saying that even if you didn't have ethical considerations, you will not be able to do this on a regular basis. That is aside from the overall issue. That is just the science of it. That is not questioning whether a human person should be patented or not. That is the question of whether you could do it, whether you have sound science based upon being able to do it.

Concerns such as these as well as others have led a group of progressive scientists, virtually all of whom support abortion rights, to state in their letter of support for a ban on all human cloning that:

Although we may differ in our views regarding reproductive issues, we agree that a human embryo should not be cloned for the specific intention of using it as a resource for medical experimentation or for producing a baby. Moreover, we believe that the market for women's eggs that would be created by this research will provide unethical incentives for women to undergo health-

threatening hormone treatment and surgery. We are also concerned about the increased bio-industrialization of life by the scientific community and life science companies, and shocked and dismayed that clonal human embryos have been patented and declared to be human ''inventions.''

This is a very real concern. As I am sure many of you are aware, the typical in vitro fertilization procedure involves a collection of eggs from women who seek to become pregnant in this manner. The superovulatory drugs typically used in this procedure will result in anywhere from 10 to 40 eggs. The use of superovulatory drugs has already been linked to ovarian cancer and other health risks. Some people choose to go ahead with that risk because of other concerns and desires they have.

The market for women's eggs is not just a fiction. In fact, the market for women's eggs has already developed. For example, the company Advanced Cell Technology of Massachusetts paid women up to $4,000 per egg donation. This is the group that claimed already to have cloned human beings in the United States. They paid women up to $4,000 per egg donation. There is another issue we should consider: Whether or not we are going to allow companies to pay for women's eggs, to create this marketplace, to allow this marketplace to take place.

Such a market for women's eggs will be a true threat to the health of many women. Women undergoing the health risks associated with egg donation for the purpose of having children is certainly one thing in that they choose and the life comes forward. That they would be induced by some to undergo these health risks for money is another issue.

It is striking, as I watch this debate unfold, that corporate interests in the biotech community want us to countenance the idea that society will be able to solve the health care problems of the world on the backs of poor women. Asking us to do so is an assault not only on the dignity of the human embryo created and destroyed in this process but also on the dignity of the woman who sells her body parts to accomplish it.

The commodification of women and their eggs is a very real concern that we all share and is yet another reason on a long list for why we must outlaw all human cloning and why we must do so now.

That is not the issue in front of us today. The issue today is whether we should allow patenting of human embryos, patenting of people. There are alternatives, however, that do not use controversial and unproven techniques to improve health. Many of you who follow this issue already know the advances being made, and the adult nonembryonic stem cell research continues to show great promise. Not only are we beginning to treat the myriad diseases which plague humanity, but we are continuing to find we can do so without the use of controversial techniques or research which relies on the death of another human being.

As to the adult stem cell area, I want to spend some time on this because I want to solve these diseases as well. I think we have an avenue that is being proven in science today that we should pursue aggressively, fund aggressively, fund at the Federal level, and get these cures to the people.

In fact, to date there is no clinical application of embryonic stem cells in people, much less those derived from cloned embryos, that are used with humans, whereas there are many diseases already being treated in humans with adult nonembryonic stem cells. We already have human clinical trials with adult stem cells.

I would like to list just a few of these recent advances. I am comparing clones, cloned embryonic stem cells, no human trials or applications. It is fully legal today to clone humans in the United States, fully legal. It has been going on; companies are claiming to have done it. There are no human applications, none. Adult stem cells are these repair cells in each of our bodies—Senator SPECTER's body, my body, right now. We have them in all parts of our body, these repair cells that go to a particular area and help it build back up and build more cells where they are needed. It is the maintenance crew in the body. These adult stem cells go places and help where there are needs.

What we are finding is that we can pull those out, grow them outside the body, put them back in with amazing results in cures in some of these terrible, debilitating areas.

There was one reported in the paper just today about liver stem cells being converted into pancreatic stem cells that were insulin secreting to be able to cure diabetes. That was just reported in the paper today.

Adult bone marrow stem cells: These are in us now, grow extensively, transformed into functional liver cells.

Dr. Catherine Verfaillie's group in Minnesota continues to show more and more uses for the multi-potent adult progenitor cells from bone marrow. These are adult bone marrow stem cells. The team has now shown that these can transform into functional liver cells. The adult stem cells also were grown in culture for over 100 generations of the cells, twice the length of time previously thought possible with adult cells.

This was in a recent journal, May 2002—adult liver stem cells from pancreatic cells.

Researchers at the University of Florida have transformed highly purified adult liver stem cells into pancreatic stem cells. Now they are taking liver stem cells and making them into pancreatic cells. The cells self-assemble in a culture and form three-dimensional islet structures—that is where you get the secretion of insulin—express pancreatic genes, produce pancreatic hormones and, best of all, secrete insulin—to be able to cure diabetes. When you implant it into diabetic mice, the transformed cells reverse their hyperglycemia in 10 days.

Ammon Peck, one of the team leaders, said:

> Adult stem cells appear to offer great promise for the production of an almost unlimited supply of insulin-producing cells and islets of Langerhans . . .

A particular type of cell that produces insulin.

> The ability to grow insulin-producing cells from liver stem cells shows the remarkable potential of adult stem cells into for future cell therapy.

This was in a June 4, 2002, online edition of Proceedings of the National Academy of Sciences.

Adult stem cells successfully treat Parkinson's. Think about that—successful treatment for Parkinson's. Has the Chair even heard of this? On April 8, Dr. Mike Levesque at the Cedars-Sinai Medical Center in Los Angeles reported a total reversal of symptoms in the first patient treated, a 57-year-old former fighter pilot. The patient is still without symptoms 3 years after adult neural stem cells were removed from his brain, coaxed into becoming dopamine-producing cells, and then reimplanted. So here they took this 57-year-old former fighter pilot, took these adult neural stem cells, nerve stem cells, removed them from his brain, coaxed them into becoming dopamine-producing cells, and reimplanted them. This was in a human trial, not animal.

''I think transplantation of the patient's own neural stem cells and differentiated dopaminergic neurons is more biologically and physiologically compatible—more efficacious and more elegant,'' said Levesque. The results show that adult stem cells from a patient's own brain can aid in treatment of Parkinson's. This was all accomplished without the requirement for immuno-suppression since the patient's own adult stem cells were used. Again, it is your own stem cells. There is no immuno-suppression problem since the patient's own adult stem cells were used. In addition to its use for Parkinson's, the technique is under study for juvenile diabetes, stroke, brain tumors, spinal cord injury, and other conditions. The results were presented at the meeting of the American Association of Neurological Surgeons.

Think about that. Three years after these were taken, were coaxed into becoming dopamine-producing cells and were reimplanted, they are showing a total reversal of symptoms in the patient. Incredible.

Adult stem cells can form potentially all tissues. Injection of a single adult bone marrow stem cell can reform the entire bone marrow of a mouse, forming functional marrow and blood cells and saving the life of the mouse. The transplanted bone marrow also could form functional cells of liver, lung, gastrointestinal tract—esophagus, stomach, intestine, colon—and skin, as well as other cells in heart and skeletal

muscle. The experiments also provided evidence that adult stem cells ''home in'' to sites of tissue damage. This was from Dr. D.S. Krause on May 4, 2001, in the publication ''Cell.''

Fifth, adult stem cells repair heart damage. I am talking, again, about human clinical trials. Heart damage. Listen to this:

> Researchers at NIH and the New York Medical College-Valhalla used mice to show that injecting adult bone marrow stem cells into damaged hearts could rebuild heart tissue and help restore heart function. Newly formed heart tissue occupied over two-thirds of the damaged portion of the heart 9 days after the transplant. In other experiments, significant repair of heart damage was achieved by simply stimulating the production and release of stem cells from bone marrow, with the cells migrating to the heart and repairing damage. The studies indicate that adult stem cells can generate new heart tissue, decreasing the damage of coronary artery disease.

That was in a magazine called Nature on April 5, 2001. This was a mouse trial, not human.

The notion that we have to kill one person in order to find cures for others is a false trade-off that has been presented to the American public in what seems to be a total disregard of the advances made in the promising fields of alternative nonembryonic sources of stem cells. If we want to talk about regenerative medicine, this is where we should focus; this is the area of regenerative medicine. We are doing it today in human clinical trials.

Mr. SPECTER. Will the Senator yield for a question?

Mr. BROWNBACK. If I may complete this point, then I will yield for a question. Why would we contemplate going to the point of creating a human life and patenting this human life in an area where we are showing no results taking place, and it has all these ethical questions, and you have one generation of humanity saying, okay, we think there are some possibilities here to research in this cloning area? Therefore, we are going to allow the creation of human clones, which we allow freely in the United States to take place today; it is going on right now. We are going to allow them to be patented so that you can own this creation of a human being. We don't have to go there. I would say, at a minimum, we ought to contemplate at least pausing on this until we see how all of this would grow and develop before we contemplate creating humans just to research them. We have a better alternative that is working today.

I am happy to yield for a question.

Mr. SPECTER. Madam President, the Senator from Kansas, in his introductory comments, announced what his amendment was not about, and then he proceeded to talk extensively about nuclear transplantation, otherwise referred to as therapeutic cloning, and about embryonic stem cells, and about adult stem cells.

But coming back to the core issue on what the Senator from Kansas is offering on nonpatentability, my question is whether the Senator from Kansas is aware of a release by the Patent Office on April 1, 1998, which reads, in pertinent part:

> The Patent and Trademark Office is required by law to keep all patent applications in confidence until such time as a patent may be granted. However, the existence of a patent application directed to human/nonhuman chimera has recently been discussed in the news media. It is the position of the PTO that inventions directed to human/nonhuman chimera could, under certain circumstances, not be patentable because, among other things, they would fail to meet the public policy and morality aspects of the utility requirement.

Now, this position by the Patent Office obviously, on its face, renders totally unnecessary the amendment that is being offered. My question to the Senator from Kansas is, Was he aware of this position taken by the Patent Office?

Mr. BROWNBACK. Yes, I am very familiar with that. The Patent Office has continued to articulate that position. That is why I stated that there is a question on this, because the Patent Office is stating that issue based upon the 13th amendment of the Constitution, which is against slavery. But they are being challenged by attorneys, and they have been challenged in the court often about whether they can deny a patent.

What I am providing by this amendment is clarity by the legislative body acting and saying that we will not allow the patentability of this issue. I ask my colleague if he agrees with that and maybe with my amendment and would agree to support this amendment. It is just a clarification of what the Patent Office has currently stated.

Mr. SPECTER. I would be glad to expound, Madam President. The amendment which the Senator from Kansas has offered was offered without any notice to this Senator, which came as a surprise, since the Senator from Kansas and I have been debating this subject very broadly for the past year or two.

Having seen this amendment for the first time this evening, I was surprised that when I walked out for a telephone call, that opportunity was used by the Senator from Nevada to offer a second-degree amendment to foreclose this Senator from offering a second-degree amendment, although that may still be possible under certain procedural approaches.

The arguments which I have heard the Senator from Kansas offer tonight, almost his entire presentation has not been about the patent issue but has been about therapeutic cloning, and embryonic stem cells. The Appropriations Subcommittee on Labor, Health and Human Services had some 14 hearings on the issues relating to stem cells and nuclear transplantation. There has been no hearing at all on this subject.

Again, it is a little surprising to find it come up on a very important bill regarding Federal guarantees on insurance. The commercial world has been waiting for action on this bill and, to find this amendment here, again I say, is surprising.

The core question which is raised by the Senator from Kansas has been answered by the Patent Office. I took from his comment that he had mentioned that I did not hear him refer to that at all, but I think his amendment is totally unnecessary in light of what the Patent Office has had to say.

If the Senator from Kansas wanted to have hearings on his amendment in the regular course of business, he is a member of the Judiciary Committee—the Senator from Kansas is a member of the Judiciary Committee, as is this Senator—that would be an appropriate place to hear it.

When the Senator from Kansas talks about the future of humanity, I agree with him about that. Nuclear transplantation offers an opportunity to save lives, to find a cure for Parkinson's, Alzheimer's, and heart disease, so that we really are on the threshold of some remarkable scientific achievements.

Mr. BROWNBACK. Madam President, if I may reclaim my time, if we are going to go into the speech of the Senator from Pennsylvania, I would like to answer his comments and finish up my comments, unless he has another question to ask. Again, I would like to go ahead and finish my statement.

Mr. SPECTER. I had not finished answering the question of the Senator from Kansas. I have been sitting here patiently listening to him at some length and again express a little surprise at having the Senator from Nevada take the floor when I step out for a minute and then ask unanimous consent not to have the amendment read, which is customary, but then the Senator always explains it.

While I was up at the desk getting a copy of the amendment, the Senator from Kansas took the floor again. I do not think there has been any shortage of time for the Senator from Kansas.

Mr. BROWNBACK. I do have the floor, I say to the Senator from Pennsylvania, and I am willing to yield for a question on this issue.

Mr. SPECTER. Madam President, the Senator from Kansas has asked me a question, and I am in the process of responding to the question.

The last comment I will make and will give the floor back—

The PRESIDING OFFICER. The Senator from Kansas does have the floor and can reclaim the floor when he wishes.

Mr. BROWNBACK. I am happy to have the Senator from Pennsylvania respond, but if it is his speech, I would like to finish up my comments and then yield the floor.

Mr. SPECTER. The last part of my response, Madam President, would be to take strenuous issue with the statement by the Senator from Kansas that those who have talked about therapeutic cloning, really nuclear transplantation, are misleading and disingenuous. There has never been any

challenge by this Senator to the Senator from Kansas about his being misleading or disingenuous.

As strenuously as I may disagree with what he has had to say, there has never been any challenge to his being forthright and his integrity on the point which is strongly suggested by the characterization of ''misleading and disingenuous.''

The PRESIDING OFFICER. The Senator from Kansas.

Mr. BROWNBACK. Madam President, reclaiming the floor, I would like to put forward a couple of issues in response to the Senator from Pennsylvania. No. 1, this issue on the patenting of humans has been out there about a month now since a group discovered several applications of patents for the patenting of a process to create a human embryo. It has been out there, and a number of us stated we wanted to ban this procedure of patenting.

No. 2, as we were going forward in this negotiation process to get the competing cloning bills forward, we were required to exchange a bill, and in our base bill was the issue of banning the patenting of people. That was exchanged this week. It has been out in the hands of Senator SPECTER's staff or others during this week. We have had this issue of patenting banned. Whether the Senator knew about it or not, it was in the base bill we put forward.

On the issue of questioning his integrity, I did not, and I do not here. I stated earlier in my comments that those who are putting this forward do so, when they put forward the issue of cloning people, under laudable purposes: to cure debilitating diseases, the same diseases that I seek to cure. What I call disingenuous is the term ''therapeutic cloning.'' It is certainly not therapeutic to the clone, and as I have been going through the science, it is not going to work for the people who are trying to do it. If it did work for the people who were trying to do this, they are going to have to harvest a lot of eggs from women. It is not going to be therapeutic to the women from whom the eggs are harvested, and as far as I know, it is not going to be therapeutic to the clone, and, I might also add, it is not therapeutic to mankind to do this, to start at some point in the life chain, in the life cycle, creating life as livestock and be able to do research on them.

Moving forward with this, and the reason this patent is a central issue, as I noted at the very outset, the whole issue in front of the Patent Office—they are claiming one way and others are claiming another—is the status of the clone. Is the clone a person, thus subject to protections under the 13th amendment against slavery or is it property, is it livestock to be owned and dealt with as its master chooses? That is the central question that is involved at the Patent Office.

That is what I was saying at the outset of the speech, and that is why the issue is in front of us, because we need to resolve the issue: Is this a person protected under the 13th amendment against slavery? Is it livestock; go ahead and patent it, a new type of livestock.

I am saying that what we should do is move forward with clarity for the Patent Office. They are claiming this is a person. It is subject to protection under the 13th amendment against slavery, and I am saying we should clarify that.

I hope many of the Senators in this body will join me and say: Yes, that is right, we should clarify that. Even if it is a questionable issue, we should weigh on the side of, yes, this is probably life and we should not enslave it to a patent. I hope most of the Members of this body will agree and say: Yes, we are going to deny these patents. These are not going to be allowed to go forward.

The notion that we have to kill one person in order to find cures for others is a false tradeoff. It has been presented to the American public in what seems to be disregard for the advances being made in this promising field of alternative nonembryonic stem cells. This is true regenerative medicine.

As our national bioethics debate progresses, we must continue to closely monitor the advances being made in the field of adult stem cell research, and we need to fund it and fund it aggressively.

It is important to remember that we do not have unlimited resources in our battle to prolong and improve the quality of life. Throwing money at unproven, controversial, and novel treatment regimes is foolhardly. It is better to invest where progress is being shown and progress charted.

I wish to address a final point, and that is on the issue of people saying this is about your view of religion, your view of science. The point I wish to make is some have charged religion is attempting to, once again, block important scientific discoveries. This is not true.

What I have argued in the past, and I will argue today, as well as what I will continue to argue in the future, is based directly on biological data, statements by those in the field of biology, the data of common observations, an objective, logical, reflective thinking about the data available. I have not once mentioned an argument based upon religion.

Certainly many traditional religions, dependent on their respective positions, coincide with many of the points that have been made in the past. The Christian tradition, in particular the Catholic and much of the Evangelical, says everything relevant to this debate depends on the humanly accessible data and the logical conclusions that can be drawn from it, not on theology. Authentic religion hands this over to authentic science.

The difference of view, in my judgment, depends on knowing the biological and human truth or not knowing it. It is not about a difference of religious view or the difference between religion and science. Every argument I have put forward has been based upon science, biology, and reason. To me, the present debate is about good or bad science and good or bad reasoning. Many, however, seem to be wanting to make this a debate about religion when it is not.

What makes this argument so strange is that I cannot think of one Senator who does not believe in God. Indeed, we have printed above the main door when we come in, ''In God We Trust.''

The question for my colleagues to ponder may be put the other way: Does God trust us? Does he love us? And if so, when did his love start for us? I would suggest it starts very early.

In closing, I think it is important that as we continue to engage this national dialogue, we strive to do so in a way that shows the profound mystery and inviolable worth of every human being from the moment of conception until natural death. It is a debate well worth having, and as a brave new world draws ever near, it becomes clearer that our own humanity in fact may depend upon it.

As a final thought, I think it is unlikely that Senators today will ultimately be remembered by history for their votes on tax bills or even on bills that are pending right now—budget, trade—all of which will be important. They are important, but I think when we look back 50 years to this period of time, that may not be what history remembers.

There is something truly unique about the debate on this issue, on whether you treat a person as patentable or not. The action we take today, tomorrow, and next week on this issue will have far-reaching implications and will be of great historical consequence. It is what history will ultimately remember us for during this time. I think that is why we clearly have to address this issue. That is why we have narrowly addressed the point that is in front of us.

I hope that in the end we get unanimous consent in this body that we should not allow patenting of human life in any stage of its development, whether it is asexual reproduction or human reproduction.

Today, yes, indeed, we in the Senate open a debate on the future of humanity and whether we shall use human life for research purposes. Let us pause and do something most of us agree on and not allow human life, whether created by a clone, in a clone, by a biotechnician or in the womb, to be patented.

I yield the floor.

The PRESIDING OFFICER (Ms. STABENOW). The Senator from Utah.

Mr. HATCH. Madam President, I have a lot of respect for the distinguished Senator from Kansas. He is a good man. He is very sincere, and he believes in what he is doing. He fights for what he believes in. I have a lot of

respect for him, and I have a lot of respect for his attitude.

Up until this point, the debate on cloning has been considered in an orderly and responsible fashion. I am greatly concerned that in filing this particular amendment, our opponents in this debate are resorting to tactics that will not result in the careful consideration that this important issue merits. We all know that the great issue in this debate is whether an unfertilized blastocyst, or an unfertilized egg that is used in the somatic cell nuclear transfer process and becomes a blastocyst in 5 or 6 days, is a person? We will have that debate in this body, I presume. I think it would be a worthwhile debate.

The amendment being offered tonight is something of a red herring. True, there are issues that should be examined in addition with patents which may be issued on living cells. In fact, Chairman LEAHY and I are pursuing that matter in the Judiciary Committee with the Patent and Trademark Office and other interested parties. We are trying to learn more about patent No. 6,211,429, issued to University of Missouri researcher, Dr. Randall Prather. We are trying to learn if the issuance of this patent is consistent with the 1987 PTO policy statement with respect to the non-patentability of human beings.

However, let's be fair, the crux of the issue in this debate has little to do with patents. It has to do with whether or not we will allow important research to proceed, research that holds the promise of improving upwards of 100 million-plus lives in our society in America alone. That does not even mention the millions of others throughout the world who might benefit from what I refer to as regenerative medicine.

This body can look at issues around the margin—and trust me, there are literally hundreds of them that we could consider—and patenting is certainly a concern but it does not go to the heart of the issue.

The Patent and Trademark Office, the PTO, has already made abundantly clear in its 1987 policy statement that human beings are not patentable, as the distinguished Senator from Pennsylvania has aptly pointed out. This policy states, in part, ''A claim directed to or including within its scope a human being will not be considered to be patentable subject matter.''

It seems to me that it might prove beneficial for PTO to reexamine the claims of the University of Missouri patent in light of prior art.

In any event, human beings are not patentble. That has been the law of the land, as it should be. To get into a somewhat arcane, complicated debate about intellectual property on a totally unrelated bill merely sidesteps the real debate and confuses the issue. The patent issue is an issue that most appropriately should be examined, but I believe should be examined by the Judiciary Committee, of which Senator BROWNBACK is a member. So the distinguished Senator from Kansas will have every right to have his thoughts considered.

We need to know how far the Brownback Amendment reaches. Does it extend to cell lines derives from unfertilized blastocysts? Does the amendment destroy the patentability of any process that could be used in nuclear transplantation involving human cells? We need to know what, if any, tensions, exist between the Brownback Amendment and the Supreme Court's holding in the famous Chakrabarty decision?

The 1987 PTO policy cited Chakrabarty ''as controlling authority that Congress intended statutory subject matter to 'include anything under the sun that is made by man.''' The PTO went on to say that it ''now considers nonnaturally occurring nonhuman multicelluar living organisms, including animals, to be patentable subject matter within the scope of 35 U.S.C. 101.''

We need to think how the Brownback Amendment squares with the position taken in the memo written by then-HHS General Counsel Harriet Raab with respect to the relationship embryos and pluripotent cell lines.

But I want to emphasize that what we really have to resolve in this debate is the legal and moral status of an unfertilized blastocyst that will not be implanted into a mother's womb and can never develop into a human baby. That is a key issue. Let's be honest, there is little interest in patenting a unfertilized blastocyst because the promise is not in the unfertilized blasotcyst but in the stem cell lines that may be derived from this artificially created cells.

I have been following the recent debate on the patenting of human life very closely. My interest is twofold. As a policy matter and of course as ranking member of the Judiciary Committee, I have a special responsibility for considering any policy issues that touch on intellectual property laws. In addition, my longstanding interest in biomedical research and ethics compels me to understand ramifications of intellectual property policy which have such far-ranging public health consequences. So I am very concerned about both of those issues. They are important issues and should not be helter-skelter considered on the floor without hearings, without appropriate consideration. These are complex and difficult issues.

Throughout my career, I have always taken a strong pro-family and pro-life stance, especially on issues relating to biomedical research. I have also spent considerable efforts to see that the United States remains the world's leader in biomedical research so that our citizens may continue to benefit from revolutionary breakthroughs in science.

Patenting human life involves novel and difficult issues. I believe there is widespread agreement that patenting human life, per se, is undesirable. Moreover, it may have serious constitutional implications under the 13th and 14th amendments as well. However, in approaching these issues, we must take care not to rush to judgment and unnecessarily make unwise policy decisions that would hinder, and perhaps halt, important biomedical research.

Having said that, I jotted down a few notes put forth by the accomplished patent attorney, Al Engelberg. I agree with Al and other experts who do not believe that changing the patent law is the appropriate vehicle for exercising governmental control over the multitude of issues relating to cloning. Patents do not create an affirmative right to make, use, or sell the patented subject matter. They only give the owner the right to exclude others from doing so. For example, a patent on a new drug does not create any right to manufacture, use, or sell. An approval from the FDA is an absolute prerequisite.

Similarly, a patent on a slot machine does not give the owner the right to use or sell it in a State where gambling is illegal. It would be a big mistake to leave the important broad societal moral, ethical, and public health issues to PTO experts applying technical patent laws. That would be a terrific mistake to make, and I believe that the ambiguities in the Senator's amendment will thrust PTO into an improper role.

Do we really want to get involved in parsing patent claims in order to decide what is ethically permissible in the real world of cutting edge biomedical research? I think not. Let us settle the policy issue through a direct, frontal debate rather than approaching the matter through the back door of patentability.

I do not think springing, unannounced, this type of amendment on this bill in this fashion is the most constructive manner in which to hold an informed debate.

But on the substance of the amendment, we should take the view that the existence of the patent is not determinative of what is legal or illegal to make, use, sell, or permit within commerce. The value of the patent should rise or fall on the basis of independent legislative determinations regarding the legality or illegality of certain activities.

That is what Senators SPECTER, FEINSTEIN, KENNEDY and I have done in our legislation by making the independent legislative determination that clearly outlaws the cloning of human babies by criminalizing the implantation of unfertilized blastocysts.

The right to engage in such activities should be divorced from the issuance of patents.

Now, as Mr. Engelberg argues, one advantage of proceeding in that fashion is that it maximizes the incentives for those who make new and potentially new discoveries to disclose them in the

hope that over the 20-year life of the patent, the definition of ''legally permissible'' activities may be altered, thereby breathing economic value into a discovery that cannot be commercially exploited at the time of the recovery. If research in a particular area is eliminated, no patent applications can be filed without effectively admitting to a crime. Therefore, legislation regarding the scope of patents is not a good way to get at the underlying questions that are being debated.

I hope the Senator would withdraw his amendment. I believe it is grossly premature. It is very dangerous for us to adopt such a measure without appropriate hearings and a complete review of this matter.

In the end, it does not help us decide, what seems to me the central issue of the debate: whether or not we should go forward with this very important research?

In the weeks ahead, the Senate is going to debate these issues of extreme importance to many Utahans and many Americans. There are upwards of 128 million people in our society who are suffering from various difficulties and diseases that may benefit from regenerative medicine research. I am talking about heart disease, cancer, ALS, diabetes and many others.

I, personally, believe we ought to do everything in our power to help consistent with sound ethics. I, personally, believe—because experts tell me this is the case—that regenerative medicine holds great promise of curing many diseases.

I acknowledge the distinguished Senator has quoted some scientists, but I am going to stand with the 40 Nobel laureates who have said this research should go forward because it holds great promise in expanding biomedical research to find treatments or cures. This science may also be used to examine disease so we can get to the bottom of the causes of disease and hopefully find treatments and cures for the millions and millions of Americans and people all over the world who need our help.

Regenerative medicine has the great potential to save lives and to alleviate pain and suffering. I have come to this position after many months of study, contemplation, talking with all kinds of scientists and others on both sides of this issue, including some of the leading authorities in science, religion, and ethics. I have spent a lot of time on biomedical research issues during my entire Senate career. I have analyzed this from a pro-life, pro-family perspective, with the view that being pro-life means helping the living.

A 4-year-old boy, Cody Anderson, from West Jordan, UT, came to visit me this last June. Cody Anderson's mother almost fell apart when she discovered at the age of 2 Cody Anderson got the very same diabetes that his grandfather had. His grandfather lived until he was 47 years of age but lived through 28 different operations, the loss of his left leg below the knee, the loss of his right toes, a colonoscopy, all kinds of other travails, difficulties and problems, and ultimately was on dialysis for the loss of his kidneys for the last 10 years of his life before he died, in a miserable, painful condition, at 47 years of age.

When Cody's mother discovered that her son, at the age of 2, had exactly the same disease that killed her father at age 47, after all that miserable, wretched existence, she almost fell apart. She came to me and said: You have to do something about it.

Not only did the grandfather go blind, he had pressure behind one of the eyes, and it had to be removed.

Now, why wouldn't we do everything in our power to help Cody and others suffering from life-debilitating diseases? It seems to me we should.

Let me state my total agreement with my dear friend and colleague from Kansas that we should ban absolutely reproductive cloning of human beings. There is no question that ban would pass 100 to 0 in this body, and I think 435 to 0 in the House. There are only a few people in our society today who believe we ought to follow through and try to experiment with and reach a position of cloning human beings. Those people would be shut off automatically. They basically would be outcasts if they tried to do something like that. By banning that totally, we would solve most every problem with which most people are concerned.

It does not solve the problem that my dear colleague is concerned with because he considers the unfertilized egg, once a nuclear transfer takes out the 23 mother's chromosomes, and insert the DNA of a skin cell or other somatic cell through the nuclear transplantation process. This process inserts the 46 chromosomes into the unfertilized egg that will remain unfertilized.

Some believe that the product of nuclear transplantation is a human being. I don't agree with that. It is a living, human cell, but it certainly is not a human being, nor does it have a chance in the world of becoming a human being unless it is implanted in a human womb, and even then probably will not become a human being because it is theoretically possible but nobody is absolutely sure if that can happen.

During this period of time, the unfertilized egg can be grown to a blastocyst stage in a lab and develop to the point where special cells, called embryonic stem cells, can be extracted and replicate themselves. The stem cells are undifferentiated but, scientists believe, they can be differentiated into as many as 200 different forms of human tissue which might save lives, which might treat disease, which might bring cures, which certainly will help study disease and the origins of disease.

I don't mean to go into all of the details this evening. But I am very concerned in the end that if we do not continue this research, the rest of the world is going to leave us behind. They will do so under moral and ethical standards that will not be good—at least in some parts of the world. If we help set the moral and ethical standards, it seems to me, we can benefit everybody around the world, first and foremost U.S. citizens. It will mean they will conduct this research on a highly ethical and morally upright manner.

If we do not do that, this research is going to go on through the rest of the world, and it will not be with our influence.

Second, it seems to me, if we do not go ahead with this research under very stringent moral and ethical standards, it will be gone ahead with no matter what happens because many of our leading scientists today may leave our country and go where they can pursue this research. And I say again—according to at least 40 Nobel laureates and almost everyone else I know, except a few—this is very promising research.

This is important. I am totally in favor of adult stem cell research, and almost every scientist I have talked to is also supportive of this line of research. But almost every scientist I have talked to, and I have talked to a lot of them, will tell me that it is very difficult to get enough adult stem cells, and when you do they are not as able to maintain and differentiate into the various forms of human tissue as embryonic stem cells are. That is why many in the scientific world, except for a few, believe this research, this positive, very important research, should go forward.

I understand the sincerity of those who believe that somatic cell nuclear transfer results in the creation of a human being but I do not see it that way. If you have an unfertilized egg that is never implanted into a mother's womb, I do not think we have a human life. It is a living human cell. It is something that should be given respect, certainly, but we should give it respect by studying, learning, and helping alleviate human pain and suffering if we can. At least that is my viewpoint.

I respect those with viewpoints that are different from mine but I think they are in the minority and as this debate unfolds I think that more and more Americans will agree with us that this important research should go forward. But I do not agree with it.

There are a lot of very fine people who feel the same way the distinguished Senator from Kansas feels. But there are a lot of fine people, who are very religious and very decent, and who are pro-life, who believe that regenerative medicine is moral and that we ought to do all we can to help the living, too.

From where are these eggs going to come? First, that egg is unfertilized. It remains unfertilized right up through this blastocyst stage. Those eggs are probably going to come from in vitro clinics themselves, in many cases.

Under our proposal they are going to be voluntarily given. Nobody is going to profiteer on these eggs. There will be eggs that you cannot freeze readily because they are not fertilized. So they will have to be used in a relatively short-term fashion, to create these embryonic stem cells, generally in 4 to 6 days or so.

The fact is, they are going to be eggs that are voluntarily given.

Some of my friends on the right and left of me say every one of those eggs ought to be used and implanted in a woman so they can have babies. That is not reality. It can be, to a limited number of people who choose to do that, but some will volunteer eggs for this research.

During the Olympics I had a woman come up to me and she said: Senator, I appreciate your stand on stem cell research. She said: My husband and I have twins from in vitro fertilization. We are so grateful for that process.

I remember when that process came forward, many of the arguments that are being used today were used against that process.

And she said: Senator, we are grateful for those twins. But I don't want any more children and I don't want my eggs implanted in somebody else. I want them used for research.

She ought to have the right to do that, and women like her. If you are a mother and your child has just gotten a very virulent form of diabetes, or your parents are drifting into Alzheimer's or Parkinson's, what woman, who is really concerned about her parents, would not be willing to do what she could to help them, if in fact this research can prove efficacious? And if adult stem cell research has a chance of being efficacious, can you imagine what the undifferentiated state of stem cells, which can be so easily differentiated, in the eyes at least of these scientists, can you imagine what good that will do?

I believe these 41 Nobel laureates, the leading scientists in our society, ought to be listened to in this debate. To a person, they do not believe this is a human being at this stage. There is good reason for that.

I ask unanimous consent the letter from these Nobel laureates, with their names, be printed in the RECORD.

There being no objection, the material was ordered to be printed in the RECORD, as follows:

THE AMERICAN SOCIETY
FOR CELL BIOLOGY,
Bethesda, MD.

Two National Academy of Sciences expert committees, as well as noted national and international organizations, have evaluated current scientific and medical information and have concluded that cloning a human being using the method of nuclear transplantation cannot be achieved safely. Such attempts in other mammals often have catastrophic outcomes. Furthermore, virtually nothing is known about the potential safety of such procedures in humans. Consequently, there is widespread and strong agreement that an attempt to clone a human being would constitute unwarranted experimentation on human subjects and should be prohibited by legislation that imposes criminal and civil penalties on those who would implant the product of nuclear transplantation into a woman's uterus.

Unfortunately, some legislation, such as that introduced by Senator Brownback (R–KS) would foreclose the legitimate use of nuclear transplantation technology for research and therapeutic purposes. This would impede progress against some of the most debilitating diseases known to man. For example, it may be possible to use nuclear transplantation technology to produce patient-specific embryonic stem cells that could overcome the rejection normally associated with tissue and organ transplantation. Nuclear transplantation technology might also permit the creation of embryonic stem cells with defined genetic constitution, permitting a new and powerful approach to understanding how inherited predispositions lead to a variety of cancers and neurological diseases such as Parkinson's and Alzheimer's diseases.

A critical element of the Brownback bill would prevent the importation into the United States of medical treatments developed in other parts of the world using nuclear transplantation. It seems unbelievable that the United States Senate would deny advanced medical treatment to hundreds of millions of suffering Americans because of an aversion to a technology that was used in its development.

By declaring scientifically valuable biomedical research illegal, Senator Brownback's legislation, if it becomes law, would have a chilling effect on all scientific research in the United States. Such legal restrictions on scientific investigation would also send a strong signal to the next generation of researchers that unfettered and irresponsible scientific investigation is not welcome in the United States.

We, the undersigned, urge that legislation to impose criminal and civil sanctions against attempts to create a cloned human being be enacted. We also oppose strongly any legislation that would prohibit or impede the scientifically legitimate, responsible use of nuclear transplantation technology for research and therapeutic purposes. Similarly, any attempt to prohibit the use of therapies in the United States that were developed with the aid of nuclear transplantation technology overseas denies hope for those seeking new therapies for the most debilitating dieases known to man.

Sidney Altman, Sterling Professor of Biology, Yale University, Nobel Prize in Chemistry, 1989.

Kenneth J. Arrow, Professor of Economics and Professor of Operations Research, Emeritus, Stanford University, Nobel Prize in Economics, 1972.

Julius Axelrod, Scientist Emeritus, National Institutes of Health, Nobel Prize in Physiology or Medicine, 1970.

David Baltimore, President and Professor of Biology, California Institute of Technology, Nobel Prize in Physiology or Medicine, 1975.

Paul Berg, Cahill Professor of Cancer Research and Biochemistry, Emeritus, Director, Beckman Center for Molecular & Genetic Medicine, Emeritus, Stanford University School of Medicine, Nobel Prize in Chemistry, 1980.

J. Michael Bishop, University Professor and Chancellor, University of California, San Francisco, Nobel Prize in Physiology or Medicine, 1989.

Thomas R. Cech, Distinguished Professor, University of Colorado, Boulder, Nobel Prize in Chemistry, 1989.

Stanley Cohen, Distinguished Professor of Biochemistry, Emeritus, Vanderbilt University, Nobel Prize in Physiology or Medicine, 1986.

Elias James Corey, Sheldon Emery Research Professor of Chemistry, Harvard University, Nobel Prize in Chemistry, 1990.

Johann Deisenhofer, Virginia and Edward Linthicum Distinguished Chair in Biomolecular Science, Regental Professor, University of Texas Southwestern Medical Center at Dallas, Nobel Prize in Chemistry, 1988.

Renato Dulbecco, Distinguished Research Professor, President Emeritus, The Salk Institute, Nobel Prize in Physiology or Medicine, 1975.

Edmond H. Fischer, Professor Emeritus of Biochemistry, University of Washington, Nobel Prize in Physiology or Medicine, 1992.

Jerome I. Friedman, Institute Professor, Massachusetts Institute of Technology, Nobel Prize in Physics, 1990.

Walter Gilbert, Carl M. Loeb University Professor, The Biological Laboratories, Harvard University, Nobel Prize in Chemistry, 1980.

Alfred G. Gilman, Regental Professor and Chairman, Raymond and Ellen Willie Distinguished Chair in Molecular Neuropharmacology, Director, Alliance for Cellular Signaling, Chairman, Department of Pharmacology, University of Texas Southwestern Medical Center, Nobel Prize in Physiology or Medicine, 1994.

Donald A. Glaser, Professor of Physics and Neurobiology, University of California, Berkeley, Nobel Prize in Physics, 1960.

Joseph L. Goldstein, Regental Professor, Department of Molecular Genetics, University of Texas Southwestern Medical Center, Nobel Prize in Physiology or Medicine, 1985.

Paul Greengard, Vincent Astor Professor, Laboratory of Molecular and Cellular Neuroscience, The Rockefeller University, Nobel Prize in Physiology or Medicine, 2000.

Lee Hartwell, President and Director, Fred Hutchinson Cancer Research Center, Professor, Department of Genome Sciences, University of Washington School of Medicine, Nobel Prize in Physiology or Medicine, 2001.

Dudley Herschbach, Baird Professor of Science, Department of Chemistry and Chemical Biology, Harvard University, Nobel Prize in Chemistry, 1986.

Tim Hunt, Principal Scientist, Cancer Research UK, Nobel Prize in Physiology or Medicine, 2001.

Jerome Karle, Chief Scientist, Laboratory for the Structure of Matter, Naval Research Laboratory, Nobel Prize in Chemistry, 1985.

Arthur Kornberg, Emma Pfeiffer Merner Professor, Emeritus Professor of Biochemistry, Stanford University School of Medicine, Nobel Prize in Physiology or Medicine, 1959.

Edwin G. Krebs, Professor Emeritus, Senior Investigator Emeritus, Department of Pharmacology, Howard Hughes Medical Institute, University of Washington School of Medicine, Nobel Prize in Physiology or Medicine, 1992.

Leon M. Lederman, Pritzker Professor of Science, Illinois Institute of Technology, Nobel Prize in Physics, 1988.

Edward B. Lewis, Thomas Hunt Morgan Professor of Biology, Emeritus, California Institute of Technology, Nobel Prize in Physiology or Medicine, 1995.

William N. Lipscomb, Abbot and James Lawrence Professor, Emeritus, Department of Chemistry and Chemical Biology, Harvard University, Nobel Prize in Chemistry, 1976.

Ferid Murad, Professor and Chairman, Department of Integrative Biology, Pharmacology and Physiology, University of Texas at Houston, Nobel Prize in Physiology or Medicine, 1998.

Marshall Nirenberg, Chief, Laboratory of Biochemical Genetics, National Heart, Lung & Blood Institute, National Institutes of

Health, Nobel Prize in Physiology or Medicine, 1968.

Sir Paul Nurse, Director-General (Science), Cancer Research UK, Nobel Prize in Physiology or Medicine, 2001.

Burton Richter, Paul Piggot Professor in the Physical Sciences, Director, Stanford Linear Accelerator Center, Emeritus, Nobel Prize in Physics, 1976.

Richard J. Roberts, Research Director, New England Biolabs, Nobel Prize in Physiology or Medicine, 1993.

Phillip A. Sharp, Institute Professor, Director, McGovern Institute, Massachusetts Institute of Technology, Nobel Prize in Physiology or Medicine, 1993.

Hamilton O. Smith, Senior Director of DNA Resources, Celera Genomics, Nobel Prize in Physiology or Medicine, 1978.

Robert M. Solow, Institute Professor Emeritus, Massachusetts Institute of Technology, Nobel Prize in Economics, 1987.

E. Donnall Thomas, Professor of Medicine, Emeritus, University of Washington, Member, Fred Hutchinson Cancer Research Center, Nobel Prize in Physiology or Medicine, 1990.

Harold Varmus, President, Memorial Sloan Kettering Cancer Center, Former Director, National Institutes of Health, Nobel Prize in Physiology or Medicine, 1989.

James D. Watson, President, Cold Spring Harbor Laboratory, Director, National Center for Human Genome Research, NIH, 1989–1992, Nobel Prize in Physiology or Medicine, 1962.

Torsten Nils Wiesel, The Rockefeller University, President Emeritus Nobel Prize in Physiology of Medicine, 1981.

Robert W. Wilson, Senior Scientist, Harvard-Smithsonian Center for Astrophysics, Nobel Prize in Physics, 1978.

Mr. HATCH. There is so much more to be said about this. We can debate all night about it. I am sure there will come a time for this debate, where we can discuss all these matters.

But, you know, I am concerned that we not lose this opportunity to help mankind. I remember in the early 1970s, mid-1970s, when recombinant DNA was so heavily lobbied against, the research, and it was another type of cloning research. It was not the same as this, it is not cloning a living mother's egg, but nevertheless, it involved cloning. Similar arguments were made against recombinant DNA research.

I have to tell you that we went ahead anyway, the research was done, and today we have over 60 mainline drugs that came from recombinant DNA—cloning—research, not the least of which is human insulin which is saving millions of lives today in this world.

In fact, virtually every major scientific breakthrough through history has had those who have argued against it. And there have been some which have not proven efficacious, such as fetal tissue research.

I made the arguments on the floor against fetal tissue research at the time. So far, I believe that science has not been able to derive the projected benefits from fetal tissue research. I am not saying I was right; I am just saying the fact is, it did not prove as efficacious as originally thought.

But the scientists, one of the latest ones I chatted with at the University of Utah, Mario Capecchi, one of the leading experts in the world on mice stem cell research—it was an absolutely fascinating hour and a half I spent with him. You can't believe how very deeply he believes that embryonic stem cell research, of the type I have been talking about, is absolutely crucial for the well-being and care of humankind and that, really, this research has to go forward.

We have already lost one of the truly great scientists in this country, Dr. Peterson, I believe, who just threw his hands in the air and gave up because he believes this research is going to be ultimately hurt in this country—although I do not think he is right. He has already left and gone to England. Can you imagine how many more would leave if we, the most free country in the world, the most scientifically oriented country in the world, the country where most biomedical research progress has been made, the country that has the best Food and Drug Administration in the world, the country that has a caring nature about living human beings—not meaning to demean other countries, but I think this country cannot be beat in biomedical research. Can you imagine what a demoralizing thing it would be if we banned this highly promising research that can help alleviate the pains of mankind?

I have talked enough about it. I am just saying I hope my dear colleague will withdraw his amendment because it is premature. We will be happy to debate tomorrow, if he is unwilling to withdraw it, or whenever—but it is premature. I think it is dangerous to do it this way. We should study this because it is a complex, very difficult area. There are so many things about this whole debate that are very complex and very difficult.

I am sure I cannot convince my colleague of my point of view, and I do not believe he is going to convince me of his. But the fact is, I believe we ought to do everything in our power, within moral and ethical constraints and standards, to try to come up with treatments and cures that might alleviate the pain, suffering, and yes, even premature death of our fellow human beings on this planet.

I hope before this year is out that we will be able to resolve this issue because I think it needs to be resolved. I will certainly work with my dear colleague to try to find ways we can resolve this. But I believe it has to be resolved, and I hope we can have that full-time debate at a later date and that we will be able, at that time, to let the Senate vote and let the Senate make the determination, as well as the House, and go from there.

I yield the floor.

The PRESIDING OFFICER. The Senator from Kansas.

Mr. BROWNBACK. Madam President, I would like to respond to a few issues raised by my friend and colleague from Utah. I have great admiration and respect for him. He is a senior Member of this body. He has done excellent work over the years. We have a disagreement on this one, although I don't know that we actually have a disagreement on the bill that is pending.

I continue to note the bill that is pending is about a patenting issue. It is about banning patents, and it is not about banning patents on unfertilized eggs. The bill is on the zygote, embryo, fetus, child or adult; a living organism made by human cloning or a process of human cloning. That is the operative part.

The zygote is the very young, fertilized egg. I agree that the unfertilized egg is not a person, to maybe clarify that in the debate. I don't think the unfertilized egg is a person and it is not protected under what we are proposing on this issue about patenting. The issue in front of us is patenting.

I also respond to my dear colleague from Utah that what we are proposing does not ban research on human cloning, that he would like to proceed. I disagree with that, but the pending issue is not about banning human cloning. It says that what we should do is not allow patenting of human clones or of young people. It is a narrow issue.

I want to make sure that it is clear to the body overall that the pending issue before this body is not about banning human cloning, it is not about a moratorium on human cloning; it is an issue that we should not patent the young human at any stage in the life continuum, when it is a young human.

That is when you have an entity. Whether it is a clone or a natural human, if you nurture it and it grows into a person, you should not be allowing patenting of this person. That is the pending issue.

I don't believe a number of scientists and Nobel laureates speak to the issue of patenting. They speak to the issue of human cloning, which is going on in America and which continues to go on this day in America. I don't think it should. That is not the pending issue, and that is not the issue the scientists address.

The issue that we are bringing up is about patenting. The good Senator from Utah knows this is the time and the right place. I brought these issues up in the past year. If not now, when? This is the time. These issues are pending. Some say it is not a real issue because the Patent Office has already declared that you can't patent a person.

I want to draw the attention of the Members of the body to when this debate broke open. Here is a May 17, 2002, piece in the New York Times, ''Debate on Human Cloning Turns to Patents''—just this past month.

The University of Missouri has received a patent that some lawyers say could cover human cloning, potentially violating a long-standing taboo against patenting of humans.

The patent covers a way of turning unfertilized eggs into embryos.

That is covered by the amendment we have put forward.

. . . the production of cloned mammals using that technique.

And it could be used on humans. That is the issue.

I ask unanimous consent that this article from the New York Times, and a similar one covering it from the Washington Post, and the Washington Times, be printed in the RECORD.

There being no objection, the articles were ordered to be printed in the RECORD, as follows:

[From the New York Times, May 17, 2002]

DEBATE ON HUMAN CLONING TURNS TO PATENTS

(By Andrew Pollack)

The University of Missouri has received a patent that some lawyers say could cover human cloning, potentially violating a long-standing taboo against the patenting of humans.

The patent covers a way of turning unfertilized eggs into embryos, and the production of cloned mammals using that technique. But unlike some other patents on animal cloning, this one does not specifically exclude human from the definition of mammals; indeed, it specifically mentions the use of human eggs.

Those opposed to cloning and to patenting of living things say the patent is a further sign that human life is being turned into a commodity.

''It is horrendous that we would define all of human life as biological machines that can be cloned, manufactured and patented,'' said Andrew Kimbrell, executive director of the International Center for Technology Assessment, a Washington group that has long opposed patenting of living things and also wants to ban all human cloning.

The patent was issued in April 2001, but attracted no attention until Mr. Kimbrell's group ran across it recently.

Senator Sam Brownback, the Kansas Republican who has been a leading opponent of human cloning, said he intended to introduce a bill to prohibit patents on human beings and human embryos, which he said were ''akin to slavery.''

''I think the patent office will appreciate having that clarity, given the applications that are coming into the patent office,'' Mr. Brownback said.

That bill would be separate from a bill the senator is already sponsoring that would prohibit all human cloning. The Senate is debating how extensively to ban human cloning, but none of the bills it is considering deal with the patent issues.

The patent also illustrates the tricky legal and ethical issues the United States Patent and Trademark Office is confronting as scientists race to develop cloning and to grow human tissues to treat disease. Mr. Kimbrell said he had found a few other patents that had been applied for but not granted that might cover human cloning.

The United States has been more liberal than most other countries in granting patents on living things, ever since a Supreme Court decision in 1980 that allowed the patenting of a microbe genetically engineered to consume oil spills. There are patents on complete animals, like a mouse genetically engineered to be prone to cancer. There are patents on human genes and human cells. The University of Wisconsin has a patent on human embryonic stem cells, which are cells taken from human embryos that have the ability to turn into any other type of tissue.

But the patent office has drawn the line on patenting of humans or human embryos themselves, saying it would not be constitutional. Many experts say this is because such patents would violate the 13th Amendment ban on slavery. Brigid Quinn, a spokeswoman for the patent office, said the agency was not using the 13th Amendment argument anymore but was not granting patents on humans because it had not received any guidance from Congress or the courts saying it should do so.

The result has been that many patents that conceivably could cover humans—like on cloning animals or on genetically engineering animals to produce drugs in their milk—specifically exclude humans.

A spokesman for the University of Missouri, Christian Basi, said that it believed its patent covered human cloning because it applied to all mammals. The university has licensed the patent to BioTransplant, a Massachusetts biotechnology company that is working on creating pigs that can be used as human organ donors. But the license, Mr. Basi said, covers only the use in pigs.

''We have absolutely no interest in using this to research humans and we will not license this technology to anyone for use in humans,'' Mr. Basi said, suggesting that the patent could actually help stop human cloning. ''This gives us control of this particular technology so we will know that this technology will not be used in humans.''

Ms. Quinn said the patent office did not comment on individual patents but had not changed its policy of not issuing patents ''drawn to humans.''

Randall S. Prather, a professor of reproductive technology at Missouri whose work was the basis for the patent, said the mention of human eggs ''was put there by the attorneys and they wanted to cover all mammals.''

Charles Cohen, who wrote the patent when he was a lawyer at a St. Louis law firm, declined to comment.

Some lawyers who have looked at the patent, No. 6,211,429, say it is not clear that it covers human cloning and that interpreting patents requires careful analysis of the patent's history, that the patent office did not appear to have problems with it could be a sign that the agency believes that the patent does not cover humans.

''You'd have to go through line by line, word by word,'' said Gerald P. Dodson, a lawyer with Morrison & Foerster in Palo Alto, Calif., who read the patent and said he could not reach an immediate conclusion.

Mr. Dodson and others noted that the specifications and examples of how the patent could be used dealt with pigs and cows.

Even if the patent does cover human cloning, some lawyers say, it would be a stretch to say it covers humans themselves, although the abstract of the patent says it covers the ''cloned products.''

But even a patent on the process of cloning humans could give the patent holder some rights over people, some lawyers said. Conceivably, for instance, the university could bar people created overseas by its cloning process from entering the country.

''It definitely is a patent for cloning a human, and under the laws we have right now, it might actually cover the human,'' said Richard Warburg, a patent lawyer at Foley & Lardner in San Diego who represents Infigen, an animal cloning company.

Dr. Rochelle Seide, a New York patent lawyer who heads the biotechnology practice at the law firm of Baker & Botts, said the lack of the nonhuman disclaimer in the Missouri patent was surprising.

''Looking at it,'' Ms. Seide said, ''I can see where people who are against cloning would have a big problem with it.''

Advanced Cell Technology, a company that wants to clone human embryos to obtain stem cells for disease treatments, licensed a patent from the University of Massachusetts on its method of cloning. But the patent is on only nonhuman embryos produced by the process, though it does seem to cover human cells.

It might be difficult to draw the line on what constitutes a human. George J. Annas, professor of health law at Boston University School of Public Health, said it was unclear whether the anti-slavery amendment would be a basis for denying patents on human embryos, because courts, in cases like those involving custody of frozen embryos, have said an embryo is not a person.

[From the Washington Times, May 21, 2002]

UNIVERSITY'S CLONING PATENT RAISES A ''MAMMAL'' ISSUE

(By Amy Fagan)

Adding another layer to the contentious debate over cloning in Congress, a patent watchdog group said last week that the University of Missouri at Columbia has received a patent for technology that can be used to clone human beings.

The patent covers laboratory procedures for creating cloned mammals, but it extends to the direct products of those cloning processes, including humans, said Peter DiMauro, director of Patent Watch.

''It says 'mammals' and it doesn't have a disclaimer for humans,'' said Mr. DiMauro, whose project tracks patents for the International Center for Technology Assessment.

University officials said the patent, issued last year, was never intended to apply to human beings. It was issued to a university researcher and applied to technology that allows the cloning of swine.

''The intent of the patent was to allow for research on swine,'' said Missouri spokeswoman Mary Joe Banken, who said school officials are meeting today to discuss narrowing the patent's language to exclude humans. ''It was never the intent of the university to use the technology on humans.''

Mr. DiMauro said he respects that, ''but the flaw is in the law.''

The Senate is awaiting a debate on the human-cloning issue. Sen. Sam Brownback, Kansas Republican, has a bill to outlaw the cloning of human embryos for any purpose, including for medical research. The House has passed an identical bill and the president is pushing for it.

Mr. DiMauro said his group has found three pending patents similar to that in Missouri. He called on Congress to clarify in law that patents cannot apply to human beings—including human embryos or fetuses.

Mr. Brownback said he will introduce legislation this week to do so.

''The central point in the debate over human cloning revolves around our view of the human embryo and whether or not the human embryo is a person or a piece of property,'' Mr. Brownback said. ''If we allow the patenting of human embryos, we will be sending the message that humans are property and that they can be exploited and destroyed for profit.''

A bill competing with Mr. Brownback's cloning ban, by Sens. Arlen Specter, Pennsylvania Republican, Dianne Feinstein, California Democrat, and others, would outlaw the implantation of a cloned human embryo in a uterus but would allow the human-cloning procedure to be done for medical research, including the extraction of stem cells. Advocates of this approach say the cloning procedure does not produce a human embryo, since no sperm is involved.

Patent Watch's DiMauro said the Specter-Feinstein cloning bill contains ''nothing to address the large scale commercialization of human embryos created through cloning.''

He said it ''seems to permit the status quo of the law, which is to allow the patenting of human embryos.''

When asked whether scientists would be able to obtain patents on their human-cloning research under her bill, Mrs. Feinstein said she did not know because her bill does not deal with the patent issue.

''I do not know, I cannot answer that,'' she said.

[From the Washington Post]

A NEW CALL FOR CLONING POLICY

(By Justin Gillis)

An advocacy group said yesterday it had uncovered a year-old patent that it interprets as applying to cloned human beings, and the group called on Congress to clarify the law to specify that no patents can be issued on human life.

The patent holder, the University of Missouri at Columbia, said it is still studying issues raised by the group but had no intention of asserting ownership of human beings or of cloned human embryos. The patent was obtained by a Missouri researcher working to develop pigs whose organs could be transplanted to save human patients. Cloning might be a way of creating many such pigs.

What the patent, No. 6,211,429, actually covers is somewhat unclear. It is mostly a description of specific laboratory techniques for making cloned mammals, but a subordinate clause in a section of the patent also lays claim to ''the cloned products produced by these methods.''

Other recent patents of this type have included explicit language saying the mammals in question do not include human beings, but this patent, issued April 3, 2001, to Missouri researcher Randall S. Prather and an associate, includes no such language.

Read in conjunction with relevant law, that means Prather has staked a claim on cloned humans whether he meant to or not, said Andrew Kimbrell, executive director of the International Center for Technology Assessment, the Washington activist group whose ''PatentWatch'' project raised the issue.

Some details of the patent appeared yesterday in the Wall Street Journal.

No one has ever made a cloned person, but many scientists believe it has become possible, raising profound ethical questions, including what rights of ownership the creators of a clone might have in their creation.

''I would say that the patent office should rescind this patent as grossly unethical and contrary to any kind of public policy,'' Kimbrell said. ''I also feel that in order to clarify this, Congress needs to come in.''

His group also raised concerns about three pending patents that it said could also be read as covering human life.

The University of Missouri disclaimed any pernicious intent. Prather ''has absolutely no interest in doing research on humans,'' said Mary Jo Banken, a spokeswoman for the school. ''I would say it would be impossible that we would attempt human reproductive cloning. It would never be approved'' by the university.

Brigid Quinn, a spokeswoman for the U.S. Patent and Trademark Office, said she could not discuss any individual patent and could not comment on Kimbrell's interpretation of the Missouri patent. But she said the patent office had made no change in its long-standing policy that human life cannot be patented.

''Our policy has not changed,'' Quinn said. ''It is not changing. We do not patent claims drawn to humans.''

However the Missouri patent is ultimately interpreted, the case does point up what some experts see as a gap in U.S. law. The policy to which Quinn referred is just that—a statement of intent issued by the patent office 15 years ago. It is subject to change, to court challenge and to simple oversight by patent examiners.

There is no specific law that excludes clones or other genetically modified human beings from being covered by patents. Some legal experts feel that constitutional law, particularly the 13th Amendment's prohibition of slavery, would rule out human patents. But others are doubtful and they argue that Congress should make the prohibition explicit.

Sen. Sam Brownback (R–Kan.), who has led a contested effort in Congress to ban all types of human cloning, said yesterday he would introduce separate legislation to clarify the patent laws. ''If we allow for the patenting of human embryos we will be sending the message that humans are property and that they can be exploited and destroyed for profit,'' Brownback said.

Mr. BROWNBACK. Madam President, I wanted to note to the Members of this body that this is the current issue. Indeed, one group that is looking and studying this issue believes that there are three patents either pending or already granted that could or are being used by the patent people or the process to create a human clone already.

Madam President, my point is that it is a live issue, and what we are doing here does not ban human cloning. It simply says you can't patent the human clone because there is a person; that if you allow this person to grow it is going to become a full-scale human being. It appears as if we are not going to be able to take this up in front of this body—the overall issue of cloning. Negotiations on that have broken down. Yet here is one to which I was hopeful we could get actually 100 percent of the Members of the body to agree.

I want to point to a couple of other issues that the Senator from Utah mentioned.

One is the unfertilized egg. We continue to speak about the unfertilized egg, which I believe is not a person. I want to state that clearly. The unfertilized egg he spoke about is not covered by the amendment. We do not cover the unfertilized egg.

He notes the position of a number of scientists on the issue of cloning. I would agree that there are differences in the scientific community on the issue of cloning. I also note that there are differences in the public. Two-thirds of the American public is opposed to human cloning.

I want to give you some examples of people who are opposed to human cloning and some of the reasons they are opposed to human cloning, and show you some pictures.

Two-thirds of the American public is uncomfortable about the issue of cloning. It kind of makes their skin crawl. It is that natural law within us that causes us to bristle when we think about creating life just for the purpose of destruction.

Here is a gentleman who wrote to me. He is from Granbury, TX. His name is James Kelly. He is in a wheelchair.

He said:

For the past five years I've lived in a self-imposed cocoon that includes a computer, a phone, and the world of medical research. In 1997 I fell asleep while driving interstate and a resulting spinal cord injury left me paralyzed below the chest. Because of what I've learned through reading medical journals and speaking to leading scientists, and because my life's focus is to support the safe, efficient development of cures for many medical conditions (including my own), I recently left my cocoon and journeyed to Washington to support your proposed ban on all forms of human cloning.

My reasons for supporting this ban are simple. Huge obstacles stand in the way of cloned embryonic stem cells ever leading to cures for any condition. To overcome these obstacles crucial funds, resources, and research careers will need to be diverted from more promising avenues for many years to come. These obstacles include tumor formation, short and long-term genetic mutations, tissue rejection, prohibitive costs, and the need for eggs from literally hundreds of millions of women to treat a single major condition (such as stroke, heart disease, or diabetes). However, every condition that cloned embryonic stem cells someday may address is already being addressed in animals or humans more safely, effectively, and cheaply by adult stem cells and other avenues. And since money spent on impressive-sounding, but hugely problematic research such as cloning cannot also be spent on research that really offers cures, I'm in favor of a total ban on human cloning.

I knew all this before I went to Washington. That's why I went there. Please allow me to share with you what I learned while I was there.

He goes ahead and talks about his discussion.

I want to show another person who has written to me who has studied and looked into this issue.

This is Julie Durler from Wright, KS. That is a nice-sounding community name.

I am writing this letter in support of legislation that would ban the creation of all cloned embryos. I understand the cloning of human embryos is being proposed for research purposed to help in finding a cure for different diseases including diabetes.

I am an insulin-dependent diabetic having been diagnosed with type I diabetes 17 years ago. I know personally the financial costs of having diabetes and also the health risks involved. As I have worked hard to keep my diabetes under control, I have been blessed in that I do not currently have any major complications as a result of having diabetes. However, I am also aware that in the future such complications may very well develop. Along with many others in our nation, I, too, would like to see a cure found for diabetes and know that research is necessary to accomplish that goal. However, the proposed use of cloning of human embryos for research or other purposes concerns me, especially since this creation of the cloned embryos for research purpose would result in their deaths.

I do not believe it is necessary to destroy life at any stage of development for research purposes. I believe their are other avenues of research that should be explored, most specifically the use of adult stem cells which has already produced some promising developments.

These are a few of many letters that we received from people who are suffering from some of these diseases who say there is a better way to go, as I have noted earlier.

I want to make another point on this RECORD.

The Senator from Utah, who has worked with me on many issues, says these are just a few cells. They are just a few cells. They are just a few cells.

I want to show you Hannah when she was just a few cells. This is Hannah. She is age 28 months, on April 1.

This is Hannah earlier. This is Hannah in the womb at 21 weeks. It is a fairly good picture of her. This is Hannah transferred to mom on April 11, 1998. Hannah was conceived. She was frozen. She was adopted as a frozen embryo.

That is interesting.

On March 5, 1998, she arrived at a clinic. On April 10, Hannah was thawed. Here she grows outside the womb. And, on April 11, she is transferred to mom. And then she goes on down the process.

If you destroy Hannah here, you have destroyed Hannah there. It is the same person. Looks different. When she gets older, she is going to look different.

Madam President, myself, I was once one of these. You were one of these. The Senator from Nevada was one of these. If we had been destroyed at this stage, we would never have gotten to this stage.

It is a life continuum that exists. If you destroy me here, I never get there. That is a biological fact. There is no theory involved. There is no theology involved. This is a biological fact.

Hannah was a few cells. We all were a few cells at some point in time. If you destroy us here, you destroy us there. If you destroy a caterpillar, you never get the butterfly, as much as we may want it.

My point in continuing this description for people is because this is just a few cells, it is true—it is just a few cells—but if you destroy those few cells, Hannah is destroyed.

At what point in time do you put any value to this life? Do we put value to Hannah when she is 28 months? I would say everybody in this body would agree. What do you put as Hannah's worth on December 31, 1998, when she came out of the womb? Everybody in this body agrees you put value to her at that point. Do you put value to her at 21 weeks in the womb? Some people in this body would question that, whether you would put worth to her at that point. How about April 11, when she is outside the womb? Some people would raise questions about that.

My point is, if you value her here, you have destroyed her here in the process that we are talking about.

That is not the issue in front of us. What I am talking about is the patenting. What I am saying here is, what is this? Is it a person or a piece of property at this point in time? Patentwise, what is this? Is it a person or a piece of property? The argument that is being presented to the Patent Office by some lawyers is that it is property and can be patented. But others are saying, it is life; it cannot be patented. That is the position of the Patent Office.

This body needs to decide that issue. And we are going to have to decide, then, if it is property at this point, at what point in time does it become a person that it cannot be patented?

My submission to you is, you should start at the moment of inception or that creation of the clone and say, you cannot patent the person. It is against the 13th amendment abolishing slavery. That is the only clean spot you can go in here and declare this is the spot we should start.

This should be a relatively easy and straightforward issue. It does not stop cloning research from taking place. It does not stop the funding of cloning research from taking place. It does not stop our scientists from working on the issue. It simply says, you cannot patent a person. It clarifies that issue for people who desire and seek to do that.

For those reasons, I think we should be able to vote on this, bring it up. And I am hopeful all my colleagues will join me in voting for the amendment.

Madam President, I yield the floor.

Mr. WARNER. Madam President, following the tragic events of September 11, 2001, the insurance industry faced an unprecedented situation. The final costs and impact on the insurance industry and its consumers have yet to be determined.

Although secondary insurers will help to cover some of the expenses associated with the September 11 attacks, it is critical for the Senate to consider and pass legislation to address the risks of future terrorists attacks.

The administration, the insurance industry, and policy holders throughout the various and diverse sectors of the economy, state the critical importance of passing legislation in a timely manner.

The attacks in September dealt a detrimental blow to an already sluggish economy leaving the health and stability of the economy very uncertain. Although the economic outlook is improving, further delay in passage of a terrorism insurance measure will adversely affect economic progress and growth.

Since September we have passed the September 11 Victims Compensation Fund, the Air Transportation Safety and Stabilization Act, and the Bioterrorism Preparedness Act.

The insurance industry is also facing a potential crisis. It is now June 13, 2002, and we still have not passed a bill. Every day that we fail to do so, the growing uncertainty in the market threatens the ability of businesses to obtain adequate and affordable insurance.

NEED TO ADDRESS GROUP LIFE INSURANCE

Ms. COLLINS. Madam President, the bill that we are debating today takes critical steps to address the problems arising from the September 11 tragedy that are being experienced by the commercial property and casualty insurance industry. I understand however, that the group life business has also been impacted by the tragic events of September 11. Group life insurance covers nearly 160 million Americans and represents 40 percent of all life insurance in force in the United States, or, $6 trillion of protection to Americans—most of whom are average working Americans. Group life insurance is a highly efficient and inexpensive way to deliver much needed security to people who might otherwise have little or no coverage. This product is inexpensive because it is sold as a single contract between an insurance company and a corporate buyer, the employer, and covering a great number of lives. This greatly simplifies and reduces costs of marketing and administering of the product. It is typically a staple of the employee benefits package provided by employers to their employees.

While I support the terrorism insurance bill that we consider today, I am concerned that it fails to address issues that threaten the continued vitality of group life insurance providers. And so I am pleased to have the opportunity to engage in a colloquy on this issue with the Senator from Nebraska, a true expert on insurance matters, the senior Senator from Maine, and three key members of the Senate Banking Committee.

I understand that the primary problem, both for the property and casualty insurers, as well as the group life insurers, is the difficulty in obtaining reinsurance after the disaster. Am I correct?

Mr. DODD. The Senator's understanding is correct. Reinsurance is important to the property and casualty insurers as well as to the group life insurance industry.

Mr. NELSON of Nebraska. I thank the Senator from Connecticut, who has played such a key role in bringing this important bill to the floor. I also thank the Senator from Maine for raising the profile of this issue in the Senate.

It is my understanding as well that the group life industry is experiencing difficulties in obtaining reinsurance. I understand, for example, that one group life insurer covered four corporate groups in the World Trade Center, with over $150 million in losses. All but $6 million was paid by reinsurance. Had that insurer not had reinsurance, its financial security would have been severely compromised. It is not unusual for group life insurance losses to be 96 percent covered by reinsurers. Now, however, the catastrophic reinsurance market has changed. For those companies that use reinsurance, I understand that premiums have skyrocketed with 10- to 13-fold increases and, in many instances, reinsurance may not be available at all. Much of the reinsurance that is being written excludes acts of terrorism and biological, nuclear and chemical claims. And, while reinsurers are either declining to pay for certain claims or simply not offering reinsurance for certain occurrences, the group life insurers are not allowed by their State insurance commissioners to have the same exclusions. And so I ask the distinguished ranking member of the Senate Banking

Committee, does the bill that we are currently debating address the problems being faced by group life insurers?

Mr. GRAMM. I thank the Senator from Nebraska for raising this important question. I believe that this bill does not speak individually to the issues now confronting the group life insurance industry. I would note that the bill does contain a provision that requires the Secretary of the Treasury, after consultation with the Nation of Association of Insurance Commissioners and representatives of the insurance industry and other experts, to study the potential effects of acts of terrorism on the availability of life insurance and other lines of insurance coverage.

Ms. SNOWE. I thank the senior Senator from Texas for his remarks. I am concerned that the study may not be completed in sufficient time to help the group life insurers avail themselves of the help that the property and casualty companies are getting in this bill. I would therefore ask the Senator from South Dakota, a senior member of the Senate Banking Committee, if he believes the needs of group life insurers are adequately addressed in this bill or its companion measure, passed by the House last November?

Mr. JOHNSON. I thank the senior Senator from Maine for her question. I believe that the needs of group life insurers are not adequately met by this bill. I find this problematic because of the role that group life insurance plays for the majority of American families. I am particularly concerned about the families of firefighters and other first responders. We ask firefighters and other first responders to risk their lives for us in the event of a terrorist attack. We have to make sure that basic group life insurance is there for them. I am also concerned about families whose wage earners are at the lower end of the pay scale. These families often find that they are able to secure more life insurance than they could otherwise afford because their employer is subsidizing it.

Finally, I am concerned about those families with a spouse who has had a serious medical problem. These families often find that the only life insurance they can afford or even find is group life.

We need to make sure that this industry remains highly competitive and able to pay all of the claims that might be made in the event of a future terrorist attack.

Ms. COLLINS. I thank my colleagues for participating in this colloquy, which has added measurably to the debate on the underlying bill. I thank particularly the distinguished senior Senators from Texas and Connecticut, without whom this bill would not be before us today, and I would like to ask them if they would commit to doing all they could to ensure that the legitimate needs of group life insurers are addressed in the conference on this legislation.

Mr. GRAMM. I would say to the gentlelady from Maine that this is an important issue that was brought to our attention only after the basic legislation was drafted. For that reason, I have every intention of making sure that, in conference, we give full consideration to the problems faced by the group life industry.

Mr. DODD. I concur with the senior Senator from Texas and will do all I can to address the legitimate needs of group life insurers in conference. To that end, I would invite the group life industry to continue to work with us so that we can better understand the problems that it now faces.

Mr. GREGG. I share the concerns of my colleagues regarding this issue and would add that we should facilitate insurance coverage for buildings subject to terrorist attacks, as well as for the people who work inside them. I look forward to addressing these issues in conference.

Mr. REID. Madam President, I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

Mr. REID. Madam President, I ask unanimous consent the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

MORNING BUSINESS

Mr. REID. Madam President, I ask unanimous consent the Senate now proceed to a period of morning business with Senators allowed to speak therein for not to exceed 5 minutes each.

The PRESIDING OFFICER. Without objection, it is so ordered.

YUCCA MOUNTAIN LEGISLATION

Mr. ENSIGN. Madam President, I rise today to respond to remarks by the senior Senator from Idaho on the Senate floor procedures outlined in the Nuclear Waste Policy Act regarding Yucca Mountain. And I come to the floor today out of great respect for the traditions of the U.S. Senate. I am a freshman Senator. I have only been here a year. But one of the first things I did when I arrived was to seek the advice of the senior Senator from West Virginia, Senator BYRD, our very own Senate historian. I asked him for a copy of his history of the Senate which I have turned to often. I haven't had the opportunity to speak to him directly on this matter, but I turned to his books for guidance.

Madam President, when you have the chance, turn to Volume II page 191, and see what Senator BYRD says about the powers of the majority leader. He says the majority leader . . . ''determines what matters or measures will be scheduled for floor action and when.'' The Senator from Idaho is planning to change that by asserting that it would be alright for any member to determine when the Yucca Mountain resolution comes to floor. he said that, ''the Nuclear Waste Policy Act provides a special statutory authority to make exception to contemporary practice.'' That is not the case. I have the act right here.

The Nuclear Waste Policy Act of 1982 does state that it shall be in order ''for any Member of the Senate to move to proceed to the consideration of such resolution.'' But the act also states that the procedures outlined in the Nuclear Waste Policy Act ''supersede other rules of the Senate only to the extent that they are inconsistent with such other rules.''

The Nuclear Waste Policy Act provision permitting any Member to move to proceed to the consideration of the Yucca Mountain resolution is consistent with Senate rules, therefore it does not supersede the rules of the Senate. In the modern history of the Senate, no Member, other than the majority leader (or a designee), has successfully made a motion to proceed to a matter or measure.

Here are the facts:

CRS indicates there are six statutory expedited procedures in current law which explicitly state that ''any Member of the Senate'' may offer the motion to proceed: Executive Reorganization Act; Atomic Energy Act; Defense Base Closure and Realignment Act of 1990; Balanced Budget and Emergency Deficit Control Act; Balanced Budget Emergency Deficit Control Act; Nuclear Waste Policy Act of 1982.

According to a March 28, 2002 CRS memorandum, the language in these six statutes which states that ''any Member of the Senate'' may offer the motion to proceed is ''consistent with the Standing Rules of the Senate, which permit any Senator to make a motion to proceed, but also with the general Senate practice under which Senators routinely concede to the majority leader the function of taking actions to determine the floor agenda.

So the Nuclear Waste Policy Act is not, as the senior Senator from Idaho stated, ''a special procedure.''

Next, a June 11 CRS memorandum indicates that since the 100th Congress, consideration of five measures was governed by some statutory procedure explicitly permitting any Senator to offer a motion to proceed to consider. In three of these cases, action to call up the measure for consideration was taken by the Senate majority leader. However, in two of those cases, no Senator took action to call up the other two measures. The majority leader secured their indefinite postponement. That means no Senators offered a motion to proceed, even when explicitly permitted to do so by statute. The majority leader kept control of the Senate.

The Senate is a body which, quite rightly, reveres tradition. We must, as we have so few rules. As a new Member, I relied on the guidance from the Parliamentarian, the Congressional Research Service, and my senior colleagues. I am certain that if anyone,