



Ageless Bodies and Happy Souls: The Future of Aging in a Biotech Era

*An Interview with Leon Kass, MD,
Chairman, President's Council on Bioethics*

Broadcast Monday, April 12, 2004, 10-11 a.m. EDT

PERRY: Hello, and welcome once again to SAGECrossroads.net. This is a monthly live Webcast, a partnership of the not-for-profit Alliance for Aging Research, and the American Association for the Advancement of Science. I'm Dan Perry, executive director of the Alliance for Aging Research. Welcome to this live Webcast!

As you know, these events are moderated by the chair of the Editorial Advisory Board of SAGECrossroads.net and that's Mr. Morton Kondracke, a prominent American journalist who has spent more than thirty years here in Washington, D.C., covering American politics, covering the White House, covering foreign and domestic affairs for newspapers, magazines, radio and television.

Mr. Kondracke is currently executive editor of Capitol Hill's feisty newspaper *Roll Call*, and a twice-a-week columnist under the headline of "Pennsylvania Avenue," which is carried in many newspapers across the country. He is also the co-anchor of FOX News "Beltway Boys" public affairs program.

Today we are particularly pleased to have as our special guest and interviewee Dr. Leon Kass, chairman of the President's Council on Bioethics. I would also like to thank the underwriters for this live Webcast, SAGECrossroads.net. Those underwriters are: the Atlantic Philanthropies of New York City, the Retirement Research Foundation of Chicago, and the Archstone Foundation of Long Beach, California.

Now it gives me great pleasure to turn the show over to Mort Kondracke.

KONDRACKE: OK. Thanks, Dan. We were just conferring here about the order of things.

We invite your e-mails out there. Later on we'll have questions and answers from you out there in the Web audience.

Professor Leon Kass is a doctor, M.D. He also has a Ph.D. He is professor of bioethics at the University of Chicago. And, of course, chairman of the President's Council on Bioethics. He's the author of five books, he thinks. He was trying to count them up! Four of them, and numerous articles that I have read, and maybe you all have probably read

too, express a certain skepticism that biomedical and technological advances have only positive outcomes and consequences. I think it is fair to say that he is concerned about the *Brave New World* possibilities of biomedical research as in Aldus Huxley's famous novel.

Now, all of this has made him fairly controversial in the scientific community with some of his critics, saying that he has a sixteenth century sensitivity, that he's anti-science, and so on.

What we are going to do today is not talk primarily about cloning—which is the subject that has made him probably the most discussed recently. But this book, which is a report of the President's Council on Bioethics, *Beyond Therapy*, and especially chapter four, which is entitled "Ageless Bodies." It discusses the ethical complexities of aging research.

Would you like to do five or ten minutes and sort of summarize what the chapter is all about and where it comes out?

KASS: Let me say a few things—

KONDRACKE: Good.

KASS: —about the report in general, and then about that chapter—

KONDRACKE: OK.

KASS: —in particular. This report, *Beyond Therapy: Biotechnology and the Pursuit of Happiness*, a document that is intended for educational purposes mainly and contains no recommendations, is the first public attempt to look at the uses of new, and very exciting, biotechnologies beyond the traditional purposes of healing disease and relieving suffering.

It's fairly clear that these technologies developed in the first instances for those traditional medical purposes have dual uses. They fit very nicely into age-old and, for the most part, perfectly reasonable human desires—desires to have better children, desires for superior performance, desires for happy souls, and in the chapter we are going to talk about, desires for "ageless bodies for longer and more vigorous life beyond our allotted four score."

Rather than focus on the technologies themselves to begin with, we try to integrate these technologies into their human context; that is to say, what are the fundamental human aspirations that we have pursued in a variety of other ways, and what would it mean if we come to pursue those age-old desires now with the aid of these new and powerful technological means—some of them here and some of them on the horizon.

In the chapter on “Ageless Bodies”—in a way the most radical of the chapters in this volume—we consider how current and projected biotechnologies based upon advances in biomedical science might actually feed the—well, I would say—the age-old human desire to do battle, not just with disease, but also with decay, senescence, decline, and ultimately with death itself.

There are ancient tales about the human aspiration to conquer decline and, in fact, even to live forever. Ponce de Leon was in Florida looking for the fountain of youth, and the ancient Greeks had many tales about human beings who sought these goals and, in fact, in ancient Egypt the pharaohs embalmed their dead in expectation that some day science or technology would find some way of reanimating them.

In this chapter, then, we don’t assert the scientists themselves are interested in ageless bodies or are seeking cures for mortality. But that what they are doing will, in fact, fit in to this human penchant for longer, more vigorous life, and in fact, greedily for more and more, a desire, which as I say, just about anybody alive has experienced for themselves, and if not for themselves, then for their loved ones.

We look at certain kinds of new scientific developments, research in calorie restriction, which in animals increases the maximum life expectancy, to very exciting developments in the genetics of aging, in which single mutations in flies, in worms, and now in mice, have been shown to be correlated with two and sometimes three and more fold increase in the maximum life expectancy.

Mort, I think it’s important to stress the difference between what is on the horizon and what we have done over the past century.

Over the past century, the average life expectancy at birth increased from about forty-seven years in 1900 to about seventy-seven to seventy-eight years at the beginning of the current century, all of this through sanitation, public health measures, and to some smaller extent, to disease-fighting ordinary medicine.

But for the most part, nobody is living any longer than the oldest human beings have ever lived before. There has been an increase in the average life expectancy but not an increase in the maximum life expectancy.

If one wants to increase the maximum life expectancy and at the same time do battle with the biological processes of senescence, you have to do more than fight cancer, heart disease, and stroke. You actually have to get in there and look at the biology of senescence itself and try to get a handle on it.

These exciting findings in the genetics of senescence hold out the promise that we might some day be able to deal not just with the diseases, but deal with aging as if aging itself were another disease susceptible of intervention and remedy.

Having laid out the technologies present and projected in the scientific findings that lead us to contemplate these innovations, we then discuss some of the ethical issues as they might affect the lives of individuals, and some of the ethical and social issues as they might affect a society grown progressively older and most likely more vigorous should some of these new innovations occur.

What would it be like if a society—in a society, if not just a few people—but if everybody opted for a technology that raised the life expectancy not to four score and ten but to 120, 150, 180. What would the world look like, and would we be better off?

We don't come to any conclusions in this chapter since unthinkingly everyone would probably say yes to some kind of intervention that would give them twenty more years of the sort they experience between thirty and forty. Those years look pretty good to people our age!

Because objections or worries that would be raised by this are sort of counter intuitive, we perhaps spend more time raising questions about these prospects than we do simply praising the notion that more life would necessarily be better. But I think we do indicate how powerfully attractive such a prospect would be.

We can go into the specifics if you would like, but that gives you the general sense of the approach. Also, why we think that this very radical prospect, one that would really alter the shape and duration of the human life cycle, is worthy of our attention in advance of these findings, even if we don't have any ready answers for it at the present time.

KONDRACKE: Even though the chapter comes to no conclusion, there is a kind of a tilt in the chapter which suggests—sort of emphasizes the problems as opposed to the virtues of life extension. For example, there is a chapter—I mean, there is a statement toward the end that says that, “Only aging and death,”—and it's quite lyrical actually—“Only aging and death remind us that time is of the essence. They invite us to notice that the evolution of life on earth has produced souls with longings for the eternal, and if recognized, a chance to participate in matters of enduring significance that ultimately could transcend time itself.”

I mean, the argument seems to be that growing old and dying are good things that we might lose, and that human nature would somehow be altered if we had an infinite life extension, if we ever could do that.

KASS: Well, I'm not sure I can do justice to that passage on one leg. It was, in fact, provided by one of our council members in one of the drafts. It was such a beautiful passage, we incorporated it.

The question—there is no question but that the gift of more time of the sort that you and I have been blessed with as a result of the changes of the twentieth century, that that gift of extra time is a great blessing.

That to be able to imagine living out a full life span if one is lucky—and by the way, lots of people are not so lucky and we have a long way to go before the blessings of medical research and public health are extended to our fellow human beings, even in this country, not to speak of the rest of the world—but there is a real question as to whether the gift of time as indefinitely extended before us is, in all respects, a gift.

Time is a gift, but the perception of endless time or of time without bound in fact has the possibility of undermining the degree to which we take time seriously and make it count.

And the deep meditation to which that passage, I think, would invite us, would be something like this:

Homer in *The Iliad* and *The Odyssey* presents human beings whom he names as mortals. That is their definition in contrast to the immortals. And the immortals, for their agelessness and their beauty, live sort of shallow and frivolous lives. Indeed, they depend for their entertainment on watching the mortals who, precisely because they know that their time is limited, and that they go around only once, are inclined to make time matter and to aspire to something great for themselves.

And so the question would be, we are not really talking about immortality, but if it—is there some connection between the limits that we face and the desire for greatness that comes from recognition that we are only here for a short time?

If you push those limits back, if those limits become out of sight, we are not inclined to build cathedrals or write the B Minor Mass, or write Shakespeare's sonnets and things of that sort. And it's not clear that if human beings thought of themselves as potentially here indefinitely whether the perspective of eternity or the longings for some kind of immortality, other than continuance of more of the same, would wither in (inaudible). It's an open question.

KONDRACKE: OK. Let me go from the profound to the more mundane.

What is your thought about aging research; that is to say, funding of it, of you know, doing it. Are you—does this chapter tilt in the direction of saying that we should stop or we should defund it? Or, you know, that the president should pull a stem cell decision kind of thing on it, or what?

KASS: Well, the president's stem cell decision actually was a liberalizing decision. It was Congress who cut off the funds.

No, look. I—this gives me an opportunity to say I am not a Luddite, I am not a hater of science. I esteem modern science and I regard it as really one of the great monuments to the human intellect, even as I worry about some of the uses of some of the technologies that science is bringing forth.

And if everybody else was worried about it, you would find me as one of its defenders. I am taking up the side that is weaker here, that needs articulation.

With respect to the specifics, I think aging research should proceed. I think it's extremely interesting to know the processes of biological aging. I think there are certain aspects of the human condition, whether it be the enfeeblement of muscles and joints, or whether it be the enfeeblement of minds through dementia and other sorts of things, about which we could learn a lot and become very helpful if we somehow understood the biological processes of senescence.

Doesn't that mean that if I allow and encourage this report, this research to go forward, that we will acquire certain kinds of powers for which human beings will be simply delighted to use, that we might, in fact, produce exactly the kinds of troubles that I'm calling attention to? Yes.

But it doesn't seem to me that the way forward here is by banning research or by somehow putting a halt to the inquiry.

Here, I think, I am in a kind of uncomfortable position of saying, look, this is research of enormous promise and considerable danger, not in the way in which bacteriological weaponry is dangerous, but this is dangerous the way Midas' wish is dangerous. It gets you exactly what you want, and you might discover only too late that what you wanted was not exactly what you really needed or desired. What you wished for is not really what you wanted.

The task here, I think, is to try to think through where we are headed and to begin to think about the possible uses of some of these things down the road, though I admit that by not being an opponent of the research, I'm, in fact, encouraging the developments about which I am most worried.

That doesn't leave me comfortable, but I think we have much to learn and much to benefit from here, and my hope is that in due course we will figure out some kind of way of moderating the kind of appetite and uses of these technologies.

KONDRACKE: How on earth you would do that?

KASS: I don't have a clue.

KONDRACKE: I mean, you as an individual have come out foursquare against reproductive cloning.

KASS: Yes.

KONDRACKE: So you are not against using the power of the government to stop something that you find odious. But in this case, you would let it go forward or you

would encourage it? You would increase funding for it? What would you do as to aging research?

KASS: Well, to use the arm of government and its power to proscribe, that's a very crude instrument. I think it's useful in only a couple of areas. I am in favor of legislating against assisted suicide and euthanasia, for example, so that we set certain kinds of boundaries within which then prudence and judgment can proceed.

I am also in favor of setting certain kinds of limits against certain outlying reproductive practices—cloning would be the primary one amongst them—partly because I want to shift the burden of persuasion to those innovators who would like to violate certain normal human taboos and boundaries in this area.

For the most part, though, this is an area where bans are too crude; where the beneficial uses and the dangerous uses are sort of so intertwined that the best you can hope for is something like some mixture of professional self regulation, some ways of—some possibly government regulatory activities that say, for example, with respect to sex selection technologies, yes, it's OK to use those when you are selecting for sex-linked genetic diseases, but no, it's not a good idea to use them for ordinary sex preferences, even for family balancing.

And we have—that's the guidance of the professional society, but they don't enforce it against their own members.

In certain parts of the world, the failure to have some kind of policy along those lines is producing scary imbalances—120 males to 100 females at birth, which means, you know, a fourth to a fifth of the male population unmarriageable and you could simply imagine the social consequences of having hoards of males in their twenties and their thirties. You put uniforms on them and you send them across the border.

So there have to be some kinds of ways of addressing these things by at least government oversight and some kind of monitoring.

In this area, it is hard as hell, partly because the desire to avail oneself of these techniques is just very, very powerful. The arguments are arguments that the mind makes to the mind, but the heart and the blood course for longer life.

We are still early enough in the game, I think, that at least a certain amount of public discussion might be in order. We might try to hope to separate those interventions that deal with the degenerations that are not necessarily life-prolonging.

I mean, if one could do something about Alzheimer's, if one could do something about chronic arthritis, if one could do something about general muscular weakness and not, somehow, increase the life expectancy to 150 years, I would be delighted.

KONDRACKE: We have these discussions constantly in this forum with scientists and ethicists, as well. There are two kinds of aging research: one that attacks the diseases of aging specifically, and the other which tries to get to the core of what aging is and to try to cure it as though it, as you say, as if it were a disease.

You know, frankly, the balance of the science seems to be that this is a very difficult thing to do, to cure aging. It may be possible to do life extension in nematodes, worms, or fruit flies or even mice, but understanding what aging is all about in human beings and fixing it is very complex and very difficult.

So how imminent do you think this danger is?

KASS: Well, hope and danger, I suppose you would say if we wanted to be neutral. It depends on whom you talk to. Conservative people say, “Look, we’ve been trying to do this for a long time.” Calorie restriction is a very onerous thing. On the other hand, they are beginning to discover some of the biochemical pathways downstream from the calorie restriction. The question is, can you begin to tweak some of those pathways without having to give up on your diet?

Only in the aging research community have people realized what a monumental discovery it is to find single gene mutations that increased the life span of a species two and three fold, and to know that those genes are present in the human.

Now, it is certainly correct to say that human beings are not worms, and they are not even—I mean, they are much more complicated than mice, and I suppose that the cautionary principle, which is very often invoked here for lack of more careful substantive arguments, is to say, “Look, for a life span—.” This is also the subject of dispute.

There are, according to ordinary evolutionary theory, things that take place prior to and including the reproductive period that are thought to be things that are of selective advantage and therefore that evolution would be at great pains to be fussy about those things. But things that happen beyond the reproductive age ought to be of relatively little consequence from the point of view of natural selection.

So there is a kind of puzzlement. Why is it that the maximum life expectancy of every species is more or less genetically determined, as is just about everything else around us? Twenty-one days for flies. A couple of years for mice. Seventy-five to one hundred years for elephants. And our maximum life span is somewhere in the neighborhood of one hundred, give or take a decade.

What if it were the case that there have been certain kinds of evolutionary advantages that, in fact, governed the maximum human life expectancy, having to do with the kind of sociability of the creature in which having a number of generations alive contributes socially to the advantage of a community?

You begin to tamper with the human life span as a whole and one could make an argument that we are running the risk of destabilizing something that is the product of eons and eons of evolution to our detriment.

KONDRACKE: How would that happen?

KASS: How would which happen?

KONDRACKE: How would the process that you described—how would it affect our evolution? Suppose if you could extend life to 150, 160, how would that affect the evolution of the species? I don't quite understand that.

KASS: It wouldn't—if indeed the human animal has evolved as a social animal, in fact, as a preeminently social animal, and there's all kinds of biological evidence for it, beginning with the fact that the human infant is born from the point of view of the mammalian world, premature. We spend our first year of life in what a biologist calls “the social womb,” in which learning to walk, learning to speak, all of these capacities of acquiring even the basic senses, are acquired in the social situation, so that we are somehow natured, not just to reproduce, but we are natured, really, for sociality and even for culture.

Then, the question is what are the social arrangements based upon—tied to these natural givens, that are most conducive for rearing the kind of animal that the human being has been natured to be?

And here we would have to get into the discussion of the relation between personal longevity, the relation among the generations and the character of culture. One could look over the past century and ask oneself, has the increased longevity, which all of us are enjoying, been good, bad or indifferent for the view of ourselves as enmeshed in a lineage that came from somewhere and is going to make way for the next generation?

Is it possible to covet a much longer life for one's self and be as devoted to the well-being of the next generation? It's a long argument. I would say the evidence, certainly of the last half century, does not speak very well for the degree to which those of us who are flourishing here are inclined to not only honor the commandment to be fruitful and multiply, but to make the kinds of sacrifices necessary to rear the next generation well.

Extend this out. Produce four, five, six generations alive at one time, and, by the way, continue the dwindling family size, so that the industrialized world begins to follow Italy and has 1.2 children per woman per lifetime. One child, two parents, four grandparents, not counting divorce. We multiply this out. Sixty-four great-great-somethings focused on this one little guy. And that particular little guy is supposed to be looking after the well-being of his parents when they get older.

The whole social arrangement—

KONDRACKE: Well, that assumes that the little guy, as a worker, is going to have to support all these people who are going to be “old.” But if you extended health along with life expectancy, these people would have to keep working. Presumably the social arrangements would change accordingly, would they not?

KASS: Absolutely. And in fact—

KONDRACKE: We’d have a retirement age of 120!

KASS: But you can already see—Look: there is no question that if these changes take place the social changes that would accompany them—if precedent is any guide, we will figure out a way to adjust, in some sense, to a world of longevity. Already we have scrapped the maximum—the retirement age, and at my university, they are only too glad to buy us out.

On the other hand, if one rearranges things to take advantage of the extra experience and the wisdom of those who have been around longer, and if they are healthier and more vigorous than they now are, they are going to be very much less inclined to get out of the way.

What you are going to change is—you are going to trade a problem of the enfeeblement of old age to the kind of psychic retardation of the maturation of the young. You can’t go fiddling with the human life cycle and think about it only at one end.

If Michael Jordan played until he were eighty rather than forty, what would this somehow mean? And generalize this to members of Congress, to various kinds of corporations. We already have seen, I think, in the last century, something of the retardation of the process of full maturation of the young.

This is, again, a long argument and I don’t want to start a culture war here, but for a variety of reasons, young people who most have the benefit of the endless future stretch down before them, they graduate. They are blessed with the opportunity of having time to pick from among the various options, unlike the previous generation that had to go out and work and support themselves. They can do as I did and change careers any number of times in the course of a—even a finite of seventy year life span.

They have a salary. They have an apartment. They have a car. But if—and Seinfeld would be the cultural symbol. They are disinclined to step forward and take the place of their parents and take responsibility for the next generation. And one can’t blame them.

It’s partly because the world is not somehow simply welcoming of them in the way in which the world welcomed youth, I think, a little bit earlier. That’s at least an argument.

And the question would be if you simply took advantage of the wonderful strengths and experience of the old, what would you be doing for the maturation of the young? Would

you not be somehow producing a kind of post adolescence that went on and on and on. At least that's a question.

KONDRACKE: There's one argument that's made in this—that has to do with innovation. That almost inherently people who are older are—get “set in their ways” and that if they were—you had this great, large group that was out there to 150 to 160 and few young people, that the sense of trying to change things would be more difficult.

Now, theoretically, at least, I think that's an argument that most people could understand, (inaudible.)

KASS: Yeah, and of course, it's like most generalizations, falsifiable in any particular case. I mean, Stravinsky is a wonderful example, who was vigorous and creative into his late eighties. You know, there is Leonardo and Sophocles wrote his greatest plays—

KONDRACKE: There we go!

KASS: On the other hand it is very unlikely that most people after the age of fifty radically change the way they look at things. And given the rate of sort of social changes, not—the rate of our ideas changes really with generational time and whereas the—especially in a modern technological age—the world doesn't look the same ten years down the road.

There are not very many people who sort of change their world view or are easily adaptable to innovation and, moreover, for people for whom life has been disappointing, or who have seen it all already—you've seen it all—the best things about us very often go to sleep. Our indignation at injustice begins to wane. Now, the young with, you know—I mean—it's a long question as to whether or not the tension between the young who are restless, who want to somehow overturn our monuments and find the world wrong and want to fix it—if that's all we had, there would be wildness.

If all you had were people who say they have seen it all already, yeah, this is the way it is. If you didn't have the spur of innovation and challenge, that would also be bad.

KONDRACKE: Well, but theoretically, if you did have this extended adolescence, people would—might be revolutionaries until they were fifty. You know, that it would—I mean you can argue this other ways.

KASS: Sure.

KONDRACKE: I mean this—the *Brave New World* possibility isn't the only one here. I mean, there is an aspect of freedom to this of—and opportunity.

KASS: Oh, absolutely. I think it's important that I take up that side here, because we do in the report.

Look, if one knew at the age of twenty that one had a hundred years to play with, there would be an opportunity for exploration, for trying this life and trying that life, and knowing that if you either got it wrong, or even if you got it right and got tired, that there were endless possibilities.

I think that's certainly the case, and for those people who are especially creative and so inclined, this would be a great gift. I mean there is more than one of the lives available here to choose from.

But once again, notice that—I am repairing now to the social argument—there is a question about the shape of a life cycle. What the people who talk about life extension do when they talk about this is they sort of see time homogeneously the way the physicists do. They simply sort of see time as a time line and they are going to insert a little segment in here, another little segment there and just extend it out. Where the fact of the matter is, at least the natural shape of a life cycle, is there's a period of rapid growth, of an acculturation, of reaching maturity, of coming into one's full powers, of in some ways governing of—bringing the next generation into being, of launching them into their maturity, of standing on the sidelines and coaching them as they do the same with the next generation. And of gradually giving way.

This has something to do with how we see ourselves. Do we see ourselves simply as individuals pursuing our own happiness? Or do we see ourselves as, in some ways, responsible members of a community responsible to those who produced us to those who will take our place and to the larger society of which we are a part?

There is no question that a longer life for some individuals could be fulfilling, for many individuals. But I am not sure that this wouldn't be something like the so-called tragedy of the commons, in which the aggregated social consequences in the society at large might be such that it would offset the benefits for the individuals insofar as there was less engagement, less attachment, more loneliness in our kind of pursuits.

KONDRACKE: Yes. Let me go back to the policy implications.

Would you be in favor of somehow limiting the study of the aging process? I mean, is—I don't know that it's possible, because if you are discovering a cure for Alzheimer's you very well may well stumble across something that will be a key to aging as a disease.

But would you be inclined, as a policy matter, to try to retard that kind of research into aging as a disease? And could you?

KASS: Well, I don't think we can. And as a policy matter, as a policy matter I guess—I guess I wouldn't be. If I knew that—since I don't think these are—I don't think that the two kinds of aging research are really going to be separate, I suspect that whatever it is that deals with the process of senescence will not just add life to years but will also add years to life.

I suppose certain modest increases wouldn't be all that radical, though the modest increases will only feed the desire for even more increases. This is a kind of limitless appetite here.

I would, I think, be inclined as we go forward over the next decades, to try to argue with the immortalists and the various other people who, it seems to me, have a very shallow view of this matter. Or, I was on a discussion with a fellow at the Harvard Medical School who is quite cavalier. He is looking for small molecules that will do to these genes, without the mutations, what those mutations do, in the hope that he can simply begin to produce these large increases.

And I would—

KONDRACKE: Because he's only interested in the science of whether you could do it or not?

KASS: Oh, no, no, no, no. He—this fellow is quite eager, in fact, to give us fifty, sixty more years. He thinks he can do it in his lifetime. I don't know—I don't know whether he is right or not, and one doesn't bet against science.

KONDRACKE: Why is he shallow? It seems to me that you could argue that he is an idealist.

KASS: Well, a lot of idealists are shallow. I somehow thought—that is to say there is a certain — there is a certain utopianism that is based upon the belief that if you somehow remove various kinds of limits, you will be producing simply good things. And not to simply make Huxley's novel the—the Bible of this discussion—by the way, there they didn't have longevity research. They hadn't gotten around to it. So what they had were, in effect, hospices and crematoriums in which they recovered the body phosphorous and various sorts of things so there would be no waste. People died in a certain—I don't remember what it was—sixty, seventy years.

But Huxley, in a way, shows you what it would look like if you took the modern humanitarian compassionate project to do battle with poverty, war, guilt, anxiety, disease, and realized it. And what you'd get are people of human shape and of stunted humanity. No science. No art. No self-governance. No friendship. No love. No family. It is an exaggeration, but at least raises the question of whether those limits, which come with sorrow, whether those limits are somehow necessary for all the great human things.

The people who think that you can just tinker with the life span and not worry about its implications for the kinds of beings who will live, I think—they may be right by the way, but it seems to me that to simply say life is good and more is therefore better—if that's as far as your thinking goes, then I would say it's shallow.

KONDRACKE: OK. You are delivering a cautionary—a caution to all of this. Do you acknowledge that this is a train that fundamentally can't be stopped if it is scientifically

possible to do this kind of research? As in the South Koreans—you are against cloning. I don't know. Are you against therapeutic cloning or for stem cell extraction or not?

KASS: I would favor a moratorium on cloning for research as the council recommended, partly because I am not sure that if you allowed cloning for research you would be able to prevent cloning for baby-making.

That's different from ordinary stem cell research, which I favor, as distinct from the creation of cloned embryos, which is, it seems to me, a cloning event and we're down that road.

But on the general question, do I think that this is a train that is unstoppable? Yes and no. As an empirical matter, we don't have a particularly good record in saying no to anything. And, on the whole, we have benefited from this kind of laissez faire, though you could pick your favorite invention of the last century and show how, for all of its blessings, it's had high costs. In fact, I think one of the things that is wrong with utopian thinking is it doesn't acknowledge the inherently tragic character of progress, by which I mean that all of the benefits come with certain kinds of costs and that you can't simply go in there and mop up these costs without creating new ones.

But look, it's only in the last few decades that the bloom has gone off the rose of utopian thinking in the area of biotechnology or technology more generally. And here I think is the paradox:

Modern science is part of the large project for the mastery of nature to relieve the human condition. But what kind of mastery is it if you concede that you are on a runaway train and that there is no human being at the controls?

The real question of questions for the future—the real question of questions is, can we somehow get control over this technological engine in such a way that we can reap the benefits without incurring the most severe costs of this—of this biotechnological juggernaut? And I, for one, am disinclined to declare the matter lost.

It's very hard in a liberal democratic society such as ours that believes in freedom of scientists, of innovators, and of the public, to take advantage of these—of the benefits. That treats the pursuit of health and the relief of suffering as the highest social value.

If it saves lives the burden of proof is on you to show why you shouldn't somehow do it—that is wedded to technological progress and for perfectly good reason, that has cultural pluralism so that it is very hard even to find cultural agreement on what is (inaudible).

KONDRACKE: But doesn't the fact that the overwhelming number of scientists who are involved in fertility and that kind of research are against reproductive cloning to the point where really, only nuts are in favor of it. I mean, I don't know that there is any

scientific enterprise, serious scientific enterprise underway to clone a human being, is there?

KASS: That's correct, though if you read carefully the arguments, the arguments coming from the scientific community about human cloning are more or less confined to the fact that it would be unsafe. And the question is, if the cloning technology were perfected such that it would be safe, whether you would find the same kind of moral objections to the near replication or any attempted near replication of a human being by genetic means.

No, that's certainly true and that there—that's one of the reasons why—

KONDRACKE: Must be encouraging to you, though. I mean—

KASS: Oh, it is encouraging, and it's one of the reasons why in the council's latest report on reproduction and responsibility, we are not withstanding our very deep differences in the council, we decided to seek for common ground to see what recommendations we could offer that everybody might agree to, and, in fact, try to take advantage of this particular cultural moment to set down some recommendations that would take advantage of this kind of agreement, to say, "Look, here are some boundaries that everybody should obey, at least until there are powerful reasons for transgressing them."

In the aging area, we are not far enough along to see what particular technical innovation might be present that might give rise to somebody wanting to put forth such a boundary, and I am not even sure that I could imagine what it would be.

KONDRACKE: Yeah, I—on the basis of talking to lots of aging researchers, I can't think of what—what the boundary would be, either. Although—although there is one, and that is in the funding priorities at the National Institutes on Aging, which is overwhelmingly Alzheimer's-directed, and various aging scientists have told us that for bureaucratic reasons there is a break on trying to discover the underlying causes of aging—it's not an ethical matter. It's a political matter or a bureaucratic matter.

In any event, that's probably not your concern. But let me just ask one technical question. I mean, it is said on the therapeutic cloning question, that somatic cell nuclear transfer, the process of cloning an embryo, does not really create possibly a human embryo that if put in the uterus of a woman would lead to the birth of a child, because it can't be done in mice. I mean, it's been done—clearly been done in sheep and it's been done in some other species, I guess, but—

KASS: You mean in monkeys.

KONDRACKE: Well, it hasn't been done in monkeys either. But has it been done in mice?

KASS: Sure it has.

KONDRACKE: It has been done in mice?

KASS: Yes. Yes.

KONDRACKE: OK. So in primates it can't—it hasn't been done?

KASS: So—so far, it hasn't been done in primates but—now, here—whether you are in favor or opposed to cloning for research, one should not try to win that argument by terminological sleight of hand.

What the Koreans have done is they have produced, I believe it is thirty cloned human blastocysts—five-to-six day old cloned human embryos. That is exactly the stage at which in other species the blastocysts are then transferred to a female of the species and live young have been produced—not in high numbers. In no species, I think, (has) a success rate about ten percent.

But what you get when you do somatic cell nuclear transfer into a nucleated egg and it starts to divide on its own, is, in fact, an early stage human embryo. The blastocyst is indistinguishable from the blastocyst that would be used for reproductive purposes.

Kill it if you want, but don't call it just a bag of cells.

KONDRACKE: I'm going to have Dan Perry, who is the head of the Alliance for Aging Research, and also a leader of the pro-therapeutic stem cell movement ask a question.

PERRY: Dr. Kass, isn't it true that through somatic cell nuclear transfer you've created something that has never before existed in the world? It is an embryo-appearing entity that has been created without sperm and an egg united. But an egg that has been tricked, in effect, into doubling its—dividing and acting as an embryo. But is it? This is something that has never existed.

Do we know for sure that this deserves the term embryo?

KASS: Well, it's fair question, and at least one member of our council remains very skeptical about whether you should call it an embryo. He calls the initial product a clonote, sort of analogous to the zygote, the zygote—the yoking together of egg and sperm. This is not that.

On the other hand, I have to ask you, is Dolly a sheep? Dolly is a sheep.

PERRY: It works in sheep.

KASS: It works in sheep. It works in goats. It works in cats. It works in mice. It works in, I think, rabbits. There are at least ten now species.

It was said as recently as six months ago, “It will never work in primates.” Dr. Schatten at the University of Pittsburgh, published a paper saying it couldn’t possibly work in primates because there is a problem with the mitotic spindle, and now the Koreans have produced thirty blastocysts which shows it works in primates, at least to the blastocyst stage.

Something that begins to divide and produces a blastocyst looks very much like an ordinary process of development. And though its origin is not from egg and sperm, functionally it is the equivalent of an embryo and until proven otherwise. I think we should regard it as such.

If Dolly is a sheep, that from which Dolly came was an embryo. A sheep embryo. It was a cloned sheep embryo, and by analogy that’s what you would want to say about the cloned embryos the Koreans have now produced.

KONDRACKE: OK. I have to ask this question: One of your critics, Chris Mooney, and I forget where—where he wrote this article. I guess the *American Prospect*, quotes from your book, in 1985, *Toward a More Natural Science*, that you said as following:

“We, on the other hand, with our dissection of cadavers, organ transplantation, cosmetic surgery, body shops, laboratory fertilization, da, da, da, da, da, sexual liberation and other practices and beliefs that insist on our independence and autonomy, live more and more wholly for the here and now, subjugating everything we can to the exercise of our wills with little respect for the nature and meaning of bodily life.”

Now this has been used, especially the dissection of cadavers point, has been used to say that you are inherently anti-science—that you really are not just a conservative or a neo-conservative, but in fact, a reactionary. Would you deal with that allegation?

KASS: Well, some people won’t read.

KONDRACKE: And some people quote out of context. So—

KASS: Exactly.

KONDRACKE: —I give you the opportunity.

KASS: I have a few embarrassing sentences that I’ve written in my life. In my (inaudible) book, there is a sentence about licking ice cream cones in public, which has been following me around. Had I thought about it, I would have taken the sentence out. It was in context of interest.

This sentence, if I am not mistaken, comes in a long essay entitled “Organs for Sale.” Propriety—something or other—propriety—can’t remember—and the price of progress.

The dissection of the dead body, absolutely indispensable for the gaining of anatomical and pathological knowledge had to override an age-old taboo about mutilating dead bodies. We have accepted the benefit and forgotten the cost.

I am all in favor of the benefit, but to begin to treat the human body as if it were just alienable spare parts is already to have a preconception of what a human person is. You and I are not just some little homunculus that sits behind the eyeballs and the rest of all of this is just dross.

One cannot somehow understand the human being without understanding the arms that are capable of embracing and cradling the young, of a smile, of a gesture, of all sorts of things.

One of the things that we have really seen is we regard not only external nature but increasingly our own embodied nature as raw material upon which we should work out wills.

For the most part, we accept these blessings, and we should. But we should be mindful of the price that we pay when we come to look upon ourselves as if we were nothing but pure will.

If Mr. Mooney, with whom I have never had a conversation, would like to read the essay more carefully and come in sometime and have a conversation, I would be delighted to try to instruct him.

KONDRACKE: OK. The question has been e-mailed in that caution tends to delay progress. And wouldn't your caution, due to the social implications if expressed a hundred years ago, or even more recently for that matter, have delayed much of the science that we have today—we value today as in the dissection of cadavers, or, in a more recent case, you must have been leery about in vitro fertilization at the time, were you not?

KASS: Someone else has been reading what I wrote in 1971. I wrote a paper in 1971, eight years before Louise Brown, two years after the first successful fertilization of egg and sperm. It was in the *New England Journal of Medicine*. The title was, "In Vitro Fertilization: An Unethical Experiment on the Unborn?" The question was, could anybody ethically decide to do this for the first time in a human being without knowing whether the child that would ultimately be born would suffer great harm because the procedure was not safe. It was a safety question.

I also wrote an essay, "Making Babies: The New Biology and the Old Morality" in the *Public Interest* in 1972, in which I suggested that in vitro fertilization would—might lead, in fact, to cloning, etc., and we might have—a few years later we might have embryos in the laboratory that we wouldn't know what to do with, and that would give rise to a host of problems.

We were very lucky with in vitro fertilization, though, in twenty-five years since Louise Brown, there hasn't been a single longitudinal prospective study of these children to make sure that they really are, in all respects, OK.

But I think that if one was going to go forward with in vitro fertilization, one should have done so in a way that could have assessed the consequences of doing so from the start. One should have done so thinking in advance—in fact, I was the staff person of a committee at the National Academy of Sciences' National Research Council, which finished a report in 1972, a chapter of which is on in vitro fertilization. This is before Louise Brown is born in 1978, talking about surrogacy, talking about embryo donation, talking about the spare embryos and the like, and suggesting the need for some kind of public discussion, some kind of public oversight in setting certain kinds of boundaries.

We would do well, I think, to have established boundaries against surrogacy. We would have done well to think about what to do about the spare embryos.

So it's—and with respect to—it just not the case—

KONDRACKE: Except that you are now in favor of using the spare embryos for stem cells, are you not?

KASS: I am, with fear and trembling, willing to use some of the spare embryos for stem cells research, yes.

I don't like—

KONDRACKE: What about federal funding of that?

KASS: I think the current policy is fine.

KONDRACKE: Why? Why? If it's OK to do it, why is it OK not to federally fund it?

KASS: I think the current policy for the first time makes available federal funds with a—with existing stem cell lines to do the basic research to see if much of this promise and promise hyped up considerably, in fact, will bear fruit.

KONDRACKE: OK.

KASS: We will find out over the next couple of decades whether that's the case.

KONDRACKE: Just one last, one last very short question. The President's Council on Bioethics is an advisory group. It has no veto power, no policy power that—

KASS: No power at all.

KONDRACKE: Right. OK. Just to make that clear.

Dr. Leon Kass

Thank you so much for doing this. I really appreciate it. It's been enormously enlightening and great fun, I've got to say!

And thanks to you all out in the viewing audience. This will be online as soon as we get it transcribed, I guess. But it is online now in real life or what do you call it—video land. It's there, available. But we'll have a transcript for you soon.

Thank you. Thank you very much. This was great.