

# Theology After Dolly<sup>\*</sup>

—Theology in the Age of Biological Control—

Seung Chul Kim

“Little Lamb, who made thee? Dost thou know who made thee?”

—William Blake

## 1. *Jurassic Park*, Dolly, and *Menschenpark* [Human Zoo]

Dolly was a female sheep born in 1996 in the laboratory of Roslin Institute in Edinburgh. The technique which gave birth to her is “somatic cell nuclear transfer” which means, in short, cloning. Dr. Ian Wilmut, who played a leading role in the birth of Dolly, summarizes the process of his work in this way:

In 1996 Keith Campbell and I ... cloned Dolly from a cell that had been taken from the mammary gland of an old ewe and then grown in culture. The ewe, as it happened, was long since dead. We fused that cultured cell with an egg from

---

\* This is a manuscript of a lecture which was held September 12, 2006 at the Bullock Science Center of the Agnes Scott College (Atlanta, USA). I hereby appreciate Center for International Exchange Programs of Kinjo Gakuin University helping me to visit Agnes Scott College as an exchange program 2006. I also want to express my thanks to the faculties and the staffs of the Office of International Education of Agnes Scott College for their hospitality.

yet another ewe to “reconstruct” an embryo that we transferred into the womb of a surrogate mother, where it developed to become a lamb. This was the lamb we called Dolly. [Ian Wilmut, p. 3]

Dolly has the same DNA as the old ewe that gave her its cell because the ewe’s DNA is in the nucleus of the cell. The relation of Dolly and the old ewe is not that of parent and child, but that of delayed identical twins which are born with all the same genomes.

We can say that Dolly is a symbol of the times in which we live—the age of biological control. The birth of Dolly meant that the technique of biological control had already reached a higher level than we might ordinarily expect.

But before the pretty little lamb came into the world, we had already experienced a prelude to Dolly through the imaginative resurrection of the gigantic dinosaurs. Of course, real dinosaurs suffered extinction many millions of years ago, but astonishingly, we saw them reborn in the laboratory of *Jurassic Park* in 1993. In this film by the American director Stephen Spielberg, dinosaurs were regenerated through the technique of cloning. With a little dinosaur DNA found in a fossil, scientists working at the laboratory of *Jurassic Park* succeeded in cloning entire dinosaurs. In this sense, we may say that the dinosaur was the herald for the advent of Dolly.

Cloned dinosaurs and cloned sheep! These two animals show some common characteristics of our age which could be called “the age of biological control.” (Ian Wilmut) There are, however, significant differences between the dinosaur and the sheep. Those differences can be easily inferred from the reactions that most people had to Spielberg’s cinematic creatures. On the one hand, the fierce dinosaurs in the film frightened nobody but the actors and actresses. The audience enjoyed seeing the gigantic dinosaurs on the big screen. The audience did not really fear the dinosaurs, not only because they knew that the dinosaurs existed only on the screen, but also because (and I think this second reason is more important in our context) dinosaurs are not mammals but reptiles. That is, dinosaurs are not the same species as human beings. Even though dinosaurs could be cloned in the film, people

believed that this had nothing to do with us because human beings are not reptiles, but mammals.

On the other hand, however, the cloned sheep Dolly frightened a great many people in the world, although not the scientists including Dr. Ian Wilmut at Roslin Institute. Many in the general public were not happy to see Dolly, even though she was as peaceful and as mild as any other ordinary lamb. Some people (like Leon Kass) even felt “repugnance” when they saw Dolly, because Dolly is a mammal, much closer to a human being than a dinosaur. It made people nervous and irritated that, if sheep can be cloned, then the next step might well be human beings. Many people felt great shock when they thought about the reality of human cloning. As Gregory Pence said:

It took about a second for the questions to begin. And another for the condemnations. Actually, there were not many questions, just condemnations, because thought stops when most people hear “cloning humans.” [Gregory E. Pence, p. 1]

Pence closes his book, *Who's Afraid of Human Cloning?*, with the following prediction:

In many past discussions of breakthroughs in reproductive medicine, authors breathlessly predicted that pressing ethical questions would descend on society as more radical discoveries were made.... I predict that reliable production of adult mammals by nuclear somatic transfer is only going to take a few years.... If so, then the time will come soon when the safety issue diminishes and the only thing stopping NST is, essentially, the expectations argument. When that time comes, I hope we find the courage to try originating a child by nuclear somatic transfer.... Call me Joe Fletcher's clone. [Gregory E. Pence, p. 174–175]

As Pence said, “Who's afraid of human cloning?” But, contrary to his provocative assertion, everybody seems to be afraid of human cloning. We can enumerate many

distinguished people who have expressed a radical opposition to human cloning: Paul Ramsey, Leon Kass, Jeremy Rifkin, Francis Fukuyama, and others.

The question I want to raise, however, is why rational thought, even that of such noble worthies, should “stop” when people hear “human cloning.” What makes people irritated when they contemplate the possibility that a human being could exist who has the same DNA as himself or herself? As you already know, there is still a great controversy over whether making a human clone is “playing God.” My question is why cloning should be considered “playing God” at all. I must clearly say, however, that it is not my concern to discuss whether we may clone a human being or not. No, that is not my topic. My topic, rather, is this: What does it mean to say yes or no to human cloning? To put the same question in another way, “To what do we say yes or no when we say yes or no to human cloning?” I want to formulate my questions in such a way, because I think human cloning is “a metaphor and a mirror” upon which we might reflect our understanding of reality. Dolly in this sense may be considered the criterion by which we identify our self-understanding and our understanding of God. It is something like a *koan* in Zen Buddhism with which a Zen monk wrestles in order to reach a Great Awakening. In Dolly, all of our anthropological and theological questions are contained in a similarly focused and challenging way.

But before answering these questions about cloning, I would like to return briefly to *Jurassic Park*. There we meet a very interesting person who tells us the historical and theological meaning of the cloning of dinosaurs, someone who warns against artificial intervention into the natural and the theological processes of the created world. His name is Dr. Ian Malcolm—not Dr. Ian Wilmut—but a mathematician who was played by Jeff Goldblum. In a scene from the film, Dr. Ian Malcolm says:

God creates dinosaurs.  
God destroys dinosaurs.  
God creates man.  
Man destroys God.

Man creates dinosaurs.

I think Dr. Malcolm illuminates brilliantly the way that people have understood the nature of Western society with its foundation upon Christian faith in God. In that sense, we may describe Dr. Malcolm's words as "a theology of Jurassic Park."

In the Christian tradition, all living things, including animals and human beings, are thought of as created according to the divine plan of God. As Dr. Malcolm said, it is God the Creator who creates and destroys dinosaurs. And it is also God who creates man.

But the enlightened modern man—who has inherited the "Scientific Revolution" starting in the 17<sup>th</sup> century and proceeding through the "Darwinian Revolution" in the 19<sup>th</sup> century—has eliminated God as a Creator, and expelled God from nature. The domain of God has steadily decreased as scientists peel away the secrets of nature. At last, there remains no place for God in nature after Darwin. Nature, in the purely scientific view, proceeds according to its own mechanism which Darwin called "natural selection."

Darwin's model of the workings of nature found resonance in the philosophy of Friedrich Nietzsche, a German philosopher who could be called therefore "a Darwin in philosophy." By the "madman" of Nietzsche, God is judged to be dead, and the process of nature, and also the process of the history of mankind, are completely left in the hands of human beings. Nietzsche describes the heroic solitude of the human being who kills God and faces up to the dark universe, in these words:

Is there still an above and below? Do we not stray, as through infinite nothingness? Does not empty space breathe upon us? Has it not become colder? Does not night come on continually, darker and darker? Shall we not have to light lanterns in the morning? Do we not hear the noise of the grave-diggers who are burying God? Do we not smell the divine putrefaction? —for even Gods putrefy! God is dead! God remains dead! And we have killed him! How shall

we console ourselves, the most murderous of all murderers? The holiest and the mightiest that the world has hitherto possessed, has bled to death under our knife.... Shall we not ourselves have to become Gods, merely to seem worthy of it? There never was a greater event—and on account of it, all who are born after us belong to a higher history than any history hitherto!” [Friedrich Nietzsche, *The Gay Science*]

Nietzsche’s “madman” who killed God knows that all events and all things which occur according to God’s plan are from now on left to his own mortal hands. As Dr. Malcolm said in *Jurassic Park*, “Man destroys God.” “Man destroys God” with Nietzsche’s “knife,” thereby eliminating “the holiest and the mightiest that the world has hitherto possessed.” And with the same “knife,” man creates dinosaurs. Man creates dinosaurs, or more exactly, man *clones* dinosaurs which were extinguished long ago according to divine providence. With the re-creation of dinosaurs, man can prove himself to be the absolute author of Nature and history. God as Creator of Nature is deprived of His providential power by human beings who have appeared as an absolute replacement for God.

Nietzsche and Darwin find their philosophical correspondence in the atheistic humanism of the French molecular biologist Jacque Monod, who shared the Nobel Prize for Medicine in 1965. Monod wrote in the conclusion of his *Chance and Necessity* that the modern man finds himself in a dark and chilly universe, much as Nietzsche’s “madman” stares into the dark empty sky after God has fade away:

The ancient covenant is in pieces; man knows at last that he is alone in the universe’s unfeeling immensity, out of which he emerged only by chance. His destiny is nowhere spelled out, nor is his duty. The kingdom above or the darkness below; it is for him to choose. [Jacque Monod, *Chance and Necessity*]

In a larger sense, we who were surprised by the birth of the cloned sheep, Dolly, can now add something to the “theology” of Dr. Malcolm: “And man creates a sheep.” As Dr. Ian Wilmut—not, this time, Dr. Ian Malcolm—maintained with

pride, Dolly, created through cloning, was “the most extraordinary creature ever to be born” [Ian Wilmut, p. 3] That is, she was not produced in the way that a normal mammal takes: “an egg joins with a sperm to form a new embryo.” That means at the same time, Dolly diverged from the natural way of reproduction. And most people believe that, by diverging in this way, Dolly strayed from the divinely determined way of reproduction.

“And man creates a sheep.” We can imagine that this phrase will be accepted as a blasphemous challenge to the Christian tradition, because, as mentioned earlier, we are accustomed to believing that a divergence from what is natural is equal to a transgression of what is determined by God’s providence. What is more, creation of sheep by man reminds many pious people in an ominous way of “Agnus Dei”: “The Lamb of God who takes away the sin of the world.” (John 1: 29) In this sense, as Stephen Jay Gould once said, “Dolly must be the most famous sheep since John the Baptist designated Jesus in metaphor.” [Stephen Jay Gould, p. 44] Therefore, to say that “man creates sheep” does mean much more than to report a scientific discovery. “Man creates sheep!” It is a theological statement in every sense. As Ted Peters, the former director of the Center for Theology and Natural Science, pointed out, the birth of Dolly is not only a biotechnological event, but also a theological one.

The moment cloning was announced, immediately and intuitively, the world recognized that this is a theological issue. It’s more than just science. It’s more than just a new technological discovery. ... This science raises religious questions, and the ambient anxiety raises ethical ire. [Ted Peters, 1977A, p. 12]

The birth of the cloned sheep Dolly was an epoch-making event. After the birth of Dolly, the history of mankind could be divided not by “Before Christ” and “Anno Domini,” but by “Before Dolly” and “After Dolly.” AD no longer means “Anno Domini” (in the year of our Lord). Now it means “After Dolly,” as we can read in the homepage of Roslin Institute.

Let us return once more to *Jurassic Park*. After experiencing all the events in the

story, Dr. Malcolm came to know that nothing was left for him but to pray: “God help us; we’re in the hands of engineers.” Unfortunately, today we, too, are in the hands of engineers, I mean, in the hands of biotechnologists!

For some people, however, our dependence on biotechnologists is greeted with expectations of new possibilities; some even believe that we should properly be in the hands of biotechnologists from now on. Peter Sloterdijk, a German philosopher, is one such person. In 1997, the same year that early information about Dolly was released to the world, Peter Sloterdijk gave a lecture in Basel, Switzerland. However, it was 1999 that the so-called “Sloterdijk-Debatte” [Sloterdijk-debate] was begun, when he repeated the same lecture in Bayern, Germany. The title of his lecture, which caused great controversy was *Regeln für den Menschenpark* [Rules for the Human Zoo]. It was not about the rules of *Jurassic Park* in which dinosaurs were brought up and controlled, but about the rules of the “Human Zoo”, or, as it were, the “Human Park” where human beings are born and brought up under the control of biotechnology on the way to a new humanism. According to Sloterdijk, the old definition of humanism has failed and is no longer useful. It must be replaced with a new humanism which actively selects and breeds mankind. Sloterdijk asserts that we must develop a new humanism that will enhance and change the essence of human beings.

Cultures and civilizations, according to Sloterdijk, are “anthropogenic hothouses” in that they aim at cultivation of human beings. Just as we have established wildlife preserves to protect certain animal species, so, too, ought we to adopt more deliberate policies to enhance human nature. Sloterdijk suggests that the advent of new genetic technologies must be accepted actively, because new genetic technologies make it possible to regulate “bio-cultural” reproduction. As Dr. Malcolm in *Jurassic Park* observes, the enlightened modern man “destroys God” (Nietzsche), and becomes a creator of history and of nature. Sloterdijk’s thinking represents a new high point in a process that has been ongoing since the Enlightenment. Sloterdijk reflects on substituting “birth fatalism” for “optional birth” through “anthropotechnologies” In this sense, Sloterdijk reminds us of Joseph Fletcher, a theologian of “Situation Ethics,” who maintained that we must



replace the “reproductive roulette” of natural birth with artificial genetic control. The so-called “Sloterdijk-debate” shows us in a definitive way that the problem of biotechnological control raises the anthropological question regarding the essence of human beings, and therefore it is intrinsically connected with theological issues. This is because theology as a discourse about God is, at the same time, a discourse about human beings who confront the face of God: *Coram Deo*. The controversies raised by Sloterdijk’s provocative lecture force us to ask whether Christian theology, if it could develop a new bioethical standard, might still be able to play a normative role, or whether it should be totally revised for a new era.

## 2. DNA as God’s domain?

Now I want to deal with the question that I have raised before: What does it mean to say yes or no to human cloning? Or, put another way: To what do we say yes or no when we say yes or no to human cloning?

There have already been many theological debates on human cloning and many commentaries on those debates; consequently, it is unnecessary to repeat these long discussions on Dolly. Instead, I will restrict my lecture to just one point which seems the most important: The key point regarding Dolly is whether or not the gene/DNA is to be understood as the indispensable essence of human beings. If DNA is the essence of human beings, as many opponents to human cloning maintain, then it is theologically impossible to intervene in DNA because it is an essential part of human beings which is considered within the realm of God. In short, in God alone, the essence of human beings in every sense resides.

As mentioned before, it is said that we are living in an age of biological and biotechnological control. This means that the age of the atom is past and the age of the double helix has arrived. Since the discovery of the structure of deoxyribonucleic acid by James D. Watson and Francis Crick in 1953, DNA has found itself in every scientific discourse on living things, including human beings. We are fascinated by the fact that all the secrets of life are contained in the double helix of DNA.

We may even say that DNA is an icon of our age, through which we can look into the divine world. DNA in this sense is a Jacob's ladder by which we can ascend to the realm of God, in much the same way as we see in the work of Salvador Dali, *Butterfly Landscape (The Great Masturbator in a Surrealist Landscape with D.N.A.)*.

That people were frightened by the possibility that there could be another human being with his or her identical DNA shows us, in reverse, that we regard DNA as the essence of a human being. Therefore, human cloning is thought to be a dangerous threat to the identity of human beings. Increasingly, we are captivated by some sort of DNA mysticism. We regard DNA as something sacred and untouchable.

In this sense, like or not, we are all influenced by the so-called socio-biological point of view that the gene is the center of all living things. Edward Wilson, a leading exponent of sociobiology, insists in his masterpiece *Sociobiology* (1975): "In a Darwinian sense the organism does not live for itself. Its primary function is not even to reproduce other organisms; it reproduces genes, and it serves as their temporary carrier." [Edward Wilson, p. 3] According to Wilson, our emotions, consciousness, and self-knowledge are nothing but products of the "hypothalamus and limbic system" which "evolved by natural selection." "Ethics and ethical philosophers," and, of course, religious consciousness could and should be explained from the perspective of natural evolution. Richard Dawkins—like Wilson, another representative sociobiologist—puts the same issue into sharper focus:

Was there to be any end to the gradual improvement in the techniques and artifices used by the replicators to ensure their own continuation in the world? There would be plenty of time for their improvement. What weird engines of self-preservation would the millennia bring forth? Four thousand million years on, what was to be the fate of the ancient replicators? They did not die out, for they are the past masters of the survival arts. But do not look for them floating loose in the sea; they gave up that cavalier freedom long ago. Now they swarm in huge colonies, safe inside gigantic lumbering robots, sealed off from the outside

world, communicating with it by tortuous indirect routes, manipulating it by remote control. They are in you and me; they created us, body and mind; and their preservation is the ultimate rationale for our existence. They have come a long way, those replicators. Now they go by the name of genes, and we are their survival machines. [Richard Dawkins, *The Selfish Gene*]

Interestingly enough, however, even though we oppose the reduction of all the ethical and religious consciousness to the activity of genes, we seem to agree with the socio-biological view of human beings implicitly, as long as we regard DNA as the center of the human being. That is, if we oppose human cloning because it threatens the identity of human beings, it means that we believe that DNA is a holy and untouchable thing which should not be transgressed by any mortal. We believe that DNA must be kept holy and “wholly,” and that it should not be stained by human interference. DNA is a sacred place where all of us are instructed: As Ted Peters pointed out rightly, “They are fighting one form of determinism with another form of determinism. There is no defense of freedom here.” [Ted Peters, p. 56] In the following citation from Leon Kass, one of the leading opponents of human cloning, we find the socio-biological understanding of human beings ironically turned on its head:

Cloning creates serious issues of identity and individuality. The cloned person may experience concerns about his distinctive identity not only because he will be in genotype and appearance identical to another human being, but, in this case, because he may also be twin to the person who is his “father” or “mother.” ... Genetic distinctiveness not only symbolizes the uniqueness of each human life and the independence of its parents that each human child rightfully attains. It can also be an important support for living a worthy and dignified life.... [Leon R. Kass, p. 33–36]

It is implicitly acknowledged by Kass that DNA is a holy place which we should not approach, as in this analogue from the Scriptures: “Do not come any closer,

and take off your sandals. For the place where you are standing is holy ground.” (Exodus 3: 5) DNA is thought to be the essence of human beings. Therefore, any attempt to alter the structure of DNA is equal to playing God. As Lee M. Silver states, the real objection to modern reproductive technologies lies not in science but in religion. It is rooted in the anxiety “that genetic engineering crosses the line into God’s domain.” [Lee M. Silver, 234–235]

In most cultures, some parts of the natural or social world are taboo. So too, DNA, in many stories, is a sacred territory, a taboo arena, that by virtue of its spiritual importance should never be manipulated. As the encoder of an essential self, a genetic soul, the genome has become forbidden ground. ... Humans have no right to decide which genetic traits should be perpetuated ... they have no right to “play God.” [Dorothy Nelkin and M. Susan Lindee, p. 54]

Contrary to the intention of those who try to keep DNA holy and safe from artificial intervention, however, the consequence is a decline of the realm of God. The result of such thought betrays the original intention:

For most people in modern Western society, God’s domain has been reduced to a much smaller size, owing in large part to knowledge and use of both birth control and currently available reproductively technologies. By 1994, fully 75 percent of all Americans accepted the use of IVF as a treatment for infertility. This sets a boundary that extends no further out than the surface of the fertilized egg itself. And for the most part, those who approve of IVF also accept the use of ancillary technologies, like the injection of test-derived nuclei into the egg cytoplasm. The acceptance of this last practice, in particular, reduces the domain of God even further down to the surface of the DNA-containing nuclei floating serenely within the egg cytoplasm.... If we allow the possibility that “man’s domain” extends into the nucleus—into the DNA itself—then by this line of reasoning, God’s domain vanishes into ... nothingness.” [p. 235]

As cited before, Nietzsche's madman shouts: "Do we not stray, as through infinite nothingness?" The "nothingness" at which the "madman" stares is the nothingness that is left after the death of God. There remains nothing after the reality of God itself has vanished. The modern man who regards DNA as the absolute essence of human beings, that is, as the domain of God, cannot help facing "nothingness" after DNA is invaded by biotechnology. Many believe that if the mystique of DNA is threatened by biotechnology, there will remain no place for God. Fear and "repugnance" which people get from genetic control is in this sense a fear that "God's domain vanishes into ... nothingness." There remains no place for God, if even DNA falls under human control, so they believe. Fear in regard to the implications of Dolly is a fear in the face of nothingness! The sanctification of DNA results, contrary to the original intention, in the annihilation of God!

Now it is clear why many people become so nervous when they imagine a cloned human being. It is a fear that the realm of God has been annihilated into nothingness, and that they must confront the dark emptiness in themselves. In the past, before Dolly was born, many people could believe that God dwelt in their DNA. But with the intervention of human beings into DNA, it came to be understood that God was not there from the beginning. Furthermore, many people maintain that to clone a human being jeopardizes the sanctity of human life because cloning attacks human identity which, it is believed, is based on the uniqueness of DNA.

As I said earlier, almost all the theological debates about Dolly have arisen over the presumption that the gene or DNA is the essence of human beings, and that the gene must be left untouched. Such a view, however, is nothing but the fallacy of DNA determinism or, if you will, DNA essentialism. The more we discuss DNA, the clearer becomes the need to overcome the false reductionism of DNA. If we want to oppose the reduction of all human behavior to the effects of DNA, then by the same logic we must oppose the theological opinion that DNA should be kept in the holy place of God. It goes without saying that DNA helps define the essence of our humanity. It allows us to understand many aspects of what it means to be a human being. But DNA is DNA, no more, no less. It is an important factor to understand the behavior and character of human beings, but it is never the center

of our humanity. As I have repeatedly said or intimated, when we try to protect DNA from the intervention of human beings in every sense, we are caught by false DNA mysticism. And by the same logic, we must say that all the attempts of eugenics to enhance the quality of human life through biotechnological control have also fallen into the same trap of DNA mysticism. In this sense, the cloned sheep Dolly, a hapless creature that inadvertently strayed into the harsh debate on human cloning, is, ironically, a “revelation” which undercuts the false mysticism of DNA. The “revelation” inspired by Dolly stimulates us to think about the meaning of human life, what a human being is and is not, as well as just exactly what DNA really is. The implication is that human beings are always something more than what they know about themselves. As Ted Peters insists, a gene is nothing but a natural environment which is given to man. Human freedom could be achieved by transcending our natural conditions.

Certainly the soul or self finds itself in a most precarious situation. It is utterly dependent upon its particular world for its very existence. Its particular world includes environmental determinants without and biological determinants within. Despite this precariousness, the human soul can dream dreams as yet undreamt and sing songs as yet unheard. It can draw its own world up into consciousness, and it can become conscious of this consciousness. Born on Earth its thoughts can soar toward heaven, even beyond heaven to the stars, and beyond the stars to infinite possibilities. Theologically speaking, the human soul is being called constantly by God to go beyond its biological beginnings and beyond its cultural achievements to embrace new creation. [Ted Peters, 1997B, p. 165]

Peters’s assertion is supported by the following remarks by Evelyn Fox Keller.

For almost fifty years, we lulled ourselves into believing that, in discovering the molecular basis of genetic information, we had found the “secret of life”; we were confident that if we could only decode the message in DNA’s sequence of nucleotides, we would understand the “program” that makes an organism what

it is. And we marveled at how simple the answer seemed to be. But now, in the call for a functional genomics, we can read at least a tacit acknowledgement of how large the gap between genetic “information” and biological meaning really is. [Evelyn Fox Keller, p. 5–6]

In this sense, the biotechnological attempts to re-write DNA itself for what it gives to mankind needs to be evaluated as a means to freedom from the restriction of the natural conditions of human beings.

### 3. Honest to Dolly

What could all this mean theologically? What does it mean to Christian theology and Christian anthropology that DNA, which was thought to be the center and the essence of human beings, vanishes into nothingness? How we can reply to the message of Dolly that the center of human being is not in DNA? Nietzsche’s “madman” destroys our image of God “out there.” Biotechnology in turn destroys our image of God “in here,” in that it makes it clear that the gene is not any more the essence of what human beings are. What, then, will be the result of the demythologization of “the DNA mystique”, of “the gene mysticism”? How can Christian theology respond to the destruction of “anthropocentric illusion” [to use Jacques Monod’s term] through biological and biotechnological discoveries?

In order to answer this question, I would like to consider carefully the theological attempts of John A. T. Robinson, the Bishop of Woolwich. In his epoch-making book *Honest to God* (1963), Robinson attempted to reply to the unavoidable theological questions raised by Nietzsche’s atheistic proclamation of the “death of God.” What does it mean to have a Christian faith in the post-Ptolemaic era which denies the existence of God “up there” in the sky? It was this question that Robinson tried to answer. Robinson suggested that we must alter the image of God which we had before the Copernican Revolution: God is not “up there” in the universe, not “out there” in the metaphysical sense. God should not be thought as a substantial object outside human beings. Robinson suggests the following theological opinions:

... I believe we may be confronted by a double crisis. The final psychological, if not logical, blow delivered by modern science and technology to the idea that there might *literally* be a God ‘out there’ has coincided with an awareness that the *mental* picture as such a God may be more of a stumbling-block than an aid to belief in the Gospel. There is a double pressure to discard this entire construction, and with it any belief in God at all. ... to be asked to give up any idea of a Being ‘out there’ at all will appear to be an outright denial of God. For, to the ordinary way of thinking, to believe in God means to be convinced of the existence of such a supreme and separate Being ... Suppose belief in God does not, indeed cannot, mean being persuaded of the ‘existence’ of some entity, even a supreme entity, which might or might not be there...? Have we seriously faced the possibility that to abandon such an idol may in the future be the only way of making Christianity meaningful? ... Perhaps we are being called to live without that projection in any form. [John A. T. Robinson, p. 17–18]

What is the possibility for the Christian faith without believing in “a supreme and separate Being” “out there”? It is a faith as “meeting the unconditional in the conditioned in unconditional personal relationship.” [p. 105] Drawing on the theological thoughts of Rudolf Bultmann, Paul Tillich, and Dietrich Bonhoeffer, the great theologians of the 20<sup>th</sup> century, Robinson draws the following conclusion:

‘God is the “beyond” in the midst of our life’: Bonhoeffer’s words are almost identical. ‘The God’, no doubt, is very different; but at least there is a way through here to the transcendent in a world without religion. And on that ‘way’ the Christian must be found if he is to say anything to those who walk alone. In morals, as in everything else, ‘the secret of our exit’ from the morasses of relativism is...to take our place alongside those who are deep in the search for meaning *etsi deus non daretur*, even if God is not ‘there.’ [John A. T. Robinson, p. 121]

For Robinson, faith means an unconditional search for the unconditional among



the conditioned. It is Robinson's theological attempts to find a new possibility of faith, physically after Copernicus and metaphysically after Nietzsche. In the same sense, an important task is imposed on Christian theology to respond to the message which was brought by the birth of Dolly. We can say that we must wrestle with almost the same problems as Robinson did. Just as Robinson's "Honest to God" was an attempt to find a possibility of Christian faith after Copernicus and Nietzsche, so Dolly—as a product of the Darwinian Revolution—asks us how to be honest about the biotechnological influences which gave birth to Dolly. In short, we are asked to be "Honest to Dolly."

"Theology after Dolly" means that we must find a new paradigm which could address the problems brought by the biotechnological attempts to intervene into the DNA of all creation, including human beings. DNA which was thought to be the absolute center of our humanity is being de-constructed and re-written by genetic engineering, and is vanishing into nothingness.

I think that the meaning of Dolly as an influence that could cause a paradigm shift has not yet been adequately discussed. In this sense, I want to take note of the opinion that the birth of Dolly must be evaluated as a paradigm shift equal to those inspired by Copernicus, Darwin, and Freud. In his often-cited *Lectures on Psychoanalysis*, Freud observes:

In the courses of centuries the *naïve* self-love of men has had to submit to two major blows at the hands of science. The first was when they learnt that our earth was not the center of the universe but only a tiny fragment of a cosmic system of scarcely imaginable vastness. This is associated in our minds with the name of Copernicus, though something similar had already been by Alexandrian science. The second blow fell when biological research destroyed man's supposedly privileged place in creation and proved his decent from the animal kingdom and his ineradicable animal nature. This revaluation has been accomplished in our own days by Darwin, Wallace and their predecessors, though not without the most violent contemporary opposition. But human megalomania will have suffered its third and most wounding blow from the psychological research of

the present time which seeks to prove to the ego that it is not even master in its own house, but must content itself with scanty information of what is going on unconsciously in its mind. [Sigmund Freud, p. 326]

I think Dolly brings not only “broken values in ethics,” as seen in the debate on whether human cloning can be permitted or not. More importantly, Dolly also brings an understanding of what human beings are. In this sense, cloning produces a second “anthropological turning.” The first “anthropological turning” came with the dawn of modern age from the Cartesian *cogito*. In the process of thought from Descartes to Nietzsche, all values including theological ones must be proved through anthropological references. God who was believed to exist “up there” and “out there” is thought to find His shelter “in” human beings. Through biotechnological efforts, however, we came to know that the gene which seemed to be the most inner part of human beings is no more than an outer nature. As the astronomer Copernicus removed the myth that God is physically “up there” and metaphysically “out there,” so it is by the work of biologists that the false “gene myth” as the essence of human beings has been laid to rest. (In this way, we find again the important relation between natural science and theology.)

In this sense, as Pierre Baldi rightly points out, the anxiety of losing one’s identity over the birth of a clone is similar to the anxiety which many once felt toward the heliocentric Copernican system, with its implication that the earth on which we dwell is not the center of the universe.

Through millions of years of evolution our brains have been wired to provide us with an inner feeling of self, a feeling that each of us is a unique individual delimited by precise boundaries. ... These concepts are central to ourselves and to the way we function, and are reinforced by our education and culture. A fundamental argument ... is that this self-centered view of the world is problematic—in fact, it is “scientifically” wrong. [Pierre Baldi, p. 3]

Baldi explains why many people feel great anxiety over the possibility of human

cloning from the fact that it threatens our concept of identity: "... cloning seems to make our minds go blank. It makes us feel very uncomfortable somewhere. This uneasiness comes from the semiconscious realization that it stands the chance of challenging the idea of who we are.... Challenging our identities and boundaries generates profound uneasiness, or even repulsion." [p. 3–5] According to Baldi, the decisive contribution of biotechnology is that it de-centers the individual self into "the shattered self," which is also the title of his book. That means that each individual self is not something distinctive from others. It is "rather fluid and continuous entities, both in space and in time. We can raise our clone ... The boundary between the self and the other, the self and the world, the inside and outside has begun to blur, and ultimately may evaporate entirely." [p. 4] The history of science as well as the history of the consciousness of mankind is "a history of progressive de-centering, a gradual movement away from a self-centered view of the world." [p. 10] As Freud said, the process of de-centering for human beings has been at work since Copernicus, Darwin, and Freud himself. According to Baldi, such a process of the de-centering of man reaches its peak in biology, "because biology has to do with what we are made of." [p. 11] All of this follows from the discoveries of bacteria, blood cells, and sperm in the 17<sup>th</sup> century, and the appearance of molecular biology which explains life at the molecular level. Then we have to say that the process reaches its peak at the possibility of human cloning, in that human cloning forces us to consider the identity of human beings.

I have raised a question about how we can be honest to Dolly. Please let me draw some conclusions for today's lecture, even if they are only tentative ones.

First, Dolly asks us to make a creative dialogue with natural science, especially with biology. Ted Peters, former director of the Center for Theology and Natural Science in San Francisco, offers this observation: "No competition exists between divine power and human freedom" [Ted Peters, 1997B, p. 161] I believe this is the first way to be honest to Dolly. As Peters continues:

Research science has its own intrinsic value, to be sure. Probing the mysteries

of the natural realm and becoming privy to her magnificent secrets is in itself a worthwhile vocation, needing no additional moral confirmation. But when placed within culture and society where the needs of the neighbor for better health and greater well-being become obvious, then science should serve technology which in turn should answer God's call to be creative and transformative, to make life qualitatively better for God's creatures. [Ted Peters, 1997B, p. 178]

In the second way, then, Dolly as a product of biological control shows us clearly that the boundaries which divide the self and the world, the inside and the outside, have evaporated, especially as a result of the biological sciences. Human beings are neither the center of the universe nor the center of living things. The fact that God "up there" and "out there" has vanished through "modern science and technology" is accepted as a new possibility for faith as a way of "meeting the unconditional in the conditioned in unconditional personal relationship." That was the contribution of the theological attempts by John Robinson. Then the fact that the center of human beings is not even "in" our gene opens a new understanding of the nature of our humanity. That means that what we are cannot be understood in terms of such spatial categories as "out there," "up there," and "in here." What human beings are needs to be understood through a radically eschatological point of view. Human beings are radically open to the eschatological transformation.

The third way to be theologically honest to Dolly means to go beyond an anthropocentric understanding of reality. As we have seen, human beings are neither the center of the universe nor the center of living things in nature. Human beings are one of many other life forms, but we know that we are just one of the many. In this sense, human beings already transcend the boundaries surrounding their existence.

To feel free in the universe where no boundaries exist between the human self and the world of creation, if expressed in a traditional Christian concept, could be a form of *love* in the age of biological control.

To live without "the gene myth" which regards the gene as the divine determinant, is a *faith* without idols.

And to be courageous enough to acknowledge the eschatological transformation of human beings, would be the other name for Christian *hope*. All of these attitudes are thought to be required with the birth of Dolly. Please let me end my lecture with another citation from Ted Peters, whose theological thoughts have given me many insights:

The genetic determinism and environmental determinism combined have not yet brought us to our full humanity. We are still on the way, so to speak. Living in the tension between soil and spirit makes us restless, and in this restlessness we can hear the faint call of God to look forward to a future that will transcend our long and complex past. Our resurrection will be a future that only God can create. In the meantime, life at the metaxy can in its own way be quite creative as well. Poised for beauty and tragedy, we have a growing future freedom that is calling us to responsibility. [Ted Peters, 1997B, p. 61–62]

[References]

- Pierre Baldi, *The Shattered Self: The End of Natural Evolution*, The MIT Press, 2001.
- Sigmund Freud, *Introductory Lectures on Psychoanalysis*, tr. by James Strachey, Penguin Books, 1973.
- Steven J. Gould, “Dolly’s Fashion and Louis’s Passion” in: Martha C. Nussbaum and Cass R. Sunstein ed., *Clones and Clones. Facts and Fantasies about Human Cloning*, W. W. Norton & Company, 1998, pp. 41–53.
- Leon R. Kass, “Wisdom of Repugnance” in: Leon R. Kass and James Q. Wilson, *The Ethics of Human Cloning*, The AEI Press, 1998.
- Evelyn Fox Keller, *The Century of the Gene*, Harvard University Press, 2000.
- D. Nelkin/M. S. Lindee, *The DNA Mystique. The Gene as a Cultural Icon*, W. H. Freeman and Company, 1995.
- Gregory E. Pence, *Who’s Afraid of Human Cloning*, Rowman & Littlefield Publishing, 1998.
- Ted Peters, “Cloning Shock: A Theological Reaction” Ronald Cole-Turnen ed., *Human Cloning. Religious Responses*, Westminster John Knox Press, 1997A.
- Ted Peters, *Playing God? Genetic Determinism and Human Freedom*, Routledge, 1997B.
- John A. T. Robinson, *Honest to God*, SCM Press LTD, 1963.
- Lee M. Silver, *Remaking Eden: Cloning and Beyond in a Brave New World*, Weidenfeld & Nicolson, 1998.
- Peter Sloterdijk, *Regeln für den Menschenpark. Ein Antwortschreiben zu Heideggers Brief über den Humanismus*, 1999.
- Ian Wilmut, “The Importance of Being Dolly” Ian Wilmut/Keith Campbell/Colin Tudge,

*The Second Creation: Dolly and the Age of Biological Control*, Farrar, Straus and Giroux, 2000, pp. 3–21.  
Edward Wilson, *Sociobiology: The New Synthesis*, Harvard University Press, 1975.