



BULLETIN

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I have been hard at work (with little to show at present) on a summary of many sets of Proceedings. These will (I hope) eventually be published under the title, *Biology, Law and Public Policy*. You have been alerted to this publication several times already, but I do want to assure you that it has not been forgotten.

The primary purpose of my mentioning it here is to express my amazement at the work our essayists and participants have done over the years. As I work my way through about 25 sets of Proceedings, I am continually being surprised by how prophetic our discussions were. I think that a great part of the summary of the discussion will be seen as quite up-to-date. In fact, some of it will even point us toward the future. This is true even of material that is more than 20 years old.

We have clearly fulfilled the first of our corporate goals, namely, of being an early-warning system for the Christian churches on matters of scientific work and its impact on our faith in Christ. We have also, at least in significant part, realized our second purpose, namely, translating these changes into ecclesial and theological categories. This work, of course, is not complete; it will never be achieved fully until the Lord returns to us in glory. I have noted in several of the things I have written that we need a significant development of our understanding of our bodied estate. The day we have completed that development is either the day we have certainly done it wrong or the Day of the Lord foretold in Scripture. Nonetheless, ITEST has followed, however falteringly, in the footsteps of our predecessors in the Faith.

We have made a beginning in accomplishing the third major goal of the group, namely, carrying the Good News both to the churches and to the scientific/technical community. We who have a love and commitment to our science and to Christ bear the great invitation of bringing our science to the Faith and our faith to our science. Here, as elsewhere, we have the gloriously unending task of bringing Christ in us to our neighbors. Let us help each other to fulfill that mission. If we accomplish this "wedding" of faith and science in ourselves, it will overflow into society and, finally, with God's help into the Kingdom of God. No small achievement, that!

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ANNOUNCEMENTS

1. Just a reminder! If you have misplaced your membership renewal card, you still have time to renew for this year. Remember, only dues-paid members receive the edited proceedings of workshops/conferences. Don't miss out on this timely material.

2. We apologize for giving an incorrect FAX number in the last issue. The FAX is (314)-977-7211 as listed on the first page of each bulletin. Unfortunately some of you tried to contact us at the incorrect number. We will *not* reprint it here for obvious reasons! Since the FAX equipment is not located in the ITEST office, we do not have exclusive use of it; we share it with several other offices. For the time being, therefore, we will use that line in the RECEIVE mode only. Address all FAX messages to ITEST, Fr. Robert Brungs, SJ.

3. There are some openings in the October 13-15, 1995 workshop: *Population Issues: Cairo, Copenhagen, Beijing*. Contact us by phone or FAX if you want to reserve a place for this weekend.

4. SPECIAL OFFER: Since it is never too early to start thinking about Christmas presents, may we suggest ordering some ITEST books for your favorite person, library, college, church religious ed department? Since we have to make room for new publications, we must reduce the inventory on hand. Each book costs \$8.95 including postage and handling. We will mail the

publications directly to you or to the recipient. These are the titles available: *The Inner Environment (medicine, ethics & economics)*; *The External Environment*; *Some Christian and Jewish Perspectives on the Creation*; *Sci/Tech Education in Church-Related Colleges and Universities*; *Transfiguration: Elements of Science and Christian Faith*; *Secularism versus Biblical Secularity*; *The Science and Politics of Food*; *the Human Genome Project*.

5. Work is apace on the March 15-17, 1995 workshop on *Environmental Ethos*. Thus far we have secured three essayists. Fr. Albert Fritsch, SJ is Director: *Appalachia — Science in the Public Interest*. Mr. John E. Kinney, Environmental Engineering Consultant, is a registered professional engineer with widespread consulting experience nationally and internationally. Dr. Gary Comstock, Iowa State University, Coordinator of the Bioethics Program and advisor to *The Ag Bioethics Forum*, is developing ideas on environmental ethics particularly as they relate to evangelical Christianity.

6. Membership dues will be \$45.00 per calendar year starting January 1, 1996. Student dues, however, will remain at the current rate of \$20.00 per year. Increased costs for paper products, inks and postage have forced us to increase the dues. You will note that there is a place on the membership card you will receive in October for your e-mail address and/or FAX.

BOARD OF DIRECTORS ANNOUNCES SEARCH FOR ITEST DIRECTOR

The search is on for a successor to Fr. Robert Brungs, SJ, co-founder of ITEST and director since 1968. Fr. Brungs will become "chairman of the board" as soon as a new director is in place. His 27 years of "full-full" time service to the organization has afforded little opportunity to write. He hopes to devote his energy to research and writing on aspects of the faith-science ministry.

Position: Director of ITEST
Requirements: PhD in Theology or Science, with an appropriate competence in the other area.
Responsibilities: Organizational development (membership, fund raising, program administration),

(1) designing workshops/conferences for college/university professors, professionals in business and industry, scientists/technologists, clergy and church leaders and college and university students in theology and the sciences — all with a view to "meaning" for the Christian living in the world; (2) lecturing on topics of science/faith/theology; (3) writing on these same topics for publication, either in-house or in journals; (4) exploring new areas of ministry or service (i.e., campus ministry).

Salary/Stipend: Negotiable
Conditions: One to two-year internship or residency with present staff.

Contact: S. Marianne Postiglione, RSM, Dir. of Communications and member of search committee. (314)-977-2703; FAX 977-7211. Or send resumé with letter of intent.

HYBRIDS, GENES AND PATENTS

Fr. Robert Brungs, S.J.
Director: ITEST

Introduction

When I wrote the article on "Neutrality? Alliance? or What?" for the Winter, 1995 issue of the *ITEST Bulletin*, I thought it would be the only one I would write this year. Some things have happened rather recently and I thought that it was important to sit down in front of the computer and comment on them.

The St. Louis Post-Dispatch for May 19, 1995 carried an article entitled, "Religions Oppose Patenting of Genes." Since it came as news to me that the Catholic Church was opposed to patents for biologically active material, I read the article. [This story was reported also on national TV in the United States.] The first paragraph of the *Post-Dispatch* story follows:

Nearly 200 religious leaders urged the government on Thursday to ban the patenting of human genes and genetically engineered animals. Ownership and commercialization of life are grotesque, they declared. [The full story is reprinted in the Box on page 4.]

Before expressing my own personal views on this matter I would like to print the text of this petition as well as the cover letter, sent out on the stationery of General Board of Church and Society of The United Methodist Church. The petition reads:

We, the undersigned religious leaders, oppose the patenting of human and animal life forms. We are disturbed by the U.S. Patent Office's recent decision to patent human body parts and several genetically engineered animals. We believe that humans and animals are creations of God, not humans, and as such should not be patented as human inventions.

This petition at first glance may seem innocuous and people looking at it might quickly decide that it sounds more or less pro-life and can be signed without much thought. I presume that many of those who signed it did so in just such fashion — with little thought and no research. But there are some very complex issues embedded in this text, some of which I will consider at length. First, I shall quote the cover letter over the signatures of Kenneth Carder, Bishop, Nashville Area, United Methodist Church and Chair, United Methodist Genetic Science Taskforce and

Melvin G. Talbert, Bishop, San Francisco Area and Secretary, United Methodist Council of Bishops.

We are writing this letter on behalf of the Joint Appeal Against Human and Animal Patenting. The Joint Appeal represents a wide ranging group of religious leaders who are opposed to the patenting of human embryos, genes, cells and the patenting of animals including those with human genes engineered into their permanent genetic code. We've enclosed a partial list of religious leaders who have already signed the joint appeal.

With modern gene splicing techniques it is now possible to add, delete and recombine genetic material across species boundaries. Scientists have already created a variety of animals which contain human genes. They have also begun to experiment with the genetic engineering of humans. The new techniques in genetic engineering offer exciting possibilities for the curing of disease and for helping to preserve nature's diversity. Unfortunately, indiscriminate use of these techniques represents a very real threat to the dignity and integrity of human life. For example, human embryos, fetal parts, cells and genes can now be genetically engineered and patented. (emphasis in original) Scientists and corporations are already claiming patents on hundreds of genetically engineered animals. The World Council of Churches has officially opposed the patenting of animals and human genes, cells and organs.

We are asking you to sign the attached statement opposing human and animal patents. Your action on this matter is urgently required in that the patenting of human material and animals has already begun. In 1991 the Patent and Trademark Office (PTO) granted patent rights to a California company for commercial ownership of human bone marrow "stem cells" (Stem cells are progenitors of all types of cells in the blood). The PTO has never before allowed a patent on an unaltered part of the human body. Many in the science community were stunned and outraged by the patent. Peter Quesenberry,

medical affairs vice chairman of the Leukemia Society of America commented "It really is outlandish to believe you can patent a stem cell. Where do you draw the line? Can you patent a hand? Renowned ethicist Thomas Murray commented, "they've invaded the commons of the body and claimed a piece of it for themselves."

Currently patents on several hundred human genes are pending at the PTO. Corporations are also attempting to patent animals containing human genes. These include pigs with human growth hormone to make them larger and trout with human genes to increase size and alter reproduction. The PTO has already patented five animals and over 200 additional applications are currently pending at the patent office.

How could this be? How did our genes, the biological essence of human beings, become assignable commodities? How could living things or parts of living beings, including parts of the human body, be seen as patentable products indistinguishable from mechanical or chemical products? When was it determined that the building blocks of life belonged not to God but to patent holders?

The religious community can play a crucial role in bringing this issue to the attention of the public and policy makers. . . .

The last paragraph of the cover letter gives the name of the one to contact in case of questions or for further information.

As was stated above, there are several very important issues embedded in this petition — far too many to make a petition the preferred vehicle for this type of consideration. Look at the rhetoric already being used. Statements like "Scientists said the opposition could halt research on lifesaving therapies and bioethicists said the campaign would pit public health against religion." The latter could happen, but shouldn't. The former enshrines a terribly pejorative notion of what science is and what motivates scientists. I am loathe to think that the primary incentive of scientists is gaining a patent.

A public discussion of "genetic engineering" would be good, provided it is done seriously, with a minimum of hype. Unfortunately, that probably will not happen. At least it hasn't happened yet. As an immediate result of this petition the rhetoric used by both sides is already seriously overblown.

From the *St. Louis Post-Dispatch*, May 19, 1995.

Nearly 200 religious leaders urged the government on Thursday to ban the patenting of human genes and genetically engineered animals. Ownership and commercialization of life are grotesque, they declared.

Gene patenting "represents the usurpation of ownership rights of the sovereign of the universe," said Richard Land of the Southern Baptist Convention. "Designer human beings are just over the horizon."

Scientists said the opposition could halt research on lifesaving therapies, and bioethicists said the campaign would pit public health against religion.

A joint statement signed by 180 Roman Catholic, Protestant, Jewish, Muslim, Hindu and Buddhist leaders called for the Patent and Trademark Office to proclaim a freeze on gene patents until Congress can ban them.

No such legislation has yet been introduced but the religious coalition — brought together by Jeremy Rifkin, an opponent of biotechnology — also delivered its call to every member of Congress. "This is the beginning of an historic discussion," Rifkin said. "Is life God's creation or is life a human invention?"

Rabbi David Saperstein of the Religious Action Center of Reformed Judaism compared genetic patenting to Frankenstein. "Once we allow all of life to be defined as mere products of human intervention . . . we denigrate our reverence to God."

The patents allow a single company to profit from a natural resource, which violates the teachings of Islam, said Abdurahman Alamoudi of the American Muslim Council. It's analogous to patenting oxygen, said Bishop Kenneth Carder of the United Methodist Church.

The religious leaders argued that they did not oppose biomedical research in general but that companies could find lifesaving therapies without patenting genes in the process.

In the rest of this article I'd like to look at *some* of the real issues involved in this petition and in any public discussion of our Faith and scientif-

ic/technological advance, particularly in the life sciences. First, what is patenting and what does it do? What privileges does it confer on the patent holder and what requirements does it set? What does it mean to talk about God's "ownership rights"? What, by the way, is life? Does that last question even make sense? What about profit? Is the involvement of a corporation somehow evil? What about genetically engineered plants? Why aren't they listed? How would research be funded if patents were banned? May human beings actively intervene in the physical composition of living things, including the human body? What, indeed, is involved in such intervention?

This whole discussion of biotechnology is a very important subset of the more general relationship between faith and science, with several aspects of social and economic justice thrown in. Mr. Rifkin says we are at the "beginning of an historic discussion." In some sense that may be true, but in any real sense that effort has been going on for a long, long time. Its specifically Christian beginnings can be found as early as the *Hexaemeron* of Basil in the 4th century.

The real question remains the perennial question explicitly asked by the Psalmist about three millennia ago: What is the human that you should spare a thought for him, the son of man that you should care for him?

Let's begin by looking at what patenting is and what it does and does not do. We should not forget as we go through this discussion that government regulatory processes are in no way short-circuited by the issuance of a patent. Patent holders must observe all regulations along with everyone else.

Patents and Patenting

"Patent rights on animal and human genetic sequences confer ownership to universities, businesses and/or individuals for 17 years." (Richard Land, Executive Director of the Christian Life Commission of the Southern Baptist Convention)

"Placing control of human or animal genetic material into the hands of one scientist or corporation is against the principles of all religions." (Abdurahman Alamoudi, Executive Director of the American Muslim Council) [These quotes are taken from an article, "Bishops join protest over patented genes," by Nancy Frazier O'Brien in *The Providence Visitor*, May 25, 1995. See page 14 for the full text of this article.]

While it is clear that the signers of this petition are not attacking patents in general, it is necessary, I

believe, to deal with the normal patent process, to demystify it, as it were. What are patents and what do they do? What don't they do?

The patenting of living material is not a new issue. In 1980 the U.S. Supreme Court, in allowing for the patenting of a genetically engineered *Pseudomonas*, essentially allowed the patenting of a living organism, saying that it was allowed under current law. The Court noted that Congress could certainly change the law if it so desired. In view of this Court decision, ITEST convened a Workshop entitled *The Patenting of Recombinant DNA* in March, 1981. The topic was revisited in an ITEST Workshop in April, 1987. The patent lawyer who had seen the Bergy (for lyncomycin) and Chakrabarty (for the *Pseudomonas* mentioned above) claims through the patent process, Mr. Roman Saliwanchik, was one of the essayists at both of these Workshops. The citations from Mr. Saliwanchik are taken from the Proceedings of the March, 1981 meeting. Mr. Saliwanchik wrote:

Contrary to the concerns of some, the patenting of a living microbe is neither a patent on life itself nor carte blanche with regard to patenting higher forms of living entities. Patenting "life itself" is not an issue to rational minds. On the other hand, patenting higher living forms, such as farm animals, cannot be dismissed as a possibility. [Please remember, this paper was written 14 years ago and many of the things forecast as possibilities are now realities.]

Remember, the patent system is a legal system designed to help inventors and the public. (all emphases are in the original) It does not function solely to make inventors the legal owners of all their patentable inventions. If anything, the patent system is more public-oriented than inventor-oriented. This is especially apparent in the area of microbiological and genetic engineering inventions because fulfillment of the Patent Act requirement of a "full disclosure" of an invention, in return for a patent, requires the deposition of a microbe culture. This culture then becomes available to the public upon the grant of a patent.

Perhaps the import of this patent law requirement is not fully appreciated by those not working in the microbiological field. To those in the field, however, it means access to a valuable entity, which, in the absence of the patent system, would not even be known to the public, much less be accessible to the public. Possession

of the microbe allows a member of the public to experiment with the microbe, and, hopefully, invent an improvement which might also be patentable. Thus, public disclosure of the patented invention, in a way which enables persons skilled in the art to practice the invention, is a patent law requirement which, indeed, promotes the progress of science and the useful arts!

Again remember, the patent system is here to help inventors and the public, not to deprive the public of anything to which it previously had access. In other words, the patent system does not take from the public something already in the public domain. A patentable invention must not only be novel, but it also must be unobvious from that which is already known. These are strong requirements, and they insure the right of the public to practice or enjoy what is already in the public domain. . . .

When we go from microbes to higher living forms, for example, farm animals, then new procedures may have to be developed to fulfill the full-disclosure requirement. Problems of meeting the full-disclosure requirement would appear in new chicken, turkey, or horse inventions. We can expect such problems to be solved.

Mr. Saliwanchik makes several points that must be remembered: (1) fulfillment of the Patent Act requires the "full disclosure" of an invention; (2) a patentable invention must not only be *novel*, it must be *unobvious* from what is already known. Mr. Saliwanchik makes the point frequently in the discussion that the patent enables "persons skilled in the art" to practice the invention, to experiment with the thing patented, for example, an altered gene. The patent, Mr. Saliwanchik repeatedly stated, merely prevents anyone else from using the invention *commercially* for 17 years. It might be pointed out here that the patent does not give anyone (individual or corporation) the right to market a product. Appropriate regulatory statutes must be observed. In the realm of biological products this process through the regulatory agencies might require from ten to fifteen years of trials.

The patent system is a contract between the public and person seeking the patent. The person applying for the patent agrees to give a full and enabling disclosure of the invention, one which will enable a person skilled in the art to practice the invention. In return for that disclosure, if the invention meets all the characteristics of a patentable invention as speci-

fied by the statute, the inventor will be given a 17 year grant. This grant says that for 17 years after one gets the patent, no other can practice that invention commercially in the territory of United States. That patent does not give the inventor the right to do anything with regard to practicing the invention. It gives him or her a legal right to prevent anyone else from practicing it commercially. Persons in the public can practice this invention on an experimental basis. This is one of the purposes of a patent statute, namely, to promote the progress of science. One of the ways to promote the progress of science is to publish, to make available in a meaningful form, this invention. If one just wrote about a cell line or some micro-organism, a person skilled in the art could not really practice that invention without possession of the entity itself. That is why we have a repository, an organization that is able to maintain cultures for as much as 30 years or more.

Placing micro-organisms or other biologically active material in the depository and making that part of patent application disclosure started somewhere in the late 1950s. There was no statute that said it could be done this way, that said this was an appropriate procedure. In 1970, a case went before the Court of Customs and Patent Appeals (CCPA) on the question of deposition. The issue at hand was whether the deposition of microorganisms, in conjunction with the filing of a patent application, was a proper method for a complete and enabling disclosure. In 1970 the CCPA stated that this was a good procedure, even though the statute did not indicate what to do. The court ruled that this was within the spirit of the statute. In the period from 1970 to 1980 quite a bit of new law was made in the microbiology area.

Nothing in this exposition on the patenting process and use of the depository is concerned about higher life forms. When we get into these — farm animals and the like — we will face a serious problem of disclosing an invention in such a way that it enables skilled persons to reproduce the animal. How shall the inventors be able to disclose a new farm animal in a way that a skilled person can reproduce it? Can it be kept in the depository? Further change in the law will be required, although the matter does not seem to be beyond remedy.

A United States patent is good only in the United States. Bacterial inventions are available to the public from the repository. This means that they are available to the public in Germany, Russia, Japan, worldwide. If the inventor has not filed a patent application in Germany, a person there can practice that invention in Germany. All inventors must decide whether

or not they'll file in all the key industrial nations of the world. Such filing costs a great deal of money and the cost goes up each year. If the inventor does not apply for foreign patents, his or her protection is limited to United States. The product can be produced abroad, and, even if the inventor has some protection in the United States, the product can be imported into this country. One's only recourse against an importer is through the Tariff Act. This is neither a cheap nor simple procedure. The patent system is not an easy way to go. The patentee's opportunity to protect his or her invention is quite limited, unless he or she is vigorous in foreign patenting. Even then it cannot be protected completely. Italy, for example, at least as late as the 1980s did not have meaningful patent system. The United States government was one of biggest purchasers of tetracycline from Italy, though there were United States patents on tetracycline.

According to the letter sent with the petition, the PTO in 1991 granted a patent for human bone marrow stem cells. According to the letter, this was the first time the PTO had ever allowed a patent on an unaltered part of the human body. Mr. Saliwan-chik, at the 1981 ITEST meeting, emphasized that a patent can be granted only for something novel and unobvious. There is an area here that needs significant investigation and discussion of the PTO's rationale for granting that particular patent. I am not aware that the patent law has been changed in this regard — which, of course, does not mean it has not been changed. If it has, it would be helpful to know the rationale behind the change.

In summary, a patent, including those issued for biologically active material, are designed to prevent another party from practicing the invention *commercially* for 17 years in the territory of the United States. It does not prevent someone from practicing the invention experimentally nor does it prevent someone from introducing novel and unobvious changes to the invention and seeking a patent on the new thing. The patent does not give the inventor the right to do anything with the invention. Moreover, the public receives a complete and enabling disclosure of the invention that can be practiced by anyone skilled in that particular area (not commercially, however).

It should be clear that patents themselves do not create new inventions, although in some cases the availability of patents may provide a financial incentive to experimentation in certain areas. To think, though, that a moratorium on patents would slow down scientific research into humans (or animals and plants) is naive. Scientists certainly will do research in these

areas whether or not the results of that work can be patented. One of the benefits of patents is public disclosure. The alternative to patents is the trade secret. The cultures, mutated genes or cells — "life forms" (whatever they are) — would be kept secret but still would be exploited commercially. Patents generally follow research; they rarely initiate it. If a company were not able to obtain a patent on an invention, it may keep its results secret to retain property rights. Trying to protect what we have — whether that something is money, land or an altered gene — seems to be part of our nature. This attempt to hang on to whatever we have, to protect our possessions, is also true of religious organizations and advocacy groups. I wonder how many of the signers of this petition have copyrighted their written material. A trade secret is maintained because, were the invention made public, it would no longer belong to its discoverer. Need I mention Kentucky Fried Chicken's secret herbs and spices or Coca-Cola's secret formula?

As has been said, the grant of a patent does not allow one to market a product, especially in this area of living things. The whole regulatory process must be followed. This is no small task and it is almost always a lengthy process. I do not intend to treat the regulatory process here, but, in general, it is a long and costly process. I believe that it took Monsanto, for example, more than ten years to finally get permission to market bovine somatotropin. Please note that the time it takes to obtain permission to market a product is generally part of the 17 years granted by the patent. In other words, were I to obtain a patent on some biological product and were it to take ten years to get permission to market it, I would have only seven years of the patent grant left to practice that invention commercially. It is possible that the General Agreement of Tariffs and Trade (GATT) may have introduced some changes into that by allowing some extra time for commercial benefit. The patent attorney I consulted, however, was not at all sure how this would work out in practice.

Another area that I shall mention only in passing is government funding, which in its own way is another form of regulation. We must not forget that patenting and regulation by government agencies are not the only forms of government presence in biological research. How much money the government provides for what kind of research also has a significant impact on what is done — and for what reasons it is done. Here, I believe, it is sufficient to remember that science rarely provides its own direction. Funding has a very important — sometimes critical — role to play in that direction.

Ownership

"We claim it is wrong for scientists and corporations to own living, reproductive material," says Richard Land . . . "We believe [such material] is pre-owned by the Creator, and ought to be owned in common by all human beings." (From "Questioning Rights to Life," by Stephen Goode, *Insight on the News*, June 26, 1995.

The more I have pondered the issues raised by the publication of this petition and the subsequent press conference, the more I am convinced that questions of "ownership" — in one way or another — are the primary issue here. For instance, the O'Brien article mentioned earlier quotes Rifkin as saying: "The blueprints of God's creation should not be handed over to scientists and corporations just to make a fast buck in the marketplace." What is the real issue here, patenting or greed or perceptions of greed or some further agenda? It's difficult to tell. *The St. Louis Post-Dispatch* states: "Ownership and commercialization of life are grotesque, they [religious leaders] declared."

The petition itself states: "We believe that humans and animals are creations of God, not humans, and as such should not be patented as human inventions." I must confess I am not sure what this means. Several of the signers of the petition were at pains to say that they did not oppose biomedical research. They did not call for a moratorium of the patenting of genetically altered plants — which are of course also living creatures of God. The problem addressed does not really seem to have anything to do with "life" — an abstraction by the way; we're really talking about living beings.

The concept of God's *ownership* of creation is difficult for me. I have never considered before reading this petition and the cover letter that God "owned" the universe. The only experience I can bring to this concept is a human owning a thing or land or an animal. Part of "owning" something is being able to use it at the "owner's whim. There is nothing in my own personal experience of "owning" things that I can relate to my Creator and Redeemer. God does not seem from Revelation to want to possess me the way I possess an artifact, a radio for example. If a radio wears out, I have no compunction about throwing it away or giving it away as a gift while it is still working. As worn out and unproductive as I sometimes feel, I certainly hope in my heart that God does not perceive me in that way. Put simply: Does God see His creation as something He "owns," that he "uses" as He sees fit?

On a very deep level, a key issue in this whole discus-

sion is our relationship with God and reductively, then, our relationship with each other and with the rest of creation. God, if I understand anything at all about the Christian faith, does not want to "own" us; e desires union with us. I do not believe those are the same thing. It seems to me that the whole purpose of my life is to live into communion with God, not to be "owned" by God, not to be a possession of God. I am indeed created and redeemed by him — but not as if I were a thing that "belonged" to him. As I understand it, I am not called to be God's slave or servant, but His friend (John 15, 14-15). One never "possesses" a friend. One may "have a friend," but one never "owns" a friend. Maybe I am over-emphasizing this statement of ownership, but the notion is so foreign to my estimate of Christianity that I think it needs a great deal of discussion before I would consider it seriously.

Again, I see God's creating and redeeming the universe as an offer to human beings to grow into union with him. Every divine approach to us, as revealed in Scripture, is an offer of covenantal relationship. At least, I know of no other approach God ever took. God offers; we respond. But we do not respond as automata or as those who *had* to agree with the offer. God wants our love, not our obligatory acceptance. The Jewish and Christian God never overwhelms us. He wants our loving acceptance, not an obligatory response. God has offered each of us and the universe a place in Him, not because He "owns" us, but because he loves us and wants us to return His love for us by and in our own love for Him. Covenant has nothing to do with ownership. God did not "own" Israel; God called Israel. So with us and with everything that exists. At least, so I believe and hope!

Thus, when I read statements like ". . . patents for animal or human genetic information represents the usurpation of the ownership rights of Sovereign of the universe," I have no clear idea of what is meant. I seriously doubt whether it means we cannot do any research or development in genetics. I am likewise confident that it does not mean that we can "own" plants and non-living material, but not animals. Certainly we can't own humans, although it was not that long ago we thought we could (slavery). We are clearly expressing ownership now with certain types of human embryo research — the purpose of which is not securing a patent. Abortion and euthanasia can certainly be considered as activities of ownership: a woman has complete freedom to do whatever she sees fit to do with her soon-to-be-born child. That would fulfill any definition of "ownership" I would accept. The petition effort seems to ignore the real abuse that takes place so long as it is separated from the patent process. That, too, confuses me. I don't know if its

Bishops join protest over patented genes

By Nancy Frazier O'Brien: Catholic News Service

WASHINGTON - Nearly 90 Catholic bishops and other Catholic officials have joined leaders of dozens of other faiths in condemning the U.S. Patent Office's decision to grant patents for human and animal genes.

"We believe that humans and animals are creations of God, ... and as such should not be patented as human inventions," said the brief statement signed by some 180 U.S. religious leaders.

At a Washington press conference May 18, representatives of United Methodist, Southern Baptist, Jewish and Muslim organizations joined Jeremy Rifkin, president of the Foundation on Economic Trends, in calling for a moratorium on the issuing of new patents on genetically engineered animals and human genes, cells, organs, tissues and embryos.

"Life is more than a commodity," said Rifkin. "The blueprints of God's creation should not be handed over to scientists and corporations just to make a fast buck in the marketplace."

Bishop William B. Friend of Shreveport, La., past chairman of the bishops' Committee on Science and Human Values and a signer of the statement, was on the list of speakers at the press conference, but was unable to attend because of scheduling conflicts.

The Catholic signers included 67 heads of U.S. Latin-rite and Eastern-rite Catholic dioceses and archdioceses, as well as many retired or auxiliary bishops and some individual priests and nuns.

Others signing the statement represented the Episcopal Church, Reformed Church in America, National Council of Churches, Greek Orthodox Church, Armenian Orthodox Church of America, Islamic Society of North America, Lutheran Church Missouri Synod, Church of God, Reorganized Church of Jesus Christ of Latter-day Saints, African Methodist Episcopal, Presbyterian Church and the American Buddhist Community, among others.

All the religious leaders at the press conference stressed that they were not speaking out against genetic engineering but against the granting of exclusive rights to a particular gene or body part through a patent.

"The issue related to the patenting of genes is not science vs. religion, nor is it opposition to biotechnology, nor denial of the necessity of economic return on capital investment," said United Methodist Bishop Kenneth L. Carder of Nashville, Tenn. "The issue is ... the reduction of life to its commercial value and marketability."

"Patent rights on animal and human genetic sequences confer ownership to universities, businesses and/or individuals for 17 years," said Richard D. Land, executive director of the Christian Life Commission of the Southern Baptist Convention.

"Thus, the U.S. Patent Office's decision to grant patents for animal or human genetic information represents the usurpation of the ownership rights of the Sovereign of the universe," he added.

"Placing control of human or animal genetic material into the hands of one scientist or corporation is against the principles of all religions," said Abdurahman Alamoudi, executive director of the American Muslim Council.

The U.S. Patent and Trademark Office awarded the first animal patent in 1988, on a genetically modified mouse developed at Harvard University, and has since issued eight other animal patents. Some 200 requests for animal patents and "hundreds" for human gene patents are awaiting approval, Rifkin said.

Rifkin said the campaign against genetic patenting would include litigation and legislative efforts, but would focus especially on an educational effort within the denominations of all the signers of the statement.

In his prepared statement for the press conference, which he sent to Catholic News Service afterward, Bishop Friend said the church recognizes "the constructive role science and medicine can play in aiding human persons" but said the church has serious reservations about the morality and the possible implications of patenting human genes.

"Good science and good business cannot be conducted in a moral-ethical vacuum," he said.

"Genetic reconstruction is desirable to remedy genetic defects, but serious questions begin to arise at the borderline where the aim of genetic reconstruction shifts from therapy to the 'creation' of new human types," he said.

"Our church's teaching is that a strictly therapeutic intervention whose explicit objective is the healing of various maladies such as those stemming from chromosomal defects, will, in principle, be considered desirable, provided it is directed to the true promotion of the personal wellbeing of the individual," he added.

"A question remains, however, about patenting genes," Bishop Friend said. "What will it do to foster future research? How will the financially distressed have access to gene therapies? Who will make the critical decisions and by what criteria? What exactly will be owned? Who will own mutations of the patented gene? What will be the long-term fallout biologically, in family life and in society? What will be the safeguard against monopolies?"

He urged that "research scientists, social scientists, business leaders and religious leaders talk together about these matters a lot more than has been done so far."

David M. Byers, staff member to the bishops' Committee on Science and Human Values, said the topic of patenting human and animal genes "never came up as a policy issue" in the committee, and so the bishops have no official position on it. But he expressed concern that because the statement does not distinguish between humans and animals, it could be used by "someone who doesn't like us (Catholics) very much" to undermine the church's position on the dignity of human life.

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sponsors really accept things like abortion, euthanasia or much of the embryo research going on. Nonetheless, in its silence on such things, the petition loses a significant opportunity to decry the exercise of "ownership rights" by one human over another. Maybe it simply didn't occur to them that ownership is one aspect of many "legally respectable" practices of our society. Seeking a patent is, in our society, not the greatest manifestation of a desire to "own another," yet it is the only one mentioned in the petition.

I find a curious omission in the last sentence in the petition: "We believe that humans and animals are creations of God, not humans . . ." Ostensibly we are speaking of living systems. So it would seem the matter is seen by United Methodist Bishop Kenneth L. Carder, over whose signature the petition was sent out: "The issue is . . . the reduction of life to its commercial value and marketability (Cf. O'Brien article in *The Providence Visitor*)." Let's leave aside the fact that "life" is an abstraction. Where in the petition is there a mention of plants? This is not a frivolous question. If the issue really is the reduction of life to its commercial value and marketability, plants should be included. Plants are just as much "life" as animals are. Yet we all seem to take the patenting of genetically engineered plants, like the *Flavr Savr* tomato or frost-free strawberry, as more or less a matter of course. There seems to be something askew here.

The problem that the authors of the petition see is said to be the patenting of living systems. But we have been patenting new plants for decades. Is there a significant difference between the patenting of biotechnologically derived plants and the hybrid plants we are quite used to — roses, corn and mules are, of course, examples of the art (science?) of hybridization? Yet this issue does not seem to be part of the discussion. Why are patents alright for plants but not for animals or humans? Is there an approach to "animal rights" hidden here? So far as I know there is no movement for "plant rights" yet. But does the "animal rights" movement have a part to play in the discussion of the "patenting of animals"? If so, it would only be honest to make it a clear issue. We shall have to return in a later issue of the ITEST Bulletin to this topic — animals in our lives and in the divine plan. Volunteers?

One might argue on a semantic basis whether a patent gives its holder "ownership." Certainly it gives one exclusive commercial use for 17 years. It does set up a period in which an invention (here, biologically active material) can be used monopolistically or quasi-monopolistically. That monopoly situation could be achieved, at least for a time, by using a discovery as a trade secret. Patents, in short, are not the only

vehicles available for establishing a monopoly. Still, the discussion of monopolies can proceed without any specific reference to patenting biological material. Patenting anything, including sewing machines, could lead to monopolies. Why are we worried about it only with regard to "living material"?

Perhaps we get a little closer to the purpose of the petition when we read the following statement of Jeremy Rifkin quoted in *Insight on the News*: "Greed drives this technology, greed that denies the sanctity of life." Medieval philosophers and theologians — that much-maligned crowd — had a logical rule: *Quod gratis asseritur, gratis negatur* (what is gratuitously asserted may be gratuitously denied). I simply deny the statement. That denial of what I consider a gratuitous assertion does not imply that all those involved in gaining patents for biologically active material are exempt from the sin of greed. Is there greed in the pharmaceutical industry? Of course there is. Is there greed in the scientific laboratories? But, then, I have little reason to doubt that there are people in advocacy groups or even in religious groups around the country who are also guilty of monetary greed. Yet, I am not about to say that the "advocacy profession or the religious profession" is driven by greed. Many of us working in the faith/science area know people in the biomedical community who are not driven by greed, who are in fact motivated by a strong desire to help the afflicted. But Rifkin's very mention of greed may bring us closer to what bothers him: profit.

Greed, however, is manifested as well in areas other than monetary rewards. I could mention greed for power and for control. That, I assume, lurks to some extent in all of us, even Mr. Rifkin. There is sexual greed and even greed for food. In short, there's plenty of greed to go around. But is monetary greed the crux of this whole petition? Deeper than greed may be a certain anti-capitalism or a certain desire for some kind of socialism. Yet, the patent system has worked relatively well for 200 years. Capitalism certainly has its pitfalls, as does every other form of economic thought and practice. Greed is greed; but to say that it *drives* the biotechnology industry is not very different from saying that it *drives* every aspect of human life.

I don't know Rifkin and I can't say apodictically that he is anti-profit. Nonetheless, his statements may legitimately be interpreted that way. Again, any serious approach to profit ought to be made in the context of Revelation. Profit, in other words, is not a purely economic concept. Is there anything in Scripture that might give us a clue what our idea of profit

should be? I strongly believe that it is tied very tightly to what we mean by "stewardship." Here, let me confine my attention to "profit," in the broader consideration of living, of using our talents and our virtues, in trying to respond to God's will for us individually and communally. We read in the 25th chapter of St. Matthew's Gospel (a similar passage can be found in Luke):

It [the Kingdom of heaven] is like a man on his way abroad who summoned his servants and entrusted his property to them. To one he gave five talents, to another two, to a third one; each in proportion to his ability. Then he set out. The man who had received the five talents promptly went and traded with them and made five more. The man who had received two made two more in the same way. But the man who had received one went off and dug a hole in the ground and hid his master's money. Now a long time after, the master of those servants came back and went through his accounts with them. The man who had received the five talents came forward bring five more. "Sir," he said, "you entrusted me with five talents; here are five more that I have made." His master said to him, "Well done, good and faithful servant; you have shown you can be faithful in small things, I will trust you with greater; come and join your master's happiness." . . . Last came forward the man who had the one talent. "Sir," said he, "I had heard you were a hard man, reaping where you have not sown and gathering where you have not scattered; so I was afraid' and I went off and hid your talent in the ground. Here it is; it was yours, you have it back." But his master answered him, "you wicked and lazy servant! So you knew that I reap where I have not sown and gathered where I have not scattered? Well then, you should have deposited my money with the bankers, and on my return I would have recovered my capital with interest. So now, take the talent from him and give it to the man who has the five talents. For to everyone who has will be given more, and he will have more than enough; but from the man who has not, even what he has will be taken away. As for this good-for-nothing servant, throw him out into the dark, where there will be weeping and grinding of teeth."

One of the more important aspects of this pericope should not be lost: "*The Kingdom of heaven is like a man. . .*" I'm sure we noticed that the man who "did not show a profit" was condemned. I suspect, though the text does not say it explicitly, that he would have

been praised if he had tried to make a profit and failed. As I read the text, the crime seems to have been a refusal to try to show a profit because he feared the wealthy man. I suspect, too, that we should note the possibility of failure. The story does not talk about failure after trial, but there is always a risk inherent in human life and Christ, more than anyone else, knew it. After all, despite all his efforts he was to die "a failure."

The idea has been promoted recently, especially in some environmental circles, that we should go through life leaving the creation undisturbed: "don't leave a footprint," I have heard advised. That does not square at least with my understanding of what it means to be a Christian. It is my contention that Christians should leave as big a footprint as possible, that the creation should be brought closer to God because of us. In other words, by our loving return to God of whatever ability or proficiency we have, the world should be aware of our passing this way. What does all this tell us? I believe it at least tells us that "profit" is not evil, maybe not even monetary profit. It tells us that there is a great gap between profit and greed. Scriptures, to be sure, says that it's easier for a camel to pass through the eye of a needle than for a rich man to enter the Kingdom. But this does not say that even wealth and monetary profit is a necessary evil. It certainly does not say that we should not strive to bring to as full a consummation the wealth for God that each one of us is.

Trying to discern God's will in our own personal lives or in the course of history always involves a risk. We do not know, nor *can* we know in any detail, the mind of God. The most I think I can say about God's activity in creation is that He never does the same thing twice. I often ask myself how I would have reacted to Christ and to His claims had I been living in Palestine at the time He was preaching. He was a sign of contradiction then — as He still is in our day. Would I have followed Him or, like the Pharisees, would I have stayed with the religious truth in which I had been raised? I don't know what I would have done then any more than I know what God's will for humanity is right now. This, however, does not mean that we who are members of the Body of Christ have been left orphans. In the Church we have many aids to discerning God's will for us and the Revelation itself sets up boundaries within which we must live.

Following our own conscience is a duty — it is also a great risk. Again, we don't *know* God's will for us. We don't *know* the extent to which God desires our growth as a people through our increasing biological capability and sophistication. Thus, we don't *know*

whether the patenting of living material is with or against God's will. That is something we have to learn as we live through history. Living is a risk. That is why hope is a virtue and trust in God's love for us and for all His creation is a necessity. I find myself thinking at times that the future (my own and perhaps the Church's) is *my* responsibility. That, of course, is nonsense. If God indeed created the universe, God is primarily responsible — not I nor all of us together. If God redeemed us and established the Church, God is indeed primarily responsible for our salvation (and that of the universe) and the survival and growth of the Church. I shall return to this theme and to drawing "ethical lines in the sand" a little further on.

I recall reading once [Cf. *In the Wake of the Goddesses* by Tikva Frymer-Kensky] that the pagan religions put nature in a mediating position between God and man. Human beings were dominated by the things around them and could come to God only through nature. The author then went to some pains to show that Judaism (and through Judaism, of course, Christianity) reversed the perceived order. The Jewish, and later the Christian, revelation asserted that mankind was in a mediatorial role between God and nature. It is through us that the rest of the universe comes to God. The covenant is not with creation; it is with us. Nature comes to salvation in and through our service to God. St. Paul sees even the angels learning about the fullness of God's will through the Church (Ephesians 3: 8-11):

I, who am less than the least of all the saints, have been entrusted with this special grace, not only of proclaiming to the pagans the infinite treasure of Christ but also of explaining how the mystery is to be dispensed. Through all the ages, this has been kept hidden in God, the creator of everything. Why? So that the Sovereignities and Powers should learn only now, through the Church, how comprehensive God's wisdom really is, exactly according to the plan which he had from all eternity in Christ Jesus our Lord.

Is monetary profit the problem? If so, this is a question of justice and the distribution of wealth. If the issue is monetary profit, the absence of a call for a moratorium on genetically altered plants is a problem, at least for me. Why are we not calling for a moratorium on hybrid corn? Producing hybrids has been and is a profitable enterprise. The petition gives a theological reason for a moratorium: creatures are divine creations and not human inventions. But everything that exists is a divine creation. If we turn to Genesis, we are told to "subdue and conquer" the earth and *all* that it contains. If we stick with the Bible long

enough, we are told in the 13th chapter of John's Gospel what "subdue and conquer" means: I am Lord and Master, and I am washing your feet. In his recent encyclical, *The Gospel of Life*, Pope John Paul II writes: "Man, as the living image of God, is willed by his Creator to be ruler and lord. . . . Called to be fruitful and multiply, to subdue the earth and to *exercise dominion over other lesser creatures* (emphasis mine), man is ruler not only over things but especially over himself, . . ." We do no one a service by blurring the clear message of revelation and tradition about animals, plants and everything else (except other human beings) being for our use. The real question here is the notion of stewardship (conservation versus what I would call artisanship). Can we take the material of creation, including plants and animals, and change its shape and function to serve mankind better? We have been doing this since the dawn of human history. Does our exercising our human imagination and technical skill detract from the Creator's vision of His universe? I personally do not think so. We may not, however, use the things of creation for our own selfish goals, if those goals run counter to God's goals.

Dr. David Byers, Executive Director of the Bishops' Committee on Science and Human Values) noted (Cf. the O'Brien article in *The Providence Visitor*) that the petition does not adequately distinguish animal life from human life. It's easy enough to say that such a distinction is merely peripheral to the concerns of this petition. That is possible, but in a culture that seems to be urging animal rights more and more it is ever more necessary to stress such a distinction. In the past I have been roundly criticized for suggesting that the romantic sentimentality of someone like Walt Disney is partly responsible for the anthropomorphic view of animals like Bambi who show human emotional and intellectual responses. In this, Disney is not too greatly different from James Fenimore Cooper who, in his *Leatherstocking Saga*, found all vice in urban living and all virtue in the trackless forests of 18th and early 19th century America.

The Christian faith (and incidentally Western civilization) is built on the understanding of some sort of a hierarchy of being. Such a hierarchy at least implicitly demands a difference in kind between humans and animals and animals and plants. If we are not different in kind from animals, then we have absolutely no right to utilize them to satisfy our needs. But, then, if we are no different from animals would the incarnation of the Son of God as a whale or an eagle, say, have satisfied our redemptive need? Humans, as has been said, were told in the "Protoevangelium" of Genesis to subdue and conquer the world. We have

no evidence that this was ever said to animals, even the serpent. This command to subdue and conquer, especially as it is explained in John's Gospel, does not give us a license to be cruel, does not condone causing needless pain.

We Christians can live only in the world-as-it-is. That is the only world a Christian knows. We may need to try to change it — indeed, that is the task given us by the Lord. Yet we cannot live in a never-never land of sentimentality any more than we can look to some earthly solution for the problems of our sinfulness. The world that Revelation shows to us is one in which humans are at the summit of God's material creation, one in which we are to serve the sub-human creation but not to be subordinate to it. Again, as Frymer-Kensky points out, we mediate God's love to plants, animals and stones; neither they nor the rules that bind them mediate God's love to us. I cannot accept the notion that "animals have rights," although I believe — and try to live by the belief — that we have obligations to them.

In the cover letter sent with the petition, we read: "How did our genes, the biological essence of human beings, become assignable commodities?" The answer is simple: they developed a market value — at roughly the same time blood, semen, eggs and organs like hearts and livers became commodities. "Ah, but we're patenting genes, which makes them the *property* of the patent holder," the petition signers might respond. Indeed, that is a point of view, but, we have no problem saying that farmers (even corporations) own cows, horses, sheep or goats, even very specific cows with names like Bossy. In that sense, the whole petition is a red herring. Ownership is not the problem.

If ownership is not the problem, what is? I suspect the answer to that may be "wealth." But let us continue to try to come to grips with this whole situation.

Biotechnology — animals, humans and God's will

What is the heart of our biotechnological situation?

It has been perfectly clear for at least thirty years that we are on the brink of a new technological revolution, one at least comparable to the agricultural and industrial revolutions. It was clear from the time of the discovery of the double helix structure of DNA by Watson and Crick in the 1950s that we were beginning a new era of human living. Even then the broad lineaments of "progress" were clear: rapid advance in the biological sciences, an equally rapid movement toward technological application and an early promise of a new industry, namely, an industrialization of living

systems. None of this is new any longer. All the early promises have more than been fulfilled — and quickly. Biology has taken over the center of the scientific stage from physics and chemistry. We have, then, experienced an extremely rapid transition from a basically observational posture through biological analysis to a synthetic capability, synthetic in the sense of being able to "build things." In other words, we have gone from taxonomy to industry in a generation.

Along with the stunning advances in the biological area, the culture itself has been changing. The causes of this change — they are manifold — are perhaps as important as the fact, but this is not the place to treat them at length. We have come to what Pope John Paul II calls the "culture of death." His personal consideration of the state of the culture goes back at least to Vatican II when he was one of the authors of the *Pastoral Constitution on the Church in the Modern World (Gaudium et Spes)*. Early in that Constitution we read:

Ours is a new age of history with critical and swift upheavals spreading gradually to all corners of the earth. They are the products of man's intelligence and creative activity, but they recoil upon him, upon his judgments and desires, both individual and collective, upon his ways of thinking and acting in regard to people and things. We are entitled then to speak of a real social and cultural transformation whose repercussions are felt too on the religious level.
(No. 4)

The thirty year period since the publication of *Gaudium et Spes* has been one of the most pregnant (the pun is almost unavoidable in English) periods in the history of mankind. Simply listing the advances in biology alone leaves little doubt about the extent of those "profound changes." We need merely mention contraception, *in vitro* fertilization, molecular biology, embryology, neuroscience, endocrinology, ideas on human origins (evolution) or population expansion to outline some of the major cultural transformations of our day. The three decades since the promulgation of *Gaudium et Spes* have seen a unparalleled spurt in scientific and technological capability. The few years until the end of the century will see a continuing growth — barring global catastrophe, man-made or otherwise. Even more important than the products of this tremendous advance is the effect it has had and has now on the culture itself. In its own way it is expressive of the deepest hopes and greatest fears of the human race. The Second Vatican Council was correct in saying that "man now produces by his own enterprise many things which in former times he

looked for from heavenly powers." (*Gaudium et Spes*, No. 33)

The Pope in *Evangelium Vitae* (No. 21) states:

We have to go to the heart of the tragedy being experienced by modern man: the eclipse of the sense of God and of man, typical of a social and cultural climate dominated by secularism, which, with its ubiquitous tentacles, succeeds at times in putting Christian communities themselves to the test. Those who allow themselves to be influenced by this climate easily fall into a sad vicious circle: When the sense of God is lost, there is also a tendency to lose the sense of man, of his dignity and his life; in turn, the systematic violation of the moral law, especially in the serious matter of respect for human life and its dignity, produces a kind of progressive darkening of the capacity to discern God's living and saving presence.

The nature of the problem to the Pope has little to do with patenting nor even with biological science, technology and industry. Neither the word "gene" nor the word "patenting" is even mentioned in this very long encyclical. The threat is much greater, much deeper and broader than that. The problem, as the Pope states, is the loss of a sense of God, an idea that what we see is all that we get. We might call it secularism, a more or less total denial of any transcendence. In the context of a secular culture — the one we have and the one we must recognize as being in place — a call for a moratorium on the patenting of biological material in this petition is at best a secular solution in the guise of religious concern. Our problem is not patenting. It is not even the commercialization of biological material. The problem is our secular culture and we must face this reality head on.

More than that, even a much more highly developed bioethics is hardly the answer. The only answer is our living as fully as we can in Christ. We need a deeper understanding of our bodiedness and of our body's role in our coming to love God in Christ more deeply and fully. In short, we need the knowledge that leads to love in the world-as-it-is. We urgently need the conversion of the culture; we need evangelization by all the dedicated Christians the scientific/technical community. They are the only real "apostles" in that highly important community.

While the development of bioethics (I would rather call it a bio-morality) is a necessary task for us, it is not sufficient to the challenges we face. A prior and much more important need is a far deeper under-

standing of our bodied nature. We cannot build an adequate morality without an appropriate understanding of the role of our bodies in our salvation. I submit that that role is significantly more important than we usually think, in fact is crucial to Christian living.

In the cover letter to the petition, Peter Quesenberry is quoted as asking the question: "Where do you draw the line?" The truth is that we usually draw the line in a place where it has already been crossed. Over the years I have seen many lines drawn in the bioethical sand — futilely. Lines drawn in the sand are meant to be crossed. Perhaps as a child I was unique, but I doubt it. "Be in by dark" usually meant "dark" plus as many minutes as I felt at the moment I could get by with without punishment. I think the same mentality operates throughout our lives. Prohibitions are meant to be tested, probed, gotten around or even ignored. The observance of traffic laws when we think no one is looking is all the evidence I need to believe that.

Over the years we have developed and talked about many distinctions in bioethics. Despite all the distinctions and proscriptions, things have gone on pretty much as usual. For instance, we have talked about distinctions between therapy and what for years I have called genetic enhancement, between somatic cell therapy and germ cell therapy. They are good distinctions and I have used them frequently during the last quarter century. But making them has not really influenced biological and medical practice nearly as much as our present inability to carry them out physically has influenced our practice. When the capability is present, the distinctions will be ignored. I have never known an ethical line drawn in sand which was not disregarded as soon as the physical capabilities were present. Moreover, are we certain that lines should be drawn where we would at present draw them? The problem we face is not ethical; it is ontological, if I may use that word. Our issues and challenges are at the level of meaning. Ethical discourse is necessary, but it is in no way sufficient, as Harry Boardman (former Secretary-General, Council for Biology in Human Affairs, The Salk Institute) stated in a paper delivered some 20 years ago to the American Association for the Advancement of Science and entitled "Some Reflections on Science and Society: A Terrain of Mostly Clichés and Nonsense, Relieved by the Sanity of Whitehead":

But far too pervasively, these endless biomedical-science-value discussions manifest a deplorable blindness which seems to proceed from an hypnotic fascination with appliances and appliance-makers. . . . The central concern is not

with science or scientist, but with the whole of knowledge -- its benefits, the price it exacts, and its special province; that of ideas. For ideas far afield from science and technology may be the most lethal. Inspiration to man's action lies not in his appliances - as much as they may encourage or inhibit it - but in the spell of ideas and the conviction of mind and heart which they generate.

To change Boardman's language, he is calling for less attention to techniques (and to issues like patenting?) and more concern about the meaning of these new powers. Boardman correctly states that the inspiration to action lies in the spell of ideas. His statement is reminiscent of Augustine's realization that the inspiration to action flows from one's deepest love.

I hope I'm not about to descend into Christian error, but I don't think we have seriously pondered our physical nature deeply enough to draw hard and fast lines in the area of "genetic engineering." I'd like to bring up a few considerations on this. I would appreciate any and all "feedback" on this, pro or con. We all need help in this area; I, perhaps, need more help than most.

I can truly say that ten years ago I was much more confident in the value and utility of the above distinctions (therapy vs. genetic enhancement, somatic cell therapy vs. reproductive cell intervention) than I am now. Perhaps it's simply a realization that such distinctions will be ignored if some new breakthrough is achieved in microbiology. But I think it is more than that. In a fallen world we can, indeed, be all but certain that "use" will be accompanied by "abuse." But my greatest question is this: how seriously have we looked at "bioengineering" in the light of the revelation and of the future Kingdom of God?

A question keeps haunting my mind — and it is truly a question; I have no answer. What if our deliberate use of microbiological techniques to "foster our own evolution" is something that God wants? What if the deliberate changing of our bodies is somehow needed in the development of the Kingdom of God? It's not a question, I think, that we can *automatically* dismiss. In the long run it may possibly be a perverse question, but it is not to be ignored. It may be that these new capabilities will be a snare and a delusion for us, but I don't believe we can say *a priori* that they will be. This is something that concerns me deeply and which I think the Christian community should be concerned about both intellectually and spiritually, individually and corporately.

I do not see the patenting of "new life forms" (whatever the petitioners understand these to be) as a significant issue. The biological future will come upon us whether or not we restrict (or ban) the patenting of biologically active material, genes, plants or animals. Once our race begins to gain the kind of capabilities which we call our own, changes are inevitable. The kind of changes that will occur will be decided by the state of our culture, not by anything else. They will be determined by our estimate of what it means to be human and by what kind of a future we say we desire. It's here, in our present day culture, as the Pope maintains throughout the encyclical, *Evangelium Vitae*, that the use of these capabilities will be determined.

As stated earlier, science rarely determines its own direction. In the 18th century, much of physics was directed to discovering ways to measure longitude at sea. Now we need only recall the Manhattan Project or the fight against AIDS to see science directed to the felt needs of our society. Funding, both private and public, is more determinative of the direction of science than the laboratory bench itself. Which direction will science take in the future? Patenting or no, it will most likely follow the direction of our cultural understanding of ourselves. Will science be directed by some form or other of Enlightenment "wisdom" or by the Jewish and Christian Revelation or by some "ism" or other? This is what *we* must determine first in our own minds and hearts and in the believing community — later in the culture. We do not have a lot of time before these capabilities are fully available; the task is enormous. Theologically and ecclesially we have more or less wasted several decades. We do not have that many more before questions of our bodied nature are neuralgic. Let's use our time more profitably.

We Christians must get our intellectual and spiritual houses in order. I believe it is safe to say that no branch of Christianity is in a position to say that it has answers to questions about our scientific and technological futures. Can it possibly be that what we call biogenetic engineering is God's will for us? We shall not be able to answer that question until we have seriously considered and prayed over the role of our bodies in salvation and glorification.

I maintain that the "patenting of 'life forms'" is peripheral to the real issues that Christianity faces. It is not that a discussion about patenting is totally a waste of time, but it is not the central issue. Theologians have rather neglected the very difficult work of looking at the body in terms of traditional Christian teaching. While none of us should individually think that we are "developing doctrine," development must remain the constant stance of the Faith itself. We

must realize that the content of the Faith must change as we learn more about the universe, ourselves and God's will. Biotechnology was not an issue for Christians in the second, twelfth or even nineteenth centuries. It will surely be an issue for the twenty-first century and maybe for rest of human history.

I must confess that one of my greatest personal fears is saying no to something that God really wants of me. This, I believe, should be a concern also of the believing community. Can that community simply ignore the questions, challenges and tremendously exciting vistas opened up by our physicality. If our bodies are not important, if we were not meant to rise bodily — recognizably ourselves — why did Christ ascend *bodily* into heaven? This is our real task: to discern more deeply God's wishes and prospects for out *bodily* future in the Kingdom. We were never — at least revelation gives no hints — called to be angels either now or in heaven. We must never forget Paul's remark in Philippians (3:20-21):

For us, our homeland is in heaven, and from heaven comes the savior we are waiting for, the Lord Jesus Christ, and he will transfigure these wretched bodies of ours into copies of his glorious body. He will do that by the same power with which he can subdue the whole universe.

Is it possible that one of the modes Christ will use is our biological cooperation — our taking part in changing ourselves physically? I don't know the answer to this question — nor does the Christian community. We should not recklessly adopt *any* position that comes along, nor should we ignore the question. Many gaily painted bandwagons will roll down the bioengineering street. We should avoid jumping on any of them until we know their destinations. At the same time, we should bend every effort to discover where we want them to go. Gregory Nazianzen may have said it best 1500 years ago in *De Ordine Theologiae*:

You see lights breaking upon us gradually and the order of theology, which it is better for us to keep, neither proclaiming things too suddenly nor yet keeping them hidden to the end. For the former course would be reckless, the latter atheistical.

Summary

This petition seems unfortunate to me in that it focuses on what I consider to be a peripheral issue in our rather broader reflection on Faith and science. It may be helpful, not in itself, but in its focusing both scientific/technological and religious attention on the

real issues. I must admit that I was upset when the petition was originally publicized. Now, however, I feel that, if we can turn attention from patenting to the mystery of our bodily life and our relation to the rest of the physical universe, the petition will have served a good purpose. Mr. Rifkin's concerns about profit, greed and wealth, economic realities or fantasies, are not mine, but, if his concerns can be re-directed to the great doctrinal issues inherent in our growing control of living things, so much the better. Religious leaders (200 of them at least) have begun the mysterious journey by finally paying attention to biological concerns. We must help them on this journey — not by supplying answers as much as supplying questions. Our first task is to begin to ask the proper religious questions. Christ in His return to us will provide the answers. In the meantime, all we can do is try to live this mystery in our history, under the aegis of the Lord of history.

I am aware of people's desire for canned answers to canned questions. In its way this petition is such. I also know first hand how difficult it is to get beyond the "how-to" predispositions of our culture. The "what" is far more important than the "how-to," and it is correspondingly more difficult to spur people to consider the deeper issues.

We shall not be able to define anything on a strictly intellectual level. But, then, it is not our task to develop rationales. It is our task to live in history and grow into the love of the God who calls us onward. We read in Mark (4: 26-29): "This is what the kingdom of God is like. . . .Of its own accord the land produces first the shoot, then the ear, then the full grain in the ear. . . ." The Kingdom grows by its own dynamism, but by our effort we can increase the harvest. That is an aspect of our glory.

The author of this review is quite aware that almost all of this material needs a great deal of further thought and prayer. As the last part of the paper notes, we are not trying to find answers; rather we are intent upon seeking the proper scientific and religious questions. A professor of the author (nuclear physics) began every class with the statement: we shall not find correct answers until we have correct questions. In that spirit the above is written.

The *ITEST Bulletin* is a proper forum for reaction to this paper; the editor offers its pages for comment on issues such as those mentioned above — as well as any other issues in the faith/science sphere. We urge our readers to use it for this purpose.

The Editor

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IN MEMORIAM

The Most Reverend William G. Connare
Retired Bishop of Greensburg, Pennsylvania

We also ask your prayers for ITEST members who are ill. May they feel the restoring hand of the Lord.