

We are now experiencing the glory days of Ordinary Time. In one sense, Ordinary Time runs from Pentecost to the "end" of time. We talk blithely about the end of time, but we can't really say that time will in fact end. It's one of those things we'll have to wait to see. I guess we could call it a mystery. We don't know what will happen if time comes to an end in heaven -- beyond knowing that our future life will be radically different. So, now is "the time" to celebrate time. Now is the time to enjoy it to the fullest. Now is the "acceptable time." Let's live it up.

Page 1 DIRECTOR'S MESSAGE

Page 2 ANNOUNCEMENTS

Page 3 "SCIENCE FINDS, INDUSTRY APPLIES, MAN CONFORMS"
Robert Brungs, SJ

For those of us with an academic background these are the easier days -- at least in terms of not having such a strict regimen foisted on us. For those of us who are "worker bees" we can relax at least a bit. Summer, the time for quiet reflection, is upon us. Now is the time when we can go traveling, or swimming, or fishing -- or goofing off. For me, the best recreation is simply relaxing with a fishing pool nearby. It doesn't even matter if I get bites or not. But I bait the hook.

One thing I have found rather futile when fishing. Back in the "olden day" when I was a serious fisherman I would pray to the apostles for bites. It never worked and I couldn't understand why. Then one day I finally realized that the apostles couldn't catch anything unless they had special help from the Lord. Now I just pray that I might come up with good ideas and leave the fishing requests to whoever in heaven is in charge of fishermen. That is now good enough for me.

More seriously, I have found great solace in just relaxing into the Lord. I have found over the years that most of my better thoughts seem to come spontaneously when I am relaxed and my mind is not deeply occupied with the problems of "today" -- things like embryonic stem cells, cloning, genetic engineering, virtual reality, neuroscience -- whatever. I rarely even come up with great thoughts about the faith/science apostolate when I try to.

This summer, in particular, I am reflecting on the education of young children in the faith/science mission and how to raise some money for ITEST to get started on hiring a "coordinator of volunteers" for work with children in the earlier grades. Maybe something will come of all this relaxing. In the meantime, I ask the Lord to grant you a period of relative ease. May the Lord and Lady bless you all.

Robert Brungs, S.J.

The ITEST Bulletin: Publisher, Robert Brungs, S.J.; Editor, S. Marianne Postiglione, RSM

ITEST Offices: Director, Robert Brungs, S.J.
Director of Communications, S. Marianne Postiglione, RSM
3601 Lindell Boulevard
St. Louis, Missouri 63108 USA

ANNOUNCEMENTS

1. **ALERT!** As of July 1, 2005 ITEST phone numbers will be changed from (314)-977-2703 to (314)-633-4626. Please note that change in your records. Our general FAX will change as well and as soon as we have that information, we will let you know. Check the front page of the bulletin for updated figures.

A second change is also in the "works." St Louis University, who presently operates all Jesuit Hall computer and phone services, notified us that they will be upgrading their internet operations. This will require extensive rewiring leading to increased costs with fewer benefits. For example, each web site will have a limit of 30 MB's. Since ITEST now has 70 MB's, we could not function within those limits. Therefore, our ITEST web site will be moved within the next few months to a new hosting location. We are investigating possibilities for a good fit given our "not-for-profit" status. It is important that we retain a visible name recognition, for example, "www.ITEST.(insert appropriate extension, i.e., "org" or other)...". With a change in the web site the e-mail addresses for staff at ITEST will be different. Again, we would like to have this entire reorganization completed by September at the latest. "We live in hope." If you could suggest a hosting entity we might investigate, or if you already "inhabit" space on a reliable location, please let us know via e-mail or phone (314)-633-4626 as soon as possible.

Remember, although our phone change will take effect July 1, our web site and e-mail will remain the same until we notify you.

2. **A NEW RELEASE:** The bound and edited proceedings from the October, 2004 workshop on *Computers, Artificial Intelligence and Virtual Reality* should be available within a few weeks. Only dues paid members 2004, 2005 will receive this book as part of membership. If you haven't renewed yet this year, please take a moment to send in your dues.

3. **October 14-16, 2005 Workshop: Biological Advance, Patenting and the Law.** Just a reminder to those who wish to sign up for this workshop. You may register online under the heading: "Current Items of Interest" on the ITEST web site. We also accept phone registrations paid with VISA, MasterCard or check. The venue is Our Lady of the Snows Shrine in Belleville, Illinois, a half hour drive from Lambert Airport. The cost of the workshop will be \$225.00 for members; \$250.00 for non-members and \$135.00 for students. The cost includes

room, pre-papers, conference materials, snacks, etc. A complimentary continental breakfast is available in the Hotel each morning. Each registrant pays for his or her own meals.

Our essayists for this workshop: Dr. Joseph Murphy, SJ (Theology), *Human and Subhuman Genetic Manipulation in Relation to the Theology of the Body and the Marital Structure of Reality*; Mr. David Saliwanchik, Esq. (Law), *25 years of Patenting Life: What Have We Learned; Where Do We Go from Here?* Dr. Randy Prather (Animal Research), *Reproductive Biotechnologies*; Dr. Brendan Niemira (Agriculture) Scientists and Salesman: *The New Ownership of Biotech* and Dr. Kevin FitzGerald, SJ (Human Cloning and Stem Cell Research) *Can Human Biological Engineering Be Good for Us?* You may view titles and abstracts of the essays on the ITEST web site. Click on "Current Items of Interest" and follow the instructions.

After our program was set, the essayists chosen and the invitations printed, Dr. Rudy Brun, ITEST member and Emeritus Professor of Biology, Texas Christian University, asked if he could deliver a short paper presenting the "pro" side of embryonic stem cell research. Subsequently, the ITEST Board gave its permission at the April meeting. You may view Dr. Brun's title (*Therapeutic Cloning Does Not Destroy Embryos*) and abstract as well on the ITEST web site.

4. **Good News!** We have received the promise of partial funding from one granting institution for our faith/science educational project, *Exploring the World, Discovering God* (tentative title) See ITEST Bulletin Vol. 35. No. 4 for description of project, while we wait until the end of July to learn if we will receive a larger funding request. With this initial funding we will be able to start in earnest to organize the various components or pieces of the program, for example, project coordinator, teachers, program content, methods and materials, among others. Do you have any suggestions for a good coordinator who can work essentially on a "stipend-like" fee. If you have such a person in mind, please get in touch with us as soon as possible. Because the ITEST Board sees this project as perhaps one of the most important efforts ITEST has addressed in the faith/science ministry, they have agreed to devote the October, 2006 workshop to the faith/science theme: *A New Education for the Faith/Science Ministry?* (tentative title). More information will be forthcoming in this workshop in future ITEST Bulletins.

"SCIENCE FINDS, INDUSTRY APPLIES, MAN CONFORMS"

Robert Brungs, S.J.
Director: ITEST

Introduction

If I were asked to pick five or ten sculptures which best express the Enlightenment's view of the future, one of them -- maybe even the best -- would have to be Louise Lantz Woodruff's statue, *Science Advancing Mankind*, at the Chicago's Century of Progress Fair in 1933.

That statue really emphasizes the slogan of the World's Fair: SCIENCE FINDS, INDUSTRY APPLIES, MAN CONFORMS. That slogan is still able after many years to send chills up my spine. I believe that those who sponsored the Science and Technology section of the World's Fair actually believed in the spirit asserted in that slogan.

The Way It Was (or Seemed)

In the United States the time between the world wars was a period of the highest hopes and the greatest despair, of escapism and hedonism on the one side and abject despair on the other. It was a time of growth and of decline, both occurring at the same time and for many of the same reasons. There was great "progress" in industry as well as the loss of jobs that comes with the obsolescence of older technologies. There was the mad dash toward restlessness and rebellion inherent in the behavior of many younger people in the Roaring Twenties. Older authority had been shown to be "wanting" and people were throwing off the yoke of traditional ways of doing things. Old ways of doing things were being replaced and the future was one of unknown ease and "the good life." Or so it seemed to many, especially the young who were eager to "move on."

To many others it was a time of living in grinding poverty, looking for work, coming to grips with the end of World War I and the birth of a whole new world. The trauma of trench life (and death) still haunted many. I can remember the war haunted sentiments of some at the time of the American Legion's Convention in Cincinnati in the latter part of the Thirties. By 1933 the bloom was off the rose in much of American society. About a third of the work force could find no work. They lived as best they could doing odd jobs or just living off the slim resources of others only slightly better off. They worked for the WPA or joined the CCC. They were at best just able to get by until approximately 1940 and the beginning of war time work.

These were the conditions at the time of the World's Fair. But the future was already beginning to show pro-

mise of inevitable progress, despite the Depression. The World's Fair attempted to solidify the notion of this inevitability with its spreading the notion of far, far better things to come through industry and machines in the near future. The history of the next 70 years has been one of more and more and better and "better living [first] through chemistry", next through nuclear energy, biology, computers, genetics, neuroscience and now structural chemistry. Does the future portend inevitable advance -- or inevitable decline -- or some of one and some of the other?

The notion of Progress, as found in propagandists like Proudhon and Condorcet, is finally only a secular version of Christian hope, a hope for complete union with God.

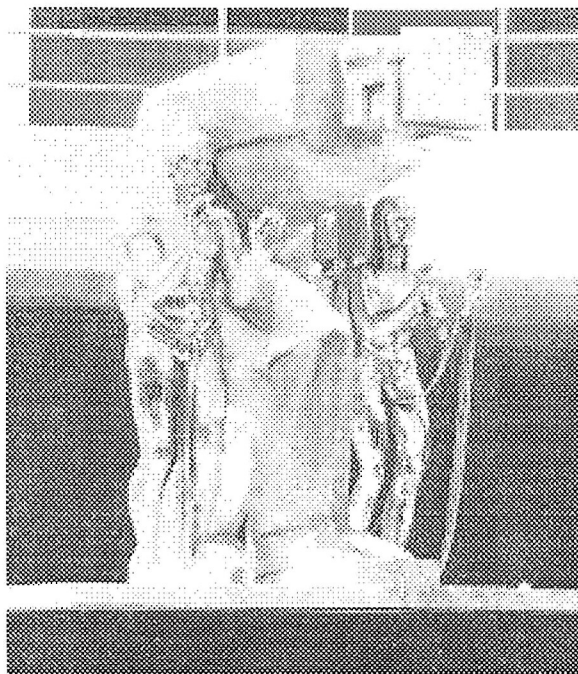
There was a fountain at the entrance to the Hall of Science with the Exposition's theme. According to the promotional literature "the theme of this fountain -- Science Advancing Mankind -- is represented by the great robot-like figure typifying the exactitude, force and onward movement of science, with its powerful hands at the backs of the figures of a man and a woman, representing mankind." Lenox Lohr, the manager of the Exposition, said that the robot was urging man and woman -- human beings -- on to *the* fuller life. The implication of both the statue and the motto was clear: science will find the way forward and industry will bring it about. All we humans have to do is move where we are directed. It merely took the advent of the Atomic Age (and then the Nuclear Age) to introduce doubt into people about inevitable progress into the future.

The Idea of Progress

But the "future" didn't start with the Chicago World's Fair. I believe we could trace the "progressive" idea of the future back to the beginnings of our awareness of ourselves. The notion of Progress, as found in propagandists like Proudhon and Condorcet, is finally only a secular version of Christian hope, a hope for complete union with God. In the case of union with God, "control" is not something to strive for. In fact, the complete opposite -- lack of final control, ecstasy -- is to be sought after. It is a case of complete and final surrender to God's love that is sought. In the case of rationalism derived from the Enlightenment "progress," scientific and technical control is a prerequisite. This was the theme of the Chicago World's Fair. After all, the Hall of Science was at the focal point of the fairgrounds to

stress the "Century of Progress." The fair was only a moment in the "inevitable march forward" of the human race. We shall return to these authors and themes later.

Louise Lantz Woodruff's statue shows a robot bending down over two human beings. A space is created by the robot with its hands at the back of the human being more or less urging them into the future. The placement of the hands and the hovering of the upper body of the robot over the male and female resembles space within the womb. The message of the sculpture, reinforced by the motto of the fair, made its meaning quite clear: from womb to tomb science, technology and industry lead man into an earthly promised land. Science finds and in finding brings nature into more and more complete control of what we know and what we can do. Technology and industry advance that knowledge and likewise the control over the human. All human beings have to do is conform to their dictates.



SCIENCE ADVANCING MANKIND

The whole element of *control* is at the foundation of the notion of progress at least as we have it from the Enlightenment. Reason, being above all other human powers, will bring order and control into human lives: Control over the forces of nature and the environment will gradually come to humankind. As we develop, "Reason" will more and more dominate our lives and with accelerating momentum we will simply become better. We may by now have assumed a glimmering of doubt about the nature of "control" inherent in the statement "science finds, industry applies."

Let's go back many hundreds of years to the time of early medieval life, to the end of what we call the Dark Ages. It was not a time of systematic research into the forces of nature and of the environment. Men did what they did partly because their fathers had done things that way but also because some new things worked better. Many of these "new thinkers" were monks who needed things for their monastic form of life. Thus the clock and the metal plow came in existence. Farmers, and Jacob with his sheep in Genesis, practiced rudimentary genetics. Ship building improved and people began to come together for protection as well as to ensure a better way of life. Trade grew. Life improved, at least in the cities and at least for some people. But "Progress" was coming. Progress was developing in an atmosphere of both faith and reason until the rise of the Enlightenment.

With the Enlightenment came the divorce between faith and reason. Reason was given the place of honor with no room at all left for faith. More and more, belief was relegated to the level of the merely subjective and influential only in private life. Auguste Comte (1798-1857) in his "great work", *Cours de philosophie positive*, wrote that the great fundamental law is that each branch of our civilization and of our knowledge passes successively through a theological (fictitious) stage to a metaphysical or abstract stage (adolescence) to the scientific or positive stage (mature manhood). In other words, without specifically saying so, Comte relegates any belief in God to the lowest state of human knowing.

I don't think that Comte really understood the radical divorce between divine Providence and human provision that he and others were proposing. It was not so much the notion of individual belief that the Enlightenment *philosophes* were denying but the social effects of belief in things like divine Providence. If Providence was active and effective on the level of society, then the presuppositions of Enlightenment philosophies were questionable. That was an intolerable situation, so each of the philosophies had to stress the total subjectivity of faith in God. In other words the modern secular religion of progress (it is a religion) cannot co-exist in its present form with the notion of divine Providence. Keeping this fact in mind will help us understand some of the strands of culture that we as religious people are encountering and handling.

Karl Löwith (*Meaning in History*, University of Chicago Press, Chicago and London, 1949) remarked (p. 61) that Pierre-Joseph Proudhon (1809-1865) had the keenest insight into the anti-Christian implications of the modern religions of progress. He is the "theologian" of progress and, as such, the most radical critic of Providence. He understood that the recognition of and submission to

either pagan fate or Christian Providence is incompatible with faith in progress, which is essentially revolutionary and worldly. Christianity, the great revolt against pagan fate, replaced impersonal fate by personal Providence. The task of the modern revolution, according to Proudhon, is the *défatalisation* of divine Providence by putting into the hands of humans and of human justice the direction of all human affairs. Man has to replace God, and the belief in human progress has to supplant the faith in Providence.

While Voltaire and Condorcet were anticlerical and anti-religious by temper and policy, Proudhon prides himself on being radically anti-theistic. He says, "The veritable virtue which makes us deserve life eternal is the fight against religion and God himself, for 'God is *the* evil.' We attain to science in spite of him, to well-being in spite of him: every progress is a victory in which we crush the deity. By and by man will become the master of creation and thus equal to God. Instead of man's being created in the image of a providential God, God is created in the image of man's power of foreseeing and providing. 'Take away this providence and God ceases to be human.'" (Löwith, p. 63)

We can see in this very brief review of some of the philosophical positions of men like Comte and Proudhon the ideological underpinnings of the Chicago World's Fair Hall of Science. The central figure is neither God nor human creativity. It is a tall robot bending down to push humans into the future. A more mechanical, mechanistic image can hardly be imagined. No longer do we look to God, or even to ourselves, to provide the vision of the future. We are to pay obeisance to and give thanks to a robot, presumably a work of our hands. Talk about arrogance and idolatry! This reminds me of the quote from Scripture (Psalm 115):

Not by us, Yahweh, not by us,
by you alone is glory deserved,
by your love and your faithfulness!
Do the pagans ask, "Where is their God?"

Ours is the God whose will is sovereign
in the heavens and on earth,
whereas their idols, in silver and gold,
products of human skill,
have mouths, but never speak,
eyes, but never see,
ears, but never hear,
noses, but never smell,

hands, but never touch,
feet, but never walk,

and not a sound from their throats,
Their makers will end up like them,
and so will anyone who relies on them.

The above quotes from the philosophers exemplify several stages in the history of Enlightenment reasoning leading up to the 1930s and the Chicago World's Fair. The Century of Progress was not revolutionary; it was merely enunciating the thoughts and expressions of the Enlightenment. It astonishes me that the "great minds" of the 19th and 20 centuries could buy into the glorification of Reason. The quotes here strike me as little less than complete insanity.

... so each of the philosophies had to stress more and more the total subjectivity of faith in God. In other words the modern secular religion of progress (and it is a religion) cannot co-exist in its present form with the notion of divine Providence.

Seventy years later the motto, *Science Finds, Industry Applies, Man Conforms*, is still bizarre. As a society we have not repudiated its excesses. We still adhere to the belief of inevitable scientific and technological progress. We have done much in the intervening seventy years, learned much about the power of the "new" technologies -- for good and evil. But the rhetorical art form has not vanished. I have heard accents very much like that motto at conferences on the wonders of biotechnology, virtual reality -- really all scientific fields where every new thought is pronounced a breakthrough. I have listened to those types of pronouncements from serious scientists with superb international reputations. It can be seen with the declaration of *potential* benefits of embryonic stem cells before the work even has begun. It's all part of the "doctrine of progress." And it's all merely rhetoric.

The "Theology" of Secular Progress

Modern thought on the subject has basically reduced the meaning of history to mere continuity. The modern overemphasis on secularist history as *the* scene of humankind's destiny is an Enlightenment fleeing from the natural theology of antiquity and the supernatural theology of Christianity. The Enlightenment could not handle supernatural theology built on faith, so it divorced that aspect from "serious and mature study." A lovely rhetorical move! In so doing the Enlightenment forgot about the Incarnation, literally just ignored it.

Comte, Proudhon and Marx in turn rejected divine Providence out of hand and replaced it with a belief in progress. In so doing they perverted religious belief into the anti-religious attempt to establish predictable laws

of secularist history. The Incarnation ceased to be an important event, much less *the* most important event to "historical humankind." The Incarnation has little to do with the secularist notions of history. The more we are concerned with God's actions in the world the less we are concerned with the meaning of total secularist history. We will come back later to the notion of God's activity in the world and the human response to it.

According to Löwith (Löwith, 194):

The philosophy of history has become a more fundamental concern than ever before, because history itself has become more radical. Not only have the innovations by natural science accelerated the speed and expanded the range of sociohistorical movements and changes, but they have made nature a highly controllable element in man's historical adventure. By means of natural science we are now, as never before, "making" history, and yet we are overwhelmed by it because history has emancipated itself from its ancient and Christian boundaries.

How will we go into the future? Are we convinced that this impersonal juggernaut called Technology will guide us willy-nilly into the Promised Land?

This "emancipation" from Christian meaning that grew out of the Enlightenment has one element I have mentioned — control. We find it in the notion that the future will be found by science and applied by industry. Our conformity to the "future" is mandated and guaranteed by the meaning given to science and industry. Who gives the meaning? If we look to the motto of the World's Fair and to the sculpture, "Science Advancing Mankind," we get the distinct impression that *no one* is presenting the meaning. It is inherent in science and technology. It is just a fact of nature. It represents an impersonal force in our lives. We carry no responsibility in any way for what will happen; our only task is to conform ourselves to it. That is what the slogan means to me. The direction of science and industry is an inevitable fact of nature.

Science will find, industry will apply and humankind will conform. It does not matter at all whether we act responsibly or not. In fact, it seems to me that nothing we would do makes any difference at all if we follow the motto. We must conform to science and technology. That to me is the frightening notion stated in the motto *Science Finds, Industry Applies, Man Conforms*. This is especially true when it comes to things like human clon-

ing and embryonic stem cell research. Let's take embryonic stem cell research and use it as an example.

First, who is pushing this research? The scientists? The medical community? The politicians? The pharmaceutical companies? The philosophers? The press? Is it an alliance of all of these disparate professions? It is not some impersonal monolith trying to get the government to sponsor embryonic stem cell work. It is people. In Missouri the "coalition" cuts across all segments, especially the "scientific communities" (particularly the biologists and companies engaged in biological and genetic research) and the deep pocket people.

Influential politicians like John Danforth (he used to be a prominent politician, his brother an educator and his family involved with the Danforth Foundation) are making speeches and writing articles and editorials in an effort to win politicians and the public to his point of view on embryonic stem cell research. Why push the government to engage in this type of research, especially since there is no scientific work showing more than the potential ability to develop helpful protocols? Is it that the pharmaceutical companies don't have enough money to fund such research? Is it that this research is so controversial that only the involvement of the government will justify it? Is it so risky that scientists don't want to do the experiments unless they have the government telling us that it's good, true and beautiful?

The whole debate on stem cell research is being skewed by the media. A few weeks ago on Sunday night TV, the moderator of a magazine-type program suggested that the new Pope *must* change the Church's stance against "stem cell research." Over and over again the program stressed that the Church was against stem cell research. The obvious implication of the statement was that the Church is against *all* forms of stem cell work. That is simply not true -- and what is more, it is clear to all who pay the slightest attention, that the real position of the Church is quite different from all-out opposition. But it seems necessary to the media "propaganda" that it be made to look true. Why make a "moral" controversy if one can't portray the Catholic Church as old-fashioned, out of it and obscurantist? But more of this later.

How will we go into the future? Are we convinced that this impersonal juggernaut called Technology will guide us willy-nilly into the Promised Land? That implies that we have nothing to say about the future, nothing to add or nothing to subtract. Some people may believe that. I don't. I believe that we can proceed into the future in a moral way once we clear away some of the notions of a relativized morality. How can that be done? We might ask, "After all, I am only one person. What if no one

agrees with me?" Well, if no one agrees with me I shall have to go it alone or give in. Which do I prefer? Which do you prefer?

If, however, we heed the message of the Church we can at least count on some people to join us in our procession to the eschaton. On the way we can actively engage the Church's hierarchy on the question of the meaningfulness of our approach to technology and the questions involved in directing it. We can make suggestions about this or that technique but we always have to keep in mind a statement made by Dr. Harry Boardman in a speech at the American Association for the Advancement of Science (AAAS) about 30 years ago (Boardman, "Some Reflections on Science and Society: A Terrain of Mostly Clichés and Nonsense, Relieved by the Sanity of Whitehead," no publishing data available):

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 -- but in the spell of ideas and the conviction of mind and heart which they generate.

We should not forget those words. In the case of embryonic stem cells the most important aspect of the research is the control over the human reproductive mystery introduced by *in vitro* fertilization. We will return to this contention later. It is central to the development of the theme of control we might develop if we are not wary.

That we are working to tame the exuberance (maybe generosity would be a better word) of God's creation can hardly be denied. The zest, the seeming exuberance, of creation is slowly coming under what purports to be the domination of humankind. What we are being promised is God's creative wonder ruled by unimaginative "scientists", entrepreneurs, industrialists, politicians and even theologians. This, we are promised, will truly set us free. But truly, what human idea even compares with the imaginativeness of human life -- of any kind of life. Is the best statement of human imagination to be found in the development of clones? Isn't this really "dumbing down" the creative desire for diversity? God obviously "worked hard" to produce diversity and surprise in human life and we think we can confine that expansive divine love into Darwinian evolution and

embryonic stem cell research. We'll return to the debate about using embryonic stem cells later.

Part of the human response to God's universe is the attempt to "control" the cosmos, exercising dominion under God, not in opposition to God. Admittedly that distinction could be (and really is) somewhat tricky at times. According to Genesis we are to "subdue and conquer" the earth. What "subdue and conquer" means will change as time goes by. It might be conquering the wilderness or "subduing" our greed in using the gifts of God. People are to use their imaginations to make their lives easier as long as it is done in conformity to God's will. We have to ponder what God's will is, argue about it and then come to judgment. Once that is decided, our scientists and politicians can debate the techniques.

That we are working to tame the exuberance (maybe generosity would be a better word) of God's creation can hardly be denied. The zest, the seeming exuberance, of creation is slowly coming under what purports to be the domination of humankind. In our own way we are trying to domesticate God.

The above idea may seem academic -- even totally abstract. In practice, some researcher -- a scientist or one of the elite -- has an idea for an experiment. Nowadays that's all it takes: an idea that *may* be researched. No time is "wasted" on questions of morality or the will of God. "We have to do this now." Granted there are some occasions where this type of urgency may be necessary and is certainly a good. The SARS epidemic is an example of a situation where time was and is essential. But many things that are proposed biologically could well wait while some *real* debate is undertaken. All sides of the debate should be heard. The world is polarized and debates end up as minds "passing each other in the dark" and going on their own way without any real interaction.

We believers can't be trapped by the notion that no change in creation is permitted or desired. Human ingenuity should in no way be trammled by a Luddite view of the universe. God has put an extravagance of "tools" at our disposal. He truly wants us to use them to share in his divine creativity. We are called to participate in God's creative nature, in the Holy Spirit's activity to *renew the face of the earth*. We can look into space and create images of many things -- none of which are remotely possible at the moment. Some of them may some day be possible -- but not now. Our ability to imagine, to create in our minds new worlds and new human situations makes space a topic for

imaginative novels. We cannot simply say no to the prospects that are opening up for us.

But we still have to worry about those researchers and politicians who do not accept the possibility of God's existence and creation of the universe. They see things in a completely different light. Instead of being innovative in research to praise God, their attitude may be that of Proudhon, namely, of "crushing the deity." They may well see their research and their technological innovation as denying all God's activity and even God's existence. These scientists and politicians are totally set against anything that may even hint of God's existence. They certainly would not ascribe to St. Augustine's notion of the *vestigia Dei*, the "footprints" of God.

They radically contradict the notion of the existence, creative beauty and intervention of God into human affairs. I would think that the last hundred years of human history would be sufficient to shake their faith in inevitable human progress and human perfectibility. But some belief systems, especially those that don't manifest belief in God, seem quite unshakable. It is as Chesterton and others have pointed out -- in an age of unbelief people will believe in anything so long as it not written in the Bible. But if the natural faith of these people has not been shaken by two bloody world wars, revolutions and insurrections, plagues, deliberate starvation of millions of people, HIV/AIDS, SARS, influenza and ebola, my voice will not be enough to shake them. They are driven to deny God's existence or, if perhaps he should possibly exist -- no matter how remote a possibility that is -- his complete lack of concern with humanity or any of the things he created. How many times have we heard that God is not interested at all in human affairs?

... the townspeople were saying that by their own power they were the equals of God. They said, 'Let us make a name for ourselves.' That was enough for God to recognize the challenge.

I can't understand such an attitude. I have no doubt that it exists in some people in the scholarly community. I simply fault it for its lack of imagination. It takes little imagination simply to stand against something -- especially against an often inconvenient belief. This is especially true now, since we don't normally persecute people for what they believe. The best thing to do now is to leave these people to God.

The Tower of Babel

A story about technology and the thrust toward human control comes almost at the beginning of the Bible. I think we are all familiar with the story but it might be well to print the Old Testament account to refresh our memories of the details of the account.

Throughout the earth men spoke the same language, with the same vocabulary. Now as they moved eastwards they found a plain in the land of Shinar where they settled. They said to one another, 'Come, let us make bricks and bake them in the fire.' -- For stone they used brick, and for mortar they used bitumen. -- 'Come,' they said, 'let us build ourselves a town and a tower with its top reaching heaven. Let us make a name for ourselves, so that we may not be scattered about the whole earth.'

Now Yahweh came down to see the town and the tower that the sons of man had built. 'So they are all a single people with a single language!' said Yahweh. 'This is but the start of their undertakings! There will be nothing too hard for them to do. Come, let us go down and confuse their language on the spot so that they can no longer understand one another.' Yahweh scattered them thence over the whole face of the earth, and they stopped building the town. It was named Babel therefore, because there Yahweh confused the language of the whole earth. It was from there that Yahweh scattered them over the whole face of the earth.

Whatever the history and motive of the story in Genesis 11 was, the details recorded are quite interesting and instructive. The first thing that comes to mind is that God did not have any problem with the people making bricks which they then fired -- replacements for rocks and stones. In a sense God is declaring that the substitution of human artifacts for "natural" things is good. That is one way humankind develops. It is as if God looked on brick making and found it good.

Problems did not happen until the people of the town became overly ambitious. They evidently completed the town and went to work on a tower. It seems that even work on the tower did not bother God too much until the inhabitants concluded that by building the tower to reach heaven, they "could make a name" for themselves. In effect, their technology could replace divine Providence with human foresight.

It may seem foolish to link this little story to contemporary events. After all, what can we really make with bricks that would run competition to God? I believe God was quite convinced that humankind through

technology could never even approach the wonders he had created. But their motive, their intention, was another thing. Equivalently the townspeople intended that their own power would equal God's. They said, 'Let us make a name for ourselves.' That was enough for God to recognize the challenge to his creative will.

That kind of intention has its equivalents today. The desire for absolute technological control is evident in some biological circles. It no longer involves simple things like bricks. Bricks were probably the cutting edge of technological "progress" at the time of the Babel story. Now, human life and death finds itself at the leading edge of technological "progress."

At the October, 2004 ITEST Workshop on *Computers, Artificial Intelligence and Virtual Intelligence*, Dr. Gregory Pouch made the following connection:

The redefinition of terms, in particular the redefinition of terms so that they do not correspond to God's definition of terms, is more or less the basis of Original Sin. We have the serpent and Eve trying to form a committee to overrule God. They want to say whose semantics should govern good and evil. "Don't we have as much right to declare what is good and what is evil as God Almighty, Creator of heaven and earth?"

God seemingly reacts to the challenges of those intent on the redefining of good and evil. He did so in Babel. As soon as the people of that town decided to "make a name for themselves" God "moved in on them." In a sense some biology researchers these days, like many people before them, are intent on "making a name" for themselves. Prestige, being first on the priority list and making a name for themselves, is important to them.

A part of the control of human biological processes starts with renaming of things. What we now call a "fetus" we used to call a baby. Pregnancy used to be a "blessed event." Now it's often considered to be a disease. Children used to be called "a gift from God." Now they are burdens and who wants or needs burdens? We routinely talk about oocytes, embryos, fetuses; these are words that were hardly ever used thirty or forty years ago. They have the "advantage" of dehumanizing the human person in the womb. It is one way of lessening the respect for the human being before it is born. It is a part of being more in control of those who have the good luck of being conceived. The tactic works often enough.

The real control, though, can happen earlier. The process is called *in vitro* fertilization -- a description of the fertilization process which transforms what is probably

the most important part of the process, its beginning. In a "normal" act of intercourse, granting the presence of the woman's egg, anywhere from 50-100 million sperm "swim" around the egg, each trying to be the one which will fertilize it. Usually only one sperm, if any, will be the one to accomplish the "task." The odds are roughly in the tens of millions to one that any specific sperm will be the lucky one.

In *in vitro* fertilization the odds are radically reduced depending on the number of sperm involved in the procedure. In principle at least, only one sperm is required. That reduces the "giftedness" of the process and the chances of the possibility of unpredictability contained in the odds above. Theoretically, it is the technician who judges the "appropriateness" of a given sperm to fertilize the egg. That judgment is left to the technician or the great "goddess" Chance rather than to God.

In a sense some biology researchers these days, like many people before them, are intent on "making a name" for themselves. Prestige, being first on the priority list and making a name for themselves, is very important to them.

One argument that is never made for *in vitro* fertilization is that it furthers diversity. *In vitro* fertilization can't be used as an argument in favor of Darwinian processes because it closes down opportunities for real change in the human -- at least on the theoretical level. What we have is a human being choosing the sperm to be used in *in vitro* because it *looks* healthy. It may look healthy, but the technician doesn't know how it will interact with the woman's egg or even if it is "healthy." It may result in a humdrum match or it may not match at all. It may even be a lethal "mismatch." But it is a form of control over the reproductive process and it ought to be recognized as such. It does not promote the "uncontrollable" diversity that is characteristic of normal intercourse. In a way that Proudhon would approve of, divine Providence has at least partly been replaced by human prevision.

It seems doubtful that human reproduction will ever depend solely on *in vitro* fertilization. But there are ways of insuring that that *could*, but probably won't, happen. But that is now. Will it be equally doubtful in 50 or 100 years? We obviously cannot say one way or the other. We can only say now is that it will be a significant, if not total, reduction in human freedom. Can such a reduction ever occur? Possibly not, but that does not lead to any certainties. Population "control" as advocated by some is an attempt to undermine human freedom. And the more we move away from the notion of

divine Providence to that of human prevision the more we risk our true freedom. Human prevision is indeed a shaky foundation for freedom. Human beings like to "be in control." That in itself is a matter for grave concern about the future.

As we gain more and more control over the human being, the more our freedom is threatened. It might sound good to make promises about future cures and amazing new human abilities and powers. But we may also be concerned about what this will do to human life and human freedom. Will there be any choices left to us once all the glowing scientific and technological promises come true -- if they ever do?

Science and technology are designed to enhance human freedom, not to make man conform to the results of science. The whole thrust of Christianity is toward human freedom as is that of science and technology as "children" of Christianity.

Let's return to the scriptural passage about the Tower of Babel. What was God's response to the overweening arrogance of Babel's inhabitants? God saw that the technical ability of the people to "make a name for themselves" by constructing the tower was the fact that they had but one language. By confusing the language God secured the abandonment of the project. Now, the language of science and technology is being unified again. Almost every scientist in the world has at least a reading knowledge of English. English is becoming the *lingua franca* of science and technology. Scientifically, we are slowly becoming a people (maybe this is too sanguine a statement) with a single language. What did God say.

God said, "Come, let us go down and confuse their language on the spot so that they can no longer understand one another." Personally I don't want an alternative to the current "one language" of science and technology. I can see many alternatives to what we have now, but in the end they all result in curtailing a lot of good research. Will we retreat from using reason as the basis of science and technology? I don't think so and I certainly hope not. At the same we should realize that science and technology does not represent *all* thought. Such a flight from reality can actually happen if fundamentalists of extreme stripe gain power in the world. I don't think that we can go back except as a result of violent overthrow.

The assumptions of deconstructionism will not gain many adherents in the laboratories and factories of the world. But these assumptions could lead to some "crazy"

social ideas and experiments. Science and technology are a part of society. But we have to be aware of the possibility of this "craziness" somehow affecting science and technology. Let me recommend a book on science and deconstructionism: *Higher Superstition: The Academic Left and Its Quarrels with Science* by Paul Gross and Norman Levitt, 1994. [A review of this book was published in the *ITEST Bulletin*, Vol 26, No 1.]

God does nothing which is not innovative. We have no evidence of God ever doing the same thing twice. God's call, say, to Gideon to crush the Midianites was not the same as God's calling of Elijah or of Mary of Nazareth or of Paul of Tarsus. God's punishment of the Egyptians trying to overtake the Jews at the Red Sea was different from the punishment of the same Jews in the desert or after they had defeated the Canaanites and settled in their land. The Hebrew Testament is replete with the different ways God dealt with his people and the same is true in the New Testament. I would opt for God using different and unforeseen ways to stop humankind and its science if a continuation of the science threatened the future of the race. God may not see things that way, or again he might. We simply do not know what his will is in this situation. He might even let the human race destroy itself with its research and experimentation.

The notion of man conforming to the dictates of a scientism -- and to the activities of industry is sufficient for me to see the slide back into slavery. Science and technology are designed to enhance human freedom, not to make men and women conform to the results of science. The whole thrust of Christianity is toward human freedom as is that of science and technology as "children" of Christianity. Human prevision will not set us free; freedom comes from the loving Providence of God. We can be truly free only if we truly love and there is no provision for love in human prevision -- Proudhon, Freud and Marx notwithstanding. At best, human prevision is the result of the application of Reason to problems and Reason never resulted in love.

Scripture states that "God loved the world so much that he gave his only Son, so that everyone who believes in him may not be lost but may have eternal life." Reason divorced from faith has little to do with God's activity in the world. "Scientific Reason," as stated by Daniel Dennett and others, has little to do with reality. Their writings are literally bereft of divine attribution and, therefore, at least in my opinion, contain little of lasting value. I am sure they have their own apologists and need no agreement from the likes of me. Still they don't enlarge my imagination; rather they seem to be quite restrictive. They are story tellers trying to build up enthusiasms among people whom they are shortchang-

ing.

To return to our theme, God has the power, however he wants to use it or not use it, to subdue the arrogance of the human race. It may well be that God's design includes the pride of people and will simply allow "the worst" to happen. In the foreseeable future the sheer numbers of people with an interest in having children will overwhelm attempts to regulate births on a strictly controlled basis. But maybe not forever. Now the expenses involved in *in vitro* fertilization put it beyond the means of many couples. Again, this may not last forever. Human cloning? I feel certain it will be done successfully at some point in the future -- for "scientifically pure reasons," of course. But I don't see it overcoming the more "natural way" of doing things.

The "creation" of chimeras (man-animal composites), at least for research purposes, will continue, the process will grow and great propaganda will be unleashed for the legitimacy of such practices -- "to learn more about human disease." It sometimes frightens me that I could probably write the propaganda protocols for this type of research. These are merely some of the things we have to look forward to in a biological perspective. There are still other worrisome things being prepared for us in the laboratories across the world. We could add to the list areas like neuroscience, nanotechnologies, artificial intelligence and virtual reality. The human race seems hellbent to conform to science finding and industry applying.

Politicians, following the money and prospects of power, are busy lining up the wherewithal for scientists to do experiments on things like embryonic stem cells. Fifteen or twenty years ago the late Dr. John Matschiner, a biochemist at the University of Nebraska Medical School bemoaned the fact that in "the old days" people had to have an achievement in hand before they called a news conference. That is no longer true, he said. Now scientists call a news conference to publicize a preliminary result that may show promise at some point in the future. Of course, if it *may* work out sometime, it is true also to say that it *may not* work out. For some, this is simply "science by sound byte." In the very long run it will probably prove to have been detrimental to scientific progress. There's that word progress again. It keeps coming up, doesn't it.

About 3000 years ago the Psalmist asked a question that still has direct relevancy now and for the future: "What is Man that you should spare a thought for him, the son of Man that you should care for him?" (Psalm 8) Does God truly care about what we do or don't do? In fact, is there a God to care? Some would say with total assurance that belief in God is totally irrational;

they would clearly maintain, "There is no God. There are only natural physical causes. To think anything else is a sign of weakness in the face of the overwhelming 'nothingness' of space."

As a young priest I was assigned to Johns Hopkins Hospital in Baltimore to fill in for a couple on months for the Newman chaplain who was teaching a course in Brazil. I remember a staff psychiatrist telling me that scientists like him were the bravest of all humans because they could look at future nothingness with total equanimity. I stated that the least of all Christians was even braver because they could look at the "nothingness" of present life knowing that they could be held partly responsible for that "nothingness." That was the last time I saw that particular psychiatrist. Assuming some responsibility for our present activities seemed to be the one thing this person was not brave enough to do.

I can look out at the heavens and I find myself awed by what I see. I do see an enormous universe but I don't see that cosmos ruled by chance.

Belief in God, belief in the Creator of all things, is not the opiate that atheists assume it is. A sense of at least partial responsibility for what we do now in terms of preparing the future for those to come is not a terribly comforting thought for many. We can't lie back in God's embrace and assume no responsibility for the way we treat others and for the way others are treated by "circumstances" in the world. Some are more responsible than others, but all bear some accountability for the "care and feeding" of the universe and for each other. After all, the Lord gave a command to his apostles at the Last Supper: "Love one another as I have loved you."

I think one quote from Isaac Asimov ("The Threat of Creationism," *New York Times Magazine*, 14 June, 1981, p. 98) can be permitted me. This quote is guaranteed to bring a smile to my face no matter how distressed I might be over some issue or other.

.... The mathematical language of science is understood by very few. The vistas it presents are scary -- an enormous universe ruled by chance and impersonal rules, empty and uncaring, ungraspable and vertiginous. How comfortable to turn instead to a small world, only a few thousand years old, and under God's care; a world in which you are His peculiar concern and where He will not consign you to hell if you are careful to follow every word of the Bible as interpreted for you by your television preacher.

I don't know whether Asimov was frightened by the vistas of science or whether he was simply reporting what he thought people who believed in creation thought. I believe in God as creator of all things and these vistas simply do not frighten me. I'm sorry, Doctor Asimov, they don't. I can look out at the heavens and I find myself awed by what I see. I do see an enormous universe but I don't see that cosmos ruled by chance. Quite the contrary, I see it is an orderly procession of planets and suns, quasars and pulsars and even black holes and like the ancients I rejoice in it. Even the black holes don't frighten me, don't leave me quivering with anxiety.

I don't find impersonal rules and chance operating in the cosmos. In fact, I find Doctor Asimov contradicting himself; impersonal rules and chance do not co-exist in the world. In fact, impersonal rules even more than personal rules are in opposition to chance; personalized rules can and do change. Impersonal rules are not likely to change. But let's not worry so much about rules and let's look at what is "out there."

Will the embryo, the recipient of God's greatest gift to humans -- life and the opportunity to love him above all -- be deprived of life by those who say they need the embryo's body parts more than the embryo himself or herself.

What do we see when we explore the cosmos with our telescopes and electronic gear? We see all kinds of "creatures" we can't identify. I often remark that every time new data comes in the astrophysicists have to go back to their theoretical drawingboards. It seems as if every new development in astronomy and astrophysics demands a new addition to our theories of celestial development. So far at least we have not needed any update in "astrobiology" or "astroneurobiology." I will not be disturbed if we find extraterrestrial life. I will merely be excited by finding out that there are other living creatures in the cosmos. After all, Christians above all others must live in the world that is. We cannot live in any other world. It simply does not exist.

Why do Christians have to live in the world that exists? That is the world that Jesus Christ accepted and blessed when he came as a human being. Christ was an infinitesimal dot in the womb as we once were. He grew according to same rules which all children follow -- at their own pace and in their own way. The baby in the womb is in charge of its own development. It grows at its own rate; the mother is there and interacts with it but the baby "knows" its routine and the pace of its own development. It "knows" finally when to be born. The

mother in her personal love and in her own interactions with her child is a close cooperater in all the growth. But it is the baby who initiates each moment of growth.

So Christ grew in the womb and was born in the real world -- one like us in all things except sin. He embraced humanity in all its stages and grew up to be one totally and absolutely like us. He differed from us in that through all of this he remained God. He remained fully and totally God and was fully and totally human. This is the Christ with whom I am in love. As St. Paul said, "In his body lives the fullness of divinity."

Getting back to Asimov, the adjectives he uses are not those of a scientist; they are the accents of a "philosopher." In fact, in a twisted way they are the accents of a "theologian." He is showing us his fundamental world view and it is not my universe he describes as "uncaring, ungraspable, impersonal and vertiginous." It is certainly his. It probably does take courage to live in such a universe. I am glad that I don't live in it. But as I said, I live in the world as it is and always has been.

When we read about evolution in the contemporary "scientifically derived" philosophies we generally see the worldview of people like Daniel Dennett, Carl Sagan, Richard Dawkins and others who cannot admit to a thought not in keeping with Charles Darwin. He is their "Holy Scripture" and they simply will not entertain a serious objection. Such people have no trouble with the philosophies behind things like the government paying for embryonic stem cell research and against all the "old-fashioned" people who object. In reality, they are free to promote their agendum; the objectors must agree with them or cry in the wilderness.

How will God handle the new biological situation? It will most likely be in a way I would never imagine. I say this because God is infinitely more creative in his words and deeds than I am. If God recognizes the research as promoting human dignity and freedom, he will favor it -- maybe even sparking "creative avenues" in the minds of the researchers. If, however, God finds the "new" biological research "a clear and present danger," he will probably take care of it in his own way. God will most likely save us from ourselves. This is not guaranteed. All that is guaranteed is that Christ will return to us and lead us into heaven. Nonetheless, I believe he knows what we need and somehow he will help us carry out his will.

Many of the proponents of human embryonic stem cell research and human cloning are the products of the mechanistic, progressivist school of science and technology. In the name of freedom (which means license to do whatever they want to do in the laboratory and

eventually in society) they promote contraception, abortion, efficient population control, the culling of the weak, positive eugenics and so on. They may not say that they promote these things because that may affect their funding. They are biological "law and order" people, fearful of what is not controlled and disdainful of what is not perfect. They seem to be entirely unaware that the freedom they invoke cannot exist in the world they propose.

I have yet to hear a compelling reason why the federal government (or even state and local governments for that matter) should pay for these "promising" experiments. If they show so much promise, if they are only a billion dollars away from such spectacular cures, let the pharmaceutical companies pay for them. The federal and state governments already have a full slate of things to work on -- fixing potholes, highways, bridges, defense and other problem areas. After all, the pharmaceutical companies will eventually reap the financial bounties.

Actually, though, the federal government will not be the one funding this research. It will be the people whose taxes enable the government's generous support. The tax-payers will be paying the bills to allow scientists and technologists to help the already well-off pharmaceutical companies. I would actually be willing to rethink my objections to some of the research if the pharmaceutical companies would cut back on their advertising and use the money saved to fund the research on embryonic stem cells and human cloning. I don't expect that to happen, but maybe it will. The researchers may want the federal government's approval of this research. The politicians seem to want the deep pockets of the government. They don't tell us that we shall be paying for all the experimentation that they want the researchers to perform.

Several stark issues are being presented to contemporary society by proposed embryonic and fetal research. That research is promoted by a purely mechanistic philosophy that grants no human dignity to the embryo; it is created to be killed for its stem cells. The researchers and their philosophical allies will make noises about using this material to help the disabled or cure the diseased. But we should look at what they're doing to the embryo. Does it matter? The embryo is even smaller than the period which ends this sentence. The fact that it will grow up to be an adult human being does not seem to enter the equation. All it needs to grow is the proper nutrition and care -- and time. Time it will not get.

The same questions about embryonic stem cell work arise from most other biological research. But the overriding question comes down to human freedom or the

control over human beings by others. Which will be promoted more? Will the embryo, the recipient of God's greatest gift to humans -- life and the opportunity to love him above all -- be deprived of life by those who say they need the embryo's body parts more than the embryo himself or herself. Yes, it is on the path to masculinity or femininity even at that level.

Freedom to grow and develop with as little interference as possible is the birthright of every human being. Only freedom is consonant with the dignity of a human being as a creature made in the image of God.

Control over the embryo is not consonant with the freedom of the individual, even the freedom of an already-born human being. We, who are already alive, cannot be made freer or more integral by the death of an embryonic human. We must remember that it is a *human* embryo that perishes in our quest to help the already born. It is still the use of the embryonic tissue by which health is sought by those who already "have it made."

Freedom to grow and develop with as little interference as possible is the birthright of every human being. Only freedom is consonant with the dignity of a human being as a creature made in the image of God. The embryo will have to die for its stem cells to be used to help another. It does not matter how that embryo came to be, either naturally or manufactured in the laboratory. If allowed to live it will grow into a human man or woman. To be human it must be accorded the rights to "life, liberty and the pursuit of happiness." That is the heritage of every human being, embryonic or full grown.

Ethical Choices

Some years ago William Provine, a Professor of Biological Sciences at Cornell University, wrote ("The End of Ethics?", *Hard Choices: A Magazine on the Ethics of Sickness and Health*, 1980, p. 3):

... The vast majority of people believe there is a design or force in the universe; that it works outside the ordinary mechanics of cause and effect; that it is somehow responsible for both the visible and moral order of the world. *Modern biology has undermined this assumption* (italics mine). Even though it is often asserted that science is fully compatible with our Judaeo-Christian ethical tradition, in fact it is not....

One of the most important consequences of mod-

ern science, especially biology, is that this outlook (i.e., a mechanistic viewpoint) is gradually becoming the common one. As a result, ethical choices are likely to become more difficult, not because people are less moral but because they will be unable to justify their choices with fairy tales.

I am willing to let the Lord correct Dr. Provine. I am sure that Provine would not listen to me. Clearly, he has bought into Enlightenment views lock, stock and barrel. He is a mechanistic "prophet" from beginning to end.

Even the way the above quote is framed is highly suspect to a believer. For the Christian there is no design "outside the ordinary mechanics of cause and effect." There is only one cosmos and only one design of cause and effect. To suppose there is more than one is to deny the undeniable. This kind of thinking walks about in our culture since the Enlightenment when it became fashionable to suppose that the physical universe was governed by one set of rules and the moral aspects of life by a different set of rules. It is part of the notion that physical reality is objective, whereas morality is subjective and relative. The notion that morality is also objective is dismissed out of hand by people like Provine. Their view of morality can and does change -- often quite radically.

The embryo is even smaller than the period which ends this sentence. The fact that it will grow up to be an adult human being does not enter the equation.

Dr. Greg Pouch remarked in the discussion on computers (*Computers, Artificial Intelligence and Virtual Reality*, ITEST Faith/Science Press, 2005, p. 235):

.... The knowledge of good and evil is like the knowledge of hot and cold. It doesn't matter what we think about hot and cold. If we stick our hand into liquid nitrogen certain horrible things happen. If we stick our hand into molten steel other horrible things happen. Hot and cold exist independently of our knowledge of them. Good and evil exist independently of our knowledge of them.

We would like to pretend that good and evil exist because of what we define them to be. If we define it "properly" divorce is fine, my slightly shady accounting may differ from your accounting, but it is not actually wrong. Your concept of property may not agree with mine but who is to say that you are the one in possession of the correct concept. Basically we have in Genesis 3

the introduction to deconstructionism. In that case deconstructionism was horribly misdirected against God. That never works out all that well The knowledge of good and evil consists in aligning my notion of good and evil with God's notion of good and evil. It seems wise to have our knowledge of momentum aligned with God's knowledge of momentum. We'll get run over otherwise.

These thoughts are certainly foreign to modernity. Modern "thinkers" have taken Einstein's formulations in physics and extrapolated them to say that everything is relative. Einstein said that motion is relative; now there are people who believe that everything is relative. That is curious to hear because Einstein's theory of relativity is by and large the most absolute theory of physics ever developed. Even to think that the speed of light is an invariant is to deny that everything is relative. Yet people go about saying (and living as if it is true) that the world and everything that happens in it is relative.

There is nothing relative about laboratory science. There are very definite processes to be followed. What's more, the data must be reproducible if one is going to produce "scientific results." There is nothing relative about reproducibility. An experiment is reproducible or it is not. If it can be partially reproducible; then it is partially acceptable science. The three criteria of experimental science are some kind of simplicity, predictability and reproducibility. It is hard to say that the results of an experiment are *relatively* predictable and *relatively* reproducible. Relative predictability simply is not good enough. I don't know anyone who would build a nuclear power plant that produced power on a relatively predictable basis. Maybe some entrepreneur would, but he would not have many buyers of his product. The power might not be there when it was needed.

But let's get back to Provine's notion of two types of causes in the world. Are they related to each other? Is one superior to the other? Where do these questions lead us? They lead us finally to a notion that we are only *private* creatures. Let's read a short quote from Carl Sagan (*Time Magazine*, October 20, 1980):

I am a collection of water, calcium and organic molecules called Carl Sagan.... Some people find this idea somehow demeaning to human dignity. For myself, I find it elevating that our universe permits the evolution of molecular machines as intricate and as subtle as we are.

I feel Provine would agree with Carl Sagan's statement. Somehow human dignity arises from being a pile of calcium, water and organic molecules. What if the pile

were made up of a slightly different combination of calcium, water and organic chemicals? It could still be called Carl Sagan, couldn't it? Would his dignity still be intact. I doubt it, because I think his dignity has another source entirely. But for proponents of scientism the only world that exists is the physical world. It is the only world in which we can use our sight, our hearing, our feeling, our smelling and whatever other power we may have. The "spiritual world" cannot be quantified; therefore it does not exist. As I hinted before, the modernists have closed down reality to one dimension, that of the world of the senses. They restrict all reality to that one dimension.

It does not matter to society (or to the Faith, really) whether scientists and scientific planners approach the application of the new powers (arising from greater control over biological processes) from a mechanistic philosophical base or from purely pragmatic considerations. The practical effect will be the same. Those philosophically committed to some form of mechanistic understanding of the world and of human beings will have no difficulty with the notion of arbitrary alteration or reconstruction of living systems. (If this doesn't conform to the motto of "man conforms", nothing will.) After all, as descendants of the early physicists who were enamored with mechanical clocks and puppets, what's the import of changing a gear or two? On the other hand, those who approach these issues from a purely pragmatic point of view will find these same things acceptable, because it will give them a license to experiment on living systems (including human beings) as they will, to conduct research as they see fit, along the lines of laboratory procedures originally developed for experimentation on inorganic systems.

This almost automatically gets us back to the whole issue of control. Ethical difficulties (Provine's opinion notwithstanding) may not get more difficult in the long run. They may get easier and easier until there are no ethical limits on human behavior, including research. What is the usual course of ethics today. Is it not to let more and more behavior be considered as "mainstream"? Look at ethical arguments about contraception, euthanasia and assisted suicide, infanticide, "artificial nutrition and hydration"? Which issues are being decided on the basis of objective morality and which issues are being decided on the basis of a relative, subjective standard?

There may be more argument, but when the courts have spoken which kind of "moral reasoning" prevails? On questions of gay marriages and other such moral issues so far almost all the court decisions have allowed gay marriages. Maybe that's one of the reasons judicial appointments are so bitterly debated. I find little evi-

dence of a successful movement to reverse the relativity of social and moral living. There may be more people turning back to a more objective notion of morality but so far this has been more of a private conversion.

I really don't think Provine is interested in a morality that he sees as dependent on "fairy tales" as a basis of morality but I may be misjudging him. But the whole flavor of the quote above shows me that Provine is totally out of sorts at the thought of anyone anywhere opposed the "enlightened view of things." Objective morality certainly contains that challenge. The notion of objective morality does not support "man conforming."

A major impulse to scientific "progress" is the development of significant unitary theories which I think everyone would accept these days. The 17th century publication of Newton's *Principia* presented a unified understanding of celestial and terrestrial motion, a linking of mechanics and astronomy. That systematization of our understanding of the unity of inanimate creation linked the physics of the heavens and the earth in a single coherent theory. Since the seventeenth century we have learned much more about the unity of all creation, first at the level of the species and more recently at the level of the nucleic acids. More and more we are discovering life's processes and we have ample proof of the unity from birth to death. Finding this unity of all living systems is the most significant aspect of recombinant DNA work, *in vitro* fertilization and most recently cloning (announced on May 20, 2005). But how will we use these discoveries?

Before we say anything else it would be well to understand that embryonic stem cells right now are only potentially useful in the work of repair. They may or may not ever be shown to be useful, much less necessary, in the battle to overcome illness and disease.

We can continue to look for incredible progress (if we truly want to call all the possibilities as progress) as we exploit this "unity." This unity is having a profound effect on our perception of the universe, especially the universe of living things. It is still too early to foresee all the implications of these new syntheses but we can be sure that they will dwarf the results of any previous understanding of the universe and our place in it.

Embryonic Stem Cells

The new Holy Grail of embryonic researchers has been embryonic stem cells which these researchers consider vital to progress in the repair of organs, nerve networks and many other systems in the body. Before we say any-

thing else it would be well to understand that embryonic stem cells right now are only *potentially* useful in the work of repair. They may or may not ever be shown to be useful, much less necessary, in the battle to overcome illness and disease.

In this matter of the Tower of Babel, the Chicago Exposition and all the work being done now and to be done on human beings in the future the question keeps recurring in the background: where does God's control end and human domination begin?

On May 20, 2005 the *St. Louis Post-Dispatch* published an article beginning on the first page of the paper under the byline of Gina Kolata:

South Korean researchers report that they have developed a highly efficient recipe for producing human embryos by cloning and then extracting their stem cells.

Writing today in the journal *Science*, the researchers at Seoul National University said they used their method to produce 11 human stem cell lines that were genetic matches of patients who ranged in age from 2 to 56....

Their method, called therapeutic cloning, is one of the great hopes of the stem cell field. It produces stem cells, universal cells that are extracted from embryos, killing the embryos in the process. *In theory* (italics mine), these stem cells can then be directed to grow into any of the body's cell types....

The research was led by Dr. Woo Suk-hwang and Dr. Shin Yongmoon. Hwang said he had no intention of using the method to produce babies that were clones. "Our proposal is limited to finding a way to cure disease," he said. "That is our proposal and our research goal."

Later, in what is a long article, Ms Kolata relates the following:

"It is a tremendous advance," said Dr. Leonard Zon, a stem cell researcher at Harvard Medical School and president of the International Society for Stem Cell Research. He was not involved in the research....

Zon cautioned that "it will take a lot of work" before stem cells fulfill their promises in medicine, but he said the new finding will bring scientists

significantly closer to the goals....

"It will spearhead the effort, for sure," Zon said....

Toward the end of the article the author quotes:

Dr. Ruth Faden, executive director of the bioethics center at Johns Hopkins University, said the moral debate will change if stem cell research leads to new treatments with dramatic benefits for some patients. "That could really shake it up," she said.

The quote from Dr. Faden is a perfect statement of the pragmatic argumentation that we have come to expect in any discussion of the "ethics" of biological research. Equivalently, it states that if things work out in the laboratory they are good -- by definition. This is quite a departure from the Nuremberg Trials of 60 years ago. This is equivalent to saying that if the German "research" on prisoners -- Jews, Protestants, Catholics, Gypsies, etc. -- had a beneficial result they should have been used extensively. We would not have many advocating that position 60 years ago; we certainly would have more saying that type of research should be used now.

As of now I am glad that I am not on death row waiting for the sentence for a capital crime to be carried out. The pragmatic argument is that we have thousands of embryos frozen for possible use in *in vitro* fertilization clinics that will never be used. We can ethically use them because they'll eventually die. "What a waste that would be!" We can use exactly the same argument for prisoners on Death Row. What a waste it would be to lose all those healthy organs. "After all, they'll die soon anyhow." To think that the success or failure of these experiments determines the rightness or wrongness of the procedure says much about the person(s) making the argument. It says that there is little that is ethical in their position.

This takes us back to the central proposition of this paper, namely, that human control over *everything* is to be sought and exploited by human beings. Indeed, the motto SCIENCE FINDS, INDUSTRY APPLIES, MAN CONFORMS will become the goal of everyone who counts. The others will be run over by the technological juggernaut. It is clear who will count and who will not.

The Redeemed Cosmos

In this matter of the Tower of Babel, the Chicago Exposition and all the work being done now and to be done on human beings in the future, the question keeps

recurring in the background: where does God's control end and human domination begin? Perhaps we could profitably spend the remainder of this paper wrestling with idea of God's dominion and the role of the human within it. It is by no means a simple consideration.

The God of the Old Testament did not seem to view humanity as a competitor. Rather he viewed men and women as collaborators in perfecting the creation into an appropriate home. In the beginning that probably required only a primitive technology -- as our "advanced technology" will seem to whoever "rules the world" in the future. As was stated before, God took no action against the inhabitants of Babel in their desire to build; he only did so when they tried "to make a name for themselves."

God's normal response to human creativity is to encourage humankind's imagination and the ability to change things. It seems clear that God rejoices in the result. God will take great pleasure in our "work" turning a cosmic environment into a world -- in the eschaton. I have not experienced anything yet that would cause me to change my mind. I am basically a technologist; I firmly believe that imagination and the ability to use the tools is something we have been given by God. Otherwise it is extremely unlikely that the shape of the universe is compatible with the workings of our minds.

According to the Old Testament, when humankind developed "illusions of grandeur", when human beings set out "to make a name for themselves," God fractured the language. In that way God protected his dominion over creation. It seems that as long as the goal is the advancement of humankind (and not "making a name for ourselves") God is honored by technology and work. We are joining him in his creative work throughout the universe.

We were a race of condemned sinners in the time of Babel, fundamentally alien to God, but God did not act against us until we began to work for our own aggrandizement. Throughout the Old Testament we were working fitfully to somehow become better. But we could not become better without his help. Whether we made better boats or better ways to communicate or built finer houses, we could not wipe out our sinfulness.

It would be well to remember that the data of our senses and of our minds is significant. But the primary source is the data of creation. The ancients (scientists and theologians) were not in possession of all of our current data so they couldn't have even stated the question in the same way. But the ancients were scientific in the sense that they constructed their

theories about the creation from the observational data they had. This is all we do now -- the difference is in the amount and kind of data available.

We are not made for this world in the same sense that we are made for everlasting life and love in God. At the same time, however, we are made for this world; it is our home; it is the arena in which we live and love God; it is the stage on which we play out the drama of our existence. But it is more than that. St. Paul tells us (Romans 8) that creation itself (including obviously the physical world) "still retains the hope of being freed, like us, from its slavery to decadence, to enjoy the same freedom and glory as the children of God."

*Indeed, the motto **SCIENCE FINDS, INDUSTRY APPLIES, MAN CONFORMS** will become the stated goal of everyone who counts. The others will be run over by the technological juggernaut.*

But we are of the earth and from the earth and we will always be of the earth. We are always caught in the web of history. We are at the same time (and for the same reason) enmeshed in the paradox of being earth-fleeing and earth-seeking creatures. The earth is ours to see, to understand as best we can and to love. That is the obligation placed on each of us. It is also our obligation continually to relate that seeing, understanding and loving to the will of God and to his service; that is our burden and our glory.

We have come to a far deeper realization of this tension from the scientific advance in genetics in particular and biology in general. What do I have to bring to Father, Son and Spirit as my gift in return for my life? I have among other things my DNA. That is what makes me specifically me. That is something only I can give the Lord. Yet, I am more than my DNA. I am the latest (and last) branch on a tree that stretches back into the dimness of human beginnings. At the same time I am a promise of the world to come. By living in the present I relate the past to the future -- as do all human beings. That is a large part of our dignity. This is our destiny, our burden and our glory.

The Christian God, the Father, Son and Spirit is indeed a God of specificity. What physically distinguishes me and every human (fertilized egg to death) from every other human is my genetic inheritance and their genetic inheritances. What further distinguishes me from everyone else is the call God gives only to me -- as well as his call to every other human being. God gives that call to each of us from the very beginning. That is not simply an individual call, an individual gift. It is a call and gift given to us as part of a people -- we are given

as a gift to the people of God to help that people grow into the future until God in Christ returns to us and leads us into eschatological glory -- and joy.

What are we losing in the technologization of human beginnings? What part of human life is forgotten in the laboratories and clinics around the world? One thing that we have lost is a sense of both the dignity of their research "objects" and a sense of living history -- that researchers along with the Enlightenment have forgotten. The "objects" they use now in their experiments have the dignity of being alive. "So what?", they might ask. It's not as if they'll "be something" some day. Well, they probably won't be anything if the experiment doesn't work -- or perhaps even if it does. Anyway, we will consider only human material here. Let's consider embryo "creation" and experimentation.

I am the latest branch on a tree that stretches back into the dimness of human beginnings. But I am at the same time a promise of the world to come.

The "material" they want to use has all of the prerogatives and glory of a human being. The trouble today is that so very few seem to hold embryonic life in high regard. The human being experimented upon is killed for its stem cells. "But that ok; we simply won't refer to it as a human being. We'll call it an oöcyte or an embryo or a fetus. We'll make it impersonal and then we'll be able to treat it as we will." But remember, this oöcyte, embryo, fetus has all the qualities that we have and a destiny given by God. Whether this is part of society's thinking or not is irrelevant. It is the truth. Our mechanistic society may well think we can eliminate the embryo's humanness by depersonalizing it, making it seem like some formless matter that is not ensouled. That simply is not the case. If it were we wouldn't be interested in it for "research." We want to do research on it precisely because it is human, it is alive, it is growing.

But each embryo has the same prerogatives as anyone of us. What is true of me (or of you) is true also of whatever embryo we consider. They are at once a statement of the past history of the human race and a look into the future of the cosmos. They are persons. Each one of them, even the laboratory-constructed clone, is a specific human being. It has a destiny once it is created. It is called, gifted, by God to help God save the world. But in the case of embryonic stem cell work it will not live long enough to accomplish its vocation.

We never stop to consider the humanity of the embryo

or the fetus in the case of abortion. It seems easier to deny the humanity of the fetus or embryo. That saves us from worrying. We wouldn't want to seem to be in favor of "capital punishment" (which we impose on the embryo) for nothing but our own convenience, would we? That's one reason why even the supporters of abortion on demand say that abortion is a hard choice.

A constant theological temptation is a "retreat into abstraction." We experience a constant lure of ethereality. Christianity is the only major religion I am aware of that was founded in a city. Jesus' desert experiences were at best brief and intermittent. He spent his active life amidst the hustle and bustle of an increasingly urbanized Palestine. The Church's formative years were spent in the larger cities of the Roman Empire.

As time went on monastic establishments arose and the monks moved into the "wilderness" that was Europe during the Dark Ages. These monks became progressively more oriented to the soil. Some of them, however, were from urbanized pasts and they were technologists. I suppose we would call them craftsmen today. Many technological breakthroughs in monastic times originated with these monks -- the clock is a significant example.

Anyway, it can't be denied that in general the Church has warmly welcomed technological innovation. This is not to say or imply that the Church uncritically accepted any and every technological advance. It proscribed some specific advances but it never called for a rejection of the technological spirit, the spirit that looks to turn an environment into a world open to human enterprise. That is our vocation; we are *called* as humans to fulfill God's will for creation. It is our call to work in the cosmos to make it into a world acceptable to the limitations of human beings. It is making the cosmos safe for human living. It is eliminating the "vertigo" that Asimov finds in creation. It is making the whole wheel of creation at once "homey" but not domesticated. The call of Christ is making the heavens and the earth suitable to humanity while retaining its undomesticated, individual, exuberant character -- letting the cosmos be the cosmos, suitable to human living, loving and working.

Then we can sing with Hippolytus of Rome (ca. 250):

"The thronging choir from earth is coming home."