



Institute For Theological Encounter *With Science and Technology*

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Opening Message

Ah, the joys and delights of Summer vacation in New England and Williamsburg! And, all that in Ordinary Time; can anything compare? I succumbed to the lure of the New England coastline with its crashing waves, the yachts and sailboats at anchor straining at their moorings, like children eagerly awaiting their weekend outings on Narragansett Bay. And the sea gulls, the ever-present sea gulls, diving and swooping, searching for their noonday repast, and with perfect aim snatching any sea creature curious enough to break the surface of the water. Then, guided by the exquisite hospitality of my friends, I reveled in the quiet beauty of the Virginia countryside while mentally transporting myself back to the early 17th century, trying to experience through the eyes of the first English settlers the beautiful but “savage” spit of land they called Jamestown.

All this gave me a deeper appreciation of the God who created this beauty. C. S. Lewis writes in one of his essays that we human beings have been given a greater gift than the angels in that we are the only ones God made who can appreciate the creation through our senses: our sight, taste, smell, hearing and touch. Angels can’t do that. What a privilege! As Father Bob Brungs often said, we are earthly and “earthly” creatures, not purely “spiritual” beings and as a consequence, we love and serve God as bodied beings. It reminds me of the lyrics of an old song, “Love and Marriage, go together like a horse and carriage . . . you can’t have one without the other.” Although the analogy may limp a bit, we as bodied entities, as living, breathing human beings, experience the world in a much richer way than any other creature -- as creatures composed of body and soul. . . .not two sides of a coin, but one integrated whole.

Now, let me move into what this integrated bodily entity accomplished while it wasn’t contemplating the beauties of God’s creation. Contemplation should lead to action, or so the spiritual writers tell us. My nephew, Matt Shea, and I spent two days at a cable company in Foxboro, Massachusetts working on the 1990 interview conducted with Father Brungs. Remember, this was an unedited tape, transferred to DVD and then edited to eliminate or “cover up” some of the technical glitches present in the “raw tape.” Generally, we were successful and we are pleased with the results. We completed this project because we wanted ITEST members, colleagues and friends to have a tangible remembrance of Father Brungs, to see him speak movingly about his deepest beliefs in the mission of ITEST and to hear him express his hopes, dreams and vision for the future of the faith/science ministry. Except for a few references where Father Brungs speaks of his tenure with ITEST and his number of years in the Society of Jesus, this interview is quite timely.

We offer this gift to you knowing that it will bring back memories of him “in the flesh” even though now we experience him only through “virtual reality.” May this “piece” of him encourage us to expand his vision into the “whole” of the faith/science apostolate -- into science and the church -- both of which he dearly loved..

S. M. Postiglione, RSM
Acting Director: ITEST

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Announcements

1. Just a reminder that our fall symposium, *Astronomy/Cosmology Breakthroughs and the God Question*, is fast approaching. Invite your colleagues and friends to what will certainly be an exciting weekend. Speakers and their topics: Stephen Barr, PhD, “Anthropic Arguments in Physics, Design and Multiverse Ideas”; Br. Guy Consolmagno, SJ, PhD, “Planetary Science Breakthroughs and the God Question” and Neyle Sollee, MD, “From microscopes to telescopes and the integration of the Book of Nature and the Book of Scripture.” Circle the date: **September 21-23, 2007** at Our Lady of the Snows Conference Center, Belleville, Illinois. Registration is still open with full and partial scholarships available for students, seniors and other worthy recipients.

2. We have received additional donations to the Fr. Robert A. Brungs, SJ Memorial Fund since the last issue of the Bulletin. Special thanks to Judy Cassilly, Jean Cavanaugh, John Hubisz, Frances Klosterman, Valerie Miké and John and Dana Postiglione.

3. The work on editing material for the book on Father Brungs’ writings (letters, articles and so on) is going well. We plan to have this volume ready for distribution to all who attend the 40th anniversary celebration of ITEST during the September 19-21, 2008 symposium. Those who cannot attend will receive the book by regular mail. We are also hoping to offer an “electronic book” to those who would prefer to “read” the book on computer in PDF. At the same time, we are preparing a DVD of an interview conducted with Fr. Brungs in 1990 on faith/science issues and the mission of ITEST. We took the unedited tapes and re-worked them into a smoothly flowing interview format. Projected distribution to all ITEST members is late summer.

4. Postage rate increases: Ironically, the increase has benefited us to a certain extent, at least with our quarterly bulletin. Since our bulletin weighs just under two ounces, it can be mailed for less than we paid before the increase. *Mirabile dictu!* However, other increases will certainly affect us adversely – in the pocketbook – as other not-for-profits join us in tightening their financial belts too. We welcome any added donations to your membership dues each year. But we will certainly remind you of that in the October renewal notice.

5. Opening for Director of ITEST: We have received some inquiries from our members about the opening position of ITEST director and the Board of Directors will review these inquiries at the June meeting. If you know of anyone who might like to inquire about the position, please feel free to give them the one page job description. Thus far we haven’t advertised beyond our own membership but we are considering expanding the search.

6. We recommend for your consideration and perusal an informative and easy to navigate web site, <http://www.beliefnet.com>, providing a wide variety of insightful resources – “articles, quizzes, devotionals, sacred text searches, message boards, prayer circles, photo galleries and much more...” We read in their mission statement: “Beliefnet is the largest spiritual web site. We are independent and not affiliated with any spiritual organization or movement.” The ITEST staff and others have accessed this site and find that we can recommend it to you. Their section on various religions is very well researched and up to date. If you would like to alert our membership to other helpful web sites, simply let us know about your recommendations.

7. We welcome two new members to the rolls of ITEST: Mary Shryock, CSJ and Mrs. Frances Klosterman.

In Memoriam

Brother Raphael Prendergast, OCSO, World War II naval officer, a Trappist monk for 53 years and a longtime ITEST member, died in June at the Abbey of Gethsemane in Kentucky.

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



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The Sacred Story

Carla Mae Streeter, OP

“...our hearts are restless ‘til they rest in Thee...”

- St. Augustine

This “theological” article is a companion piece to Dr. Sheahen’s “science” article published in the last bulletin and is directed specifically to teachers in the primary grades. Both articles will appear in the book, Exploring the World, Discovering God, as a resource for teachers involved in the pilot program of faith/science interface modules. Sister Carla Mae was a co-presenter with Dr. Thomas Sheahen at the ITEST Fall 2006 “working conference” Education for the Faith/Science Ministry, for which this paper was written.

Introduction

In his presentation on science in the last Bulletin Dr. Sheahen has opened up the wonders and complexities of science to us. He has shown us the false opposition of faith and science in the past, and has opened up for us the challenge to lead our students, at whatever level, to the fullness of truth. Truth is one, and whether it be about the created marvels of the universe which science studies, or the truth which cannot be measured because revealed by the expansiveness of God, the truth finds its unity in *what really is so*. Truth is the real as known by the human mind. Whatever is, *is*...and our minds are made to search it out.

There is a story, a sacred story. It is the very context for the wonders of science. Science is a part of this story

Sister Carla Mae Streeter, OP, PhD Board Member of ITEST

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and we do ourselves a great disservice if we separate them. This story needs to be told. Only then will we have the wholeness of vision that we need, and so this reflection will tell the story that provides the setting for the many faceted jewel that science is.

Catechesis is instruction in the doctrines and traditions of the faith. It is the basis of one’s knowledge of faith. The young man or woman who is not formed in catechesis does not know what to believe, or what the community believes that has received him or her into its midst at baptism. Sound catechesis is the foundation for theology. Theology brings current questions to faith. It seeks to use the inquiring mind to search out *explanations* for what one has always believed. It is

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faith seeking understanding. (St. Anselm) The same human mind that searches out the truth of the created world in science, searches out the meaning of the deep facts of faith. In science we measure and observe. In faith we rely on the word of someone we can trust to be telling us the facts about things we cannot humanly measure. In religious matters this “Someone” is God; the interpreters of the faith try to represent truthfully the fullness of what the community called Church believes.

Catechesis and Theology as Partners of Science

In ordinary life, the “someone” we believe is another frail human being, and 99% of our lives must rely on belief rather than knowledge we ourselves have verified. Let me explain.

Human belief comes from trust in the source of the information we are given. We trust the word of someone

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we trust, someone we respect or love. Check it out. Why do you believe there is only 10% ethanol in the gasoline you just pumped into your car? You trust the station to be telling you the truth. Do you *know* that there is only 300 mg. of sodium in your can of pork and beans? No, you *believe* it because that's what the label says. And so it is. Many things in our lives rest on belief rather than on knowledge, even in ordinary day-to-day affairs.

In contrast, religious belief comes from *loving*. We meet God in our religious experience and prayer, and we believe in this Mystery because we have been grasped by its love. With this knowing-born-of-religious-love we come to know the mysteries of God, God's presence in the very midst of the created world. Faith is like the lens of the eye. The lens enables the eye to see. The retina, the iris, the pupil, the cornea, the lens...all are there and enter in...but the lens enables us to see. So it is with faith. Faith is our relationship with the Holy One. For the believer, science unfolds within a faith context to explore the wonders this loving Mystery has created.

This point of view is distinctly Christian. It is a specific lens to view reality. It is not shared by everyone. We need to know our lens is distinctly Christian and offer no apologies, for we believe it to be holistic. We need to know others may not share our perspective, and we need to respect them even while we yearn to have them know what we know by faith.

My Place in the Cosmos

So here I am. But who am I, really? I'm a creature...made out of star dust. The Earth is the name of my home. But I live in an immense galaxy, and that galaxy is only one among others.

Faith tells me I was created from nothing...but love. So the Mystery we call God is a self-giving love we can only catch a glimpse of now. This love yearned for a creature to love and be loved back in return. God wanted a creature who could relate with this Mystery in the intimacy we call friendship. So, from the depths of the heart of God (which we call "Father") there flowed an immense creative love. This active love of God we call the Holy Spirit. But this active love coming from the heart of God had to take a shape. This expression or giving "shape" to the love we call the Word (or

the "Son"). So the mystery we call God has three "somethings" going on: God is a Source flowing out in an Active Love that Says/Shows Something. From this three-in-one we have come to know the Triune Mystery of God. Like a flame, we have the flame itself, its light, and its heat, distinct, but inseparable.

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The opening chapter of John's gospel tells us that everything that came to be came to be in the Word. So now we see where the galaxy and where we come in. When God created, the shape that love took was all that came to be in the Word, and that includes the galaxy and you and me. So, we are in the Word. This is what scripture means when it says that "...in him (God) we live and move and have our being."

This means that the energy of active self-giving Love (the Holy Spirit) shapes us in the midst of the loving intercourse of our parents. That energy joins their sexual energy in a marvelous *synergy*. We are the products of divine and human love. We are made out of Love. That Love takes a human shape in the conception of a child, just as it takes the form of a tree or puppy to delight us in the wider creation. Keep in mind...it all comes from the Heart of God flowing out in Active Love shaped by the Word. This is another way of speaking of the Triune God, of a Three that forms a Oneness.

Something very profound follows from all of this. Since we are in the Word and the Word shapes us, then we, along with everything else, are indeed part of creation. As science probes more deeply into matter (atoms, nucleons, quarks, strings, etc.) we learn that God's creation has a unity that goes back to the very first thing created: light. We are spun out of the very first thing that is created: light. So that brings us to an interesting duality: Spiritually I'm made out of love, and physically I'm made out of energy.

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This reflection brings us to the next exciting part of the Story. Jesus in our scriptures says, "I am the Light...and the Way, and the Truth, and the Life..." So in love with this creature is God, that the Word decides to "marry" us. The very Word that has shaped us in creation now takes on our humanness, the condition of a creature. The Word does this in a union closer even than marriage, for marriage is but the sign pointing to it. The Word takes on our human DNA. In the language of faith this is called the *Incarnation*. It seems God knew we would forget how we were formed, and so this Holy One gave us a constant reminder. The Word that shaped us wants to remind us how close God really is...indeed bonded to our very DNA. So God is not up in some place we call heaven light years away. God dwells in our midst and calls us "home." So "heaven" is in our very midst, even though we are unaware of it, for God is there.

The music from our favorite country music station is in our midst carried by radio waves, but we are unaware of it too. Only when we tune in do we hear it. Tuning in to the presence of God in the midst of our own hearts is called prayer. As the fish lives in the midst of the sea, so we live in God. We live in an ocean of air, and hardly think of it...unless we are choking! Why then are we so out of touch with this Mystery?

What Happened?

So why do we have spiritual dementia? Why is there so much selfishness, evil, corruption, and abuse among human beings if God has made God's home with us? Why do people starve and nobody cares? Why do we fight with each other? Something has happened - our wounds are showing.

Maybe way back in time when our consciousness became developed and we could think reflexively, we became ashamed. Maybe we were ashamed because we were limited. Limited means there are boundaries to what we can do. We live in space and time, and we can't control things the way we want. So maybe we resented it. We resented the fact that we were not in charge. We resented that we were not God. We were us, and we were limited. So our resentment became an angry arrogance

that ended up in disobedience.

What I am describing is one interpretation of the birth of sin in the world. It is still around today. The child feels its effects when it is being carried in the womb when the parents argue. We all are born into it in our first days of life. This "something" that is like a pollution we call "original sin." This moral pollution is so fatal that without an antidote it would kill us.

The antidote for sin is grace, and being graced means that God actually gives us God's own self. Although grace is the gift of God's own self, God only comes when invited. So when we long for God, God comes, not just to visit but to take up residence. Some are graced by desire. Some are graced when parents and family invite God in for a helpless little baby in a ceremony in the faith community called baptism. When God gives God's Self to us, the pollution of sin into which we are born cannot stay. God and sin don't mix. So we become pollution free. But as we all know, it's hard to stay that way. Sin

is all around us like some infection trying to bring us down. Sometimes we buy into it, and then we get re-infected. We call this "actual" sin. It means we are actually becoming infected by the sin of the world in our own personal lives.

How do we know we're infected? There are symptoms of this spiritual sickness just as there are symptoms of physical illness. The symptoms are all too familiar: laziness, rage, arrogance, deceitfulness, envy, greed, fear, gluttony, lust.

Sin infects us with soul-blindness. We lose our memory of God's nearness. We *think* God is afar off and uninterested in us. We lose the sense of the immense love in which we were made. Soul-blindness makes us feel alone and unloved. Its signal is ignorance of spiritual things.

Then there is soul-anxiety. It shows itself in *emotional* confusion. If we are soul-blind, then we become anxious. We can't see clearly so we get frightened. We get upset. We get angry and violent. We are ignorant so we believe the wrong things, or we don't know what to believe at all. Emotional confusion is not a stranger to us. It meets us daily in our newspapers and in our neighborhoods.

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Finally, there is soul-*paralysis*. Because we are blind and anxious, we make really bad choices, or we don't do anything at all to protect ourselves. We settle for less. When we need to make a decision we often choose out of self interest or immediate satisfaction. We don't consider what the long-term results of our choices might be because we are blind and frightened.

This sinful condition is not a pretty picture. It is the beautiful and good human being twisted into something sad to behold. It makes the friendship God longed for in creating us impossible. Something had to be done, and the Love that created us in the first place sprang into action.

Healing on the Way

Just as our very being came from God in the beginning, so our healing will also come from God. But we are not puppets, and God will have no shot-gun weddings. God is going to get us in on the act, so we must be ready to be part of our own healing. This joint action is called Redemption. God saves us, but we must be part of our own process of redemption. We have twisted and deformed God's image in us, so God takes our image to restore it in the mysteries we call the Incarnation and Redemption.

From God's perspective, here we are, creatures made in God's own image, able to think and choose, and now that very image is all twisted up by sin. So what does God do? The very Word that shaped us takes on *our* image. The Word becomes flesh and takes on our twistedness. The Word takes on our humanness to drink the depth of our sin-poison. Our soul-sickness peaks in violence. We lash out at others, and then we hate ourselves for it.

We all know what happens next. It will be costly to the Word-made-flesh in Jesus to take on our poison. He allows himself to be infected by the effects of our sin, even though he never buys into it himself personally. In his humanness he is betrayed by us, abused by us, humiliated by us, and executed by us. And then there is silence. In our blindness we think we have finally silenced the Word; we think we have killed Love. In our confusion we think we have finally gotten rid of God once and for all so we can be in charge, so high is our sin-fever. We congratulate ourselves on our twisted but efficient action. And the Word-made-flesh sleeps in the grave.

But not for long. Our puny sin cannot kill Love. Instead, Love has gone to the heart of our violence and pierced it. His dying has put sin to death. Like a serpent whose head is crushed, evil will thrash about until the end of time, but it is in its death throes. All our lives we will have to watch out for that flailing tail. Twisted human beings cannot kill the Love that is God. God's love created us and that same Love redeems us. Jesus does not stay dead. He comes out of death transformed, and this is the greatest revelation of all. He shows us that so shall it be with us, for he has joined himself to us and will bring us safely home. We belong to him, not

***Our sin does
not own us.
God does.***

to our twistedness. Our sin does not own us. God does. The resurrection is God making claim on what is God's own. It is God showing us that Love is still in charge.

God does not do restoration halfway. We are given all we need to stay free from infection with the sin of the world. First, God comes, not just to visit but to stay. God comes bearing gifts, the first of which is the gift of God's very self in *grace*. That grace is three-fold. It brings our intelligence *faith*, Love's way of knowing. Faith heals our blindness and ignorance. Love brings our emotions *hope*, love's longing, the ache of the human heart for God. This begins to heal our anxiety. Love brings our wills *charity*, its own power to act out of love to heal our crippling paralysis.

But that is only the beginning. Because of the resurrection Jesus is not dead but alive. He is the very healing of our souls. He has joined our humanness to the Word, to God. He is our way home. So God has provided us a way home to the very heart of God, a way sin can no longer destroy. Our friendship with God is now open, and on terms we can understand, human terms modeled for us in Jesus' own life. His very humanness has become our bridge. Because the way is now clear, the Holy Spirit can fill us with strength to walk that way. The Spirit continues to shape us, to form us in the Word, ever bringing about more and more healing in a constant process of conversion. This will go on until our death. God never quits although I might be tempted to cry "Enough!"

Finally, God gives me a world-wide community of strugglers in faith. Some are ahead of me in their

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healing. Some are just waking up from the coma of sin. “Church” is the name we give to a group of pilgrims on the “way” back home to God. Because Jesus has never really left, in a sense “heaven” is in our midst. So his “ascending to heaven” means he has brought our very humanness to the throne of God, thus opening the way. He lives in us by grace, for grace shelters us in God’s friendship.

What the Risen Jesus is Up To

Jesus lives. What is he up to? It is one thing to believe he remains with us, but quite another to ask what he is doing. There are sacred symbolic actions in this worldwide church community. We call them “sacraments.” Each time we do one, it gives the risen Jesus a chance to strengthen us on the way. In *baptism* he makes us his own and fills us with God’s healing love. In *confirmation* he opens us to the Holy Spirit’s full power in our lives. In the *eucharist* he feeds us with himself so we become what we eat. In *reconciliation* he heals us if we have again become infected with sin. In *anointing* he prepares us for the journey through death into new life. In *matrimony* he makes a man and woman’s love the sign of his own love. In *orders* he makes a man the sign of his own self-giving love as a shepherd leader for the community.

What is my part in this restoration, this redemption? First we need to admit that we are both blessed and broken. Spiritually we have been mugged. We are *not* OK. Left to ourselves we will be selfish, arrogant, and abusive. With God in our lives we can heal and be healed. So we need to begin with a good dose of *self-knowledge*, and be wise enough to *invite God in* to begin our healing. We are not going to do it ourselves. We stand with a band aide when we need neurosurgery of the soul. But if we invite God in, God will come and the process will begin. Those of us lucky enough to have been brought up in an active faith community have the added support of others. Baptism is the formal way all of us together in the faith community invite God to protect a new human life.

We need to open our eyes to the fact that we need others to help us stay faithful and free from infection. This is the meaning of “Church.” Believers travel together,

the pattern set by the incarnate Word himself as he traveled all his life with a group of simple fishermen and women. We do not join the church because we are worthy. We band together with others because we are wounded. Some human beings have not become aware of their need for healing, or of how others might help them. Arrogant and elitist church members do not help them to become aware. Simple, prayerful, practicing Christians might provide the witness they need.

We also need to get ready for the long haul. This means we need to be aware that this healing journey is going to be my whole life. As the events of my life unfold I will be invited into one conversion after another. My mind needs to be changed on a lot of things. My emotions can still go back to the old anxious ways. My behavior can slip back into the old selfish patterns. Each day brings its own spiritual therapy, and I will often be tempted to whine, grumble, or quit. We all know physical healing is difficult. Ask anyone recovering from knee or hip replacement surgery. Spiritual healing is difficult too. Saints astonish us with their spiritual calisthenics and the beauty of their lives.

We also need to be a bit stubborn, or perhaps persistent. We need to set our minds on God and not second guess ourselves or look back. This is a form of “selling all.” Once we realize we have nothing we have not received, we’ve come into a basic healed sense of proportion. This is a great antidote to arrogance of any kind. Then we can own our own baptism perhaps for the first time, no longer going to church just because our parents brought us up that way. Now it is ours. We have claimed our rightful inheritance. Prayer becomes like breathing. We can’t live without it. Eucharist becomes one’s primary intimacy. Scripture becomes daily bread. Without it we lapse back into forgetfulness. Morally we take the ancient ten commandments as basic, the primary grades

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of moral behavior. Then we realize we are called to the upper grades of the Beatitudes as the Word leads us on in our healing. Virtue, those habits of the heart, become restored soul-muscle. Love’s discernment is prudence; Love’s

fairness is justice; Love’s courage is fortitude; Love’s balance is temperance. The spiritual and corporal works of mercy begin to adorn the house of my heart.

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What has happened to me? I'm under reconstruction from the heart out, and I sense God has no intention of stopping.

***I'm under reconstruction
from the heart out...***

The Promised Happy Ending

The God who is Love is no softie. This is one tough Love, and my entire life is God's redevelopment project. I may get out of breath, but God does not tire. I may cry out "Enough!" but God shows up day after day to continue the work in the events of my life. What is the final product? What is God aiming for? The human fully restored. The human fully healed. The human transfigured. The human made holy and whole.

We have precious few examples of such human beings. The first is the incarnate Word himself. The Word has brought our humanness into full healing by contact with himself. No twisted humanness can remain in that union. Next we have his mother. Mary the mother of God is our mirror. She is the image of the fully restored human being. She is the new Eve, the mother of the living. She is one of us, and the one of us that remained open to God all her life. She was never closed. Her faith keeps our faith steady. Her hope and trust in the midst of agony keeps us waiting for further healing with longing. Her love lured the Word to find a home in her. She teaches us to bring him to birth in our humble lives. Surrounding us like a cloud of witnesses are those holy ones we call the saints. They have gone through the dark valley and have come out on the other side. They stand, radiant, and beckon us on. They are signs of the end of the journey for us all.

Why are the holy ones so beautiful? What has made them so? The healing that the Word has won for us opens the way for the Holy Spirit to have free reign in a human heart. When this Spirit begins the inner work of human transformation, all that is left of sin must be purged out. Like a cauterizing fire, love burns all the corruption away, leaving only genuine humanness. This Spirit influence on our humanness we call the "Gifts of the Holy Spirit." Permeating the consciousness,

the Spirit permeates the human with grace. Under the Spirit's purifying influence our humanness becomes more and more transfigured, the humanness becoming more and more transparent of the Love that has taken up residence within. The person becomes more and more beautiful even as age adds year upon year. The seed of eternal life is growing within such a human being. God is at work, and the goal is total restoration, total beautification, total transfiguration.

The faith community, Church, Synagogue or Mosque, is a gathering of human beings all in the various stages of this restoration and transformation. Married or single, clergy or lay, the work goes on in the context of that life. The community will be of help as much as it has surrendered to the work of God. Arrogant and selfish

community members will reveal an arrogant and selfish community. Humble and compassionate believers will be a light on the mountaintop for travelers struggling to find their way. But we must make no mistake. God knows the design of the community transfigured, each individual shining with the light that dwells in them. The pattern is the Word. Formed in that Word, such is the New Jerusalem, the bride of the Lamb, the people paid for in blood and formed in fire.

This is our Sacred Story. This is the story the Christian catechist tells. Part of its unfolding is the search of the human family to understand the wonders of the world, wonders that science opens up to us daily. Truth is one. In the end we shall discover that all truth finds its home in the Mystery in which we live, move, and have our being.

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Homily

Father Frederick G. McLeod, SJ

(Delivered at the First Anniversary Mass for Father Robert A. Brungs, SJ, on May 7, 2007 at the Cardinal Rigali Center Chapel, St Louis, Missouri. The Readings of the day are: Acts 14: 5 – 18 and John 14: 21-26.)

It is almost a year since we mourned the death of Fr. Bob Brungs, honored his name and celebrated his achievements. Our presence tonight is certainly a clear, unmistakable sign that our esteem for Bob's memory is still remarkably strong. Bob, I am sure, whole-heartedly approves and appreciates that this is all taking place at a eucharist.

Today's readings are fortunately appropriate and relevant for our celebration. In our first reading, the crowds react to Paul and Barnabas' healing of the crippled man by hailing them as human embodiments of Zeus and Hermes. Paul and Barnabas responded by rejecting this and the crowd's deluded attempt to offer them sacrifices, insisting that their healing be attributed to Christ. What is interesting here is how they switch their usual way of proclaiming Christ, in order to win over the inhabitants of Lystra. When preaching to Jews, they would point out how Jesus is the fulfillment of the Hebrew prophecies about the Messiah. But the apostles realized that this would not be effective with the Gentiles and so appealed to their then current belief in the presence of God within nature.

Also like the apostles, Fr. Bob was keenly aware too of the need to be attuned to the background and outlook of those whom he was passionately trying to influence. He realized that to reach many sincere, well educated persons today the church had to enter into their scientific and technological worlds, if not to bring them out his door, at least to show them how he and other faith-filled individuals were conversant with their specialized areas of knowledge, their technical terms and controversial questions and wanted to dialogue in an academic and respectful way about serious moral dimensions in their fields. For this endeavor, Fr. Bob was blessed to have had that rare mixture of academic training, temperament and zeal needed to succeed in this critical but often time-consuming pursuit. Fortunately for us, he was also gifted with the needed

leadership ability to inspire as well as attract other like-minded scholarly men and women for the task -and just as amazingly to be respected by scientists and theologians, by believers and unbelievers, and by friends and by strangers. How well he succeeded is clearly highlighted and etched in sharp detail in all that he has accomplished throughout his lengthy tenure as the director of ITEST.

In the second reading, John insists on how absolutely necessary it is for us Christians to live out God's commandment to love, if we want God to dwell within us and to send His Spirit to inspire and strengthen our lives. It is difficult to measure this interior, dynamic and loving presence of God's Spirit. We can judge it realistically only in the way that it is embodied in our lives and also that of others. I believe that Bob's life has strikingly exemplified this, at least for me, especially in his never-ceasing passionate drive to promote ITEST by setting up quality conferences and by laboring mightily to publish their proceedings. His life was impressive too for not merely what Bob accomplished but for how he carried this out in the caring, freeing and respectful way that he treated others, even those with whom he might strongly disagree. In other words, I catch traces of Bob's living out God's command to always love in the dedicated, self-sacrificing and creative ways that he gave of himself wholly to others and to his work. He believed like Paul and Barnabas that his task in life was to make God relevant and visible to those in the modern scientific, academic worlds who were willing to listen and dialogue in open ways. Even from the grave or perhaps better from heaven, he continues to challenge us to be faithful to the missionary vision he has instilled within us. May we, with God's graces, continue Bob's prophetic commitment, as it is now being expressed anew through Sr. Marianne, to discern not only how science and technology can help to humanize our contemporary world but also how this endeavor relates to God's loving plan to save and recapitulate the world in and through Christ.

Galaxies, Gluons and God

William J. O'Malley, SJ

This article, written in 1999, will undoubtedly evoke response from our readers. If you have any comments either praising it or criticizing it, please let us know. We would be happy to publish any of your thoughtful responses.

A year after ordination, I had a homily on the Ascension, so I tried really to “get into” the scene. I walked with Jesus and the others to Bethany, smelled their sweat, felt the dust between my toes. Jesus blessed us, then began to rise. Then what? I got him suspended mid-air, as in paintings, but So my imagination kept him going. Hm. Did he go through the Van Allen Belt? Was he radioactive? Did he soar through endless space and come to the thin membrane between the physical universe and heaven, then slip through-Booop! -- like a self-sealing tire? Right.

You see how literalist my grasp of scripture still was, even after all those courses. More questions: If heaven and hell are, by definition, outside time and space where nothing physical exists, where do they get all the coal to keep the hell fires burning for eons? Where do you locate a body (even a resurrected one) in a dimension where bodies have no meaning -- or purpose? If Jesus went “up” from Bethany, an old Australian lady would go “up” in precisely the opposite direction. And never the twain shall meet.

Till then, I had complacently impounded all I knew about religion in the right lobe of my brain, and all I knew about science in the left. And never the twain could meet -- thus confounding one another (and me). But to keep an honest mind I had to invite the lion and

Fr. William O'Malley, SJ

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lamb to lie down together, without the lion devouring the lamb or the lamb emasculating the lion.

In light of the legitimate claims of each source, I had to go back and rework-not the realities-but the inadequate metaphors I'd used to understand them. When we explore entities invisibly there (like electrons and the elect in heaven), we resort to physical symbols even when those entities are impalpable and the symbols less than even adequate. Imagine if you sent your true love a valentine with a picture of a literal heart! God the Father “appears” as an old man, when we know God is incapable of aging and has no genitals. If Gabriel had to depend on wings to bring God's request from “way up there” to Nazareth, he must have started his flight around the time of the Big Bang and been pretty winded.

This doesn't mean heaven, hell, God, and his messages don't exist, only that they don't exist physically -- which is, alas, the only way we space-time types can begin to understand objects. Green is like chewing mint leaves, the fulfilled Kingdom is like a party, Jesus' ascension was like going through a black hole into a parallel universe. But none of them is “it.” Comfortingly, in the last century science had to go back and do the same retooling with Newton's physics.

Clothing the Invisible Man

We can live more or less assured lives because of reliable patterns: Night and day keep yielding to one another, the seasons roll round pretty predictably, infancy goes into childhood, then adolescence, adulthood, aging, death. We rely, without question, on dependable cause and effect: Drop a brick out the window, it will go down; use a credit card, sooner or later you pay. Though I never met them, I'm certain you had two parents, one male, one female. If an experiment results one way every day this week, it ought to do the same next week. Dependence on cause and effect is the foundation of the scientific method, criminal detection, “proving” the existence of God, and just plain getting through the day.

But when things “get out of hand,” we become uneasy, sometimes desperate -- when we can't nail down the

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cause(s) of an unexpected effect: A seemingly happy teenager commits suicide, students go berserk and shoot up their school, the *Challenger* shuttle blows up. No one says, "Oh, well, it was an accident." *Something* had to cause that explosion: O-rings, weather, a combination? The human purpose is to try to understand; we get irked when that urge is stymied.

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The universe Newton described for us was a model of dependable, clockwork, cause-and-effect predictability.

The universe Newton described for us was a model of dependable, clockwork...

We know where Mars is today and can calculate a course for a rocket to impact it on a particular date months down the line.

The physics are as clean and clear as an expert calculating a billiard shot. The same reassuring pattern, we thought, occurred even in the tiniest atom. We had proof of it, right in our physics book's pictures: a tiny replication of a solar system, with the nucleus as its sun and planet electrons whizzing peacefully around it.

But in the late 20's, behind our backs, Albert Einstein and Werner Heisenberg (and a host of others) shook the whole thing out of whack. In effect, they "dematerialized" matter. The odd thing is that, even today many who have had good physics courses don't seem to realize the two greatest scientific discoveries of the century -- relativity and quantum theory

... relativity and quantum theory threw certitude out the cosmic window.

threw certitude out the cosmic window. Therefore, if you're looking for "scientific proof" of *anything*, you can no longer expect, as Descartes did, "evidence so clear and distinct I have no occasion to doubt it."

Genuine scientists are far more humble and hesitant than most people naively believe them to be.

Relativity

In the theory of relativity, Einstein showed the *observer's* position skews the evidence. "Up," as with the ascension, has meaning only relative to where you happen to be at the time. A woman reading on a train would be, from her viewpoint, sitting at rest, but to a farmer watching the train she'd be moving pretty fast. If you could hitch a ride on an object moving at the speed of light, you would be at rest on it; time in your biological clock would tick away just as it had on earth. But if you turned round and came back, most of your friends would be dead. Because of your speed, you would have been traveling (relative to you) about a year or two, but they would have lived (relative to them) 40 or 50 years.

More importantly, $e = mc^2$. That means energy (e) equals mass (m) times the speed of light (c), squared. Reversing that, it follows as the night the day mass times the speed of light squared *is* energy. Thus, the ordinary bulky objects we see and heft are not really solid at all but basically locations of energy. The rock that took the skin off your shin is not really solid at all but a swarm of moving particles, and most of it is empty space. If you compressed all the rock's components, it would be less than a millionth the size you see. Conversely, if you blew up a hydrogen atom to the dimensions of the Astrodome, the nucleus would be a tiny bit of grit on the floor, and the electron would be up at the roof, and the rest would be, well ...empty.

Thus, massy objects we see are what Eastern mystics call *maya*, illusion. One interesting sidebar: Do we *impose* the form on the objects we see, or is it actually "there"? If not, how to explain why, when each of us sees the complex of particles that make up a chair, we both know it's a place to sit and not to get a drink of water? Whichever, Einstein's theories were validated by the atomic bomb -- which is pretty impressive evidence.

... Einstein's theories were validated by the atomic bomb...

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Quantum Theory

It gets worse. We've known since before 1932, when Heisenberg won the Nobel Prize for his Principle of Uncertainty, the picture of the atom we've all taken for granted is no more accurate than the hearts on valentines. Sometimes, for instance, the electron acts like a pellet but other times like a wave, so that, if you could fire an electron from a hypothetical electron gun at a barrier with two holes in it, the electron would be as likely to go through *both* holes at once, because at that instant it was a wave. Is an electron a pellet or a wave? Yes. If you ran full tilt at a wall, you'd be flattened against it and slide down on the same side. But a subatomic particle could hurtle toward the barrier and appear on the other side, without leaving a hole behind it. If that weren't true, we'd have no digital watches, personal PC's, or transistor radios.

You can ask "Where is the particle, and how is it moving?" But you can't answer both questions at the same time, since evidence to discover one distorts evidence about the other. In order to "see" an electron, you have to bounce a bundle of energy off it -- and in the process, the electron's situation changes. In James Trefil's handy analogy, if you wanted to find if a car were coming through a tunnel, and the only way you could be sure was to send another car zooming from the other end, then wait for the crash, the impact would tell you the car is there, but no longer the original car. You can locate the car (electron), but in doing so you change not only its momentum but its direction.

Quantum physicists try to track down and explain the behavior of atoms and their family members -- electrons, gluons, neutrinos, quarks -- the whole fascinating nuclear clan. But when you read even their popularized conclusions, it tends to cross your eyes exactly the way John Courtney Murray did when he was teaching us Bernard Lonergan's Latin trinity text, in Latin. Electrons are not exactly "there" in the same way your stove and the Sears Tower and the rings of Saturn are "there." (Which is also true of God.) Rather than being strictly a point or a wave, an electron is rather a "blur" around the nucleus, more like a "wave-packet," a "center of force," or even less satisfyingly a "tendency to exist." During observations (in the tunnel), it seems a solid entity, but between observations it's ...well, somewhere. Sort of.

When you're studying an electron (or God), how do you describe a not-quite-thing? One could pose the question whether such particles as electrons, neutrinos, and positrons are really "there," as we are, or just approximate fictions, practicable metaphors, like an enthroned Old Man standing in for God. There is surely some super-energetic, super-compacted force *present*; atomic power proves that. But what is it, really? Well, uh, nobody's quite able to say.

An individual elementary particle doesn't really have a known or knowable history as we do: "I lived in Rochester from '65 to '87, and in the Bronx since then." Rather, it has possible histories from which we can predict where it's going, some with a greater *probability*. In fact Chaos Theory involves making a list of all possible outcomes and assigning to each the probability such-and-such subatomic effect will happen in any single trial. But in the case of elementary particles, the consoling "sharp" sense of "cause" is lost. And that loss of certitude disturbs many, whether it's about the trustworthiness of our senses or of our religion's scriptures.

Yet, like symbols, probability is better than nothing at all. Most of our choices and beliefs are, in fact, calculated risks, some more trustworthy than others. We can have a better chance of a successful marriage if we've known and trusted one another a long time and if we plan a wedding in July rather than January. Networks give remarkably reliable predictions of election results even when half the polls are still open. Insurance companies risk millions on actuarial statistics predicting what percentage of people will reach certain ages. Vegas casino owners calculate the odds to make sure the house always wins. It's important to remember "not proven" and "not completely certain" are not the same as "false."

***"...not proven" and
"not completely certain"
are not the same as "false."***

Seekers for God can learn from the practitioners of science, especially in curbing their expectations -- and their demands for evidence. Both have to evolve a tolerance for ambiguity, paradox, and polarity -- not either/or but accepting *both* contraries at the *same* time.

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Complementarity

Wit and comedy can't be taught in any logical, rational way. Either you have it, or you don't. When the stooge threatens Jack Benny with, "Your money or your life," Benny's long pause gets a laugh, because at least part of the audience sees the "reason." A literalist would have a difficult time listening to Robin Williams for very long, and predicting what his next "thought" is going to be is like trying to anticipate which way a kernel of corn is going to pop. Yet his routines are a marvel of timing, factual knowledge, and an uncanny ability -- in an instant -- to fuse two (seemingly) radically incompatible ideas.

The same thing is true of experiencing classical music, which is an exhilarating mixture of tone, rhythm, and mathematical harmonics, but neither Mozart nor his captivated audience needs a slide rule or a timer to "figure it out." One could say the same about a genuine appreciation for poetry. My senior honor English students can pick out instances of assonance and alliteration like magpies in a town dump, but few have any feel for the poet's *purpose* in using it in this particular place; they are in no way moved by it; nor do they have the slightest sensitivity to nuance or a shift in mood signaled by a change in word-choice or sounds. Their Gradgrind education has honed their left-brain rational skills to surgical acuity, but their right brains are nearly dead.

The left and right brain lobes *complement* one another. They have skills as contrary as *Star Trek's* Mr. Spock and *The Grapes of Wrath's* Ma Joad, as different as trying to find the truth from an accused criminal by a lie detector or by facing him with his mother. (I'd go with the mother every time.) Yet each supplies significant data the other is incapable of accessing. Even though at first they seem contrary and incompatible, they offer a more nearly complete understanding together than either one can alone.

An embodiment of that polarity of opposites is the Taoist picture of the yin and yang, a circle bisected by a wavy line separating a black hemisphere from a white one, each with a small circle of the other color embedded in it. A synthesis of rest and movement, contrast and concord, an eternal interplay of opposites: "masculine" and "feminine," movement and rest, suffering and

serenity, sacred and secular. A dynamic interplay between polar forces, like the contrary poles of a magnet which--fused--create a force neither possesses. The lion lies down with the lamb without either absorbing the other's unique qualities.

The same principle helps explain (a bit better) the electron as wave and particle, humans as beasts and angels, cosmology and *Genesis*, Teilhard as scientist and saint. At first, the two elements seem as radically incompatible as fire and water. (But don't forget the Native American name for whisky). Rather than being the clear-cut dualism of Descartes which drew a rigid line between the knower (*res cogitans*) and the world (*res extensa*), we have to become involved in the problem and walk around inside its apparent conflicts in order to understand them more fully. Not stone-faced judges but benign and impartial arbitrators. Complementarity is an organic, holistic attempt to harmonize contrary realities, both of which we know are "there."

***Complementarity is an organic,
holistic attempt to harmonize
contrary realities,...***

Science's Acts of Faith

In her remarkable book, *The Fire in the Equations*, Kitty Ferguson outlines five commonsense truths we have to assume in order to "do" either science or religion, truths which are self-evident and incapable of rational proof, truths we simply have to accept "on faith" or we are intellectually immobilized:

- (1) the universe is *rational*, it has patterns, predictability, symmetry; causes generate effects, and therefore it is not futile to study those relationships, as it would be to parse the ravings of a madman;
- (2) the universe is *accessible*, it can be (at least partly) understood; objective facts can give rise to reliable subjective opinions;
- (3) the universe is *contingent*; it could have been different and there are causal factors (if not purposeful reasons) why things are as they are, not otherwise;

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- (4) the universe is objective; a reality that doesn't yield to our preferences;
- (5) the universe is a unity; it operates, everywhere, by unchanging laws.

If it were not so, not only would science be impossible, but it would be hopeless to figure out where you misplaced your keys. To which I make bold to add another: (6) Order is not self-generating. Having directed about 50 musicals, I am biased unalterably against the belief that if I put 40 people on a stage -- no matter how talented, intelligent, willing, or unflagging there is the remotest chance they would come up with the dance-off in the gym in West Side Story without direction. The alternative

The alternative to someone/something in charge is chaos.....

to someone/something in charge is chaos, and *only* chaos. And if that is true of humans who have brains (and

training), it must be even truer of mindless celestial bodies and sub-atomic particles. How did they organize themselves into the great predictable sweep of the heavens, AND the Dionysian hip-hop of the atom? All by themselves?

As Thomas Edison said, "We don't know a millionth of one percent about anything."

The Universe and Evolution: Chance or Choice

Many scientists struggled against the evidence for a Big Bang, since it seemed to argue for a beginning *ex nihilo*, and therefore would require some independent cause, *viz.*, God. Today, it seems nearly incontrovertible the universe is expanding, and therefore there was a beginning -- at least of this universe as we know it now. Only two alternatives: it happened by chance or choice, accident or creation. No one of honest mind resents the rigid exclusion of religious convictions from the antiseptic inquiries of science. But the obverse should also be true: Repugnance at admitting to a God cannot skew the evidence either.

Did time and matter begin to exist at the Big Bang? Or was the "stuff" of it always there? Was the "seed" of our universe a "singularity," an entity of zero volume and infinite density, smaller, as Carl Sagan said, "than a

point in mathematics"? (Which is as close to "nothing" as you can get without accepting it.) Did our universe emerge like a bubble at the end of an umbilical cord off *another* universe? To argue the necessity of a First Cause (as Aquinas did) begs the question if, in fact, matter is without beginning or end. Exnihilation, or merely transformation? We can't establish either from reason alone. But it had to be one or the other.

However, the result of that accident/creation is not in doubt. Unless our acts of faith in the objectivity of the cosmos and the dependability of our intelligence are delusional, we witness a near-infinite carouse of the heavens. But it is not a carouse in the sense of a rioting mob but an incredibly well choreographed dance, from the Busby Berkeley immensity of the universe to the delicate *pas de deux* of the hydrogen atom. We don't invent the Periodic Table with its mesmerizing complexity and gradations, nor the laws of physics which science assures us are everywhere the same. The evidence comes *to* us from "out there."

Sagan wrote, "It is only by the most extraordinary coincidence that the cosmic slot machine has this time come up with a universe consistent with us." And with no one to insert the quarter and pull the lever!

How does one get order out of chaos by sheer chance?

"Extraordinary" is far too puny a word. How does one get order out of chaos by sheer chance? How does one get *laws*

out of *luck*? If one believes the obvious design of the cosmos occurred by sheer chance, one would also have to be open at least to the possibility that, if you dropped an atomic bomb on Pike's Peak, it might come down a working Disneyland. That overloads my meager mental circuits.

If I chance upon a pumpkin belting out "Hey, Big Spender," I have to argue that there's a speaker inside, since no pumpkin has that capability. Reason argues that no effect can be greater than its causes. I may not be able to access all the causes, as in the case of *Challenger*; but at least in the macro world of common sense, there must have been some confluence of agents that resulted in that event. Occam's Razor further argues that beings are not to be postulated unless they are inescapable. One is

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stuck with a choice between a nearly infinite succession of extremely fortunate accidents or an infinite purposeful Creator. No other option.

The same holds true for the evident progression of evolution from inanimate, to vegetative, to animate, to intelligent beings. All the evidence points to a developing complexity which *seems* purposeful: to arrive at beings who are self-aware. To argue that “natural selection” accounts for those varieties better suited to survive is, at the very least, an inaccurate use of words, since only an intelligent entity can “select” or “discover.” Sagan wrote: “I find it elevating that our universe permits the evolution of molecular machines as intricate and subtle as we are.” “Permits?” If human beings are no more than intricate and subtle “machines,” perhaps yes. But there is a great deal about me I can’t root in a mechanism, even something as marvelous as the human body and brain: honor, self-sacrifice, courage, loyalty, wisdom, hope, magnanimity, awe, altruism, the need for meaning. To abridge human beings to only bodies and brains (much less to bags of chemicals and electricity) is too irresponsibly reductionist by far.

Like the apparent design of the universe, the elements required to fall into place at the precisely right times appear to be astronomical to the n^{th} power. The earth is tilted at 23° ; if it were not, we would have no seasons. If earth’s crust were ten feet thicker, there would be no oxygen. If the oceans were only a few feet deeper, carbon dioxide and oxygen would have been absorbed and no vegetable life could exist. Gravity prevented the universe from expanding so rapidly that life as we know it could never emerge; if the expansion were one billionth of a percent larger, impossible. Lecomte de Nouy argued that, even if a new combination of molecules arose by random chance every millionth of a second, it would take longer than the earth’s existence to form a chain leading to life. Yet life existed on earth less than a billion years after its formation.

Two factors in evolution stretch chance to the breaking point: time and coordination.

Two factors in evolution stretch chance to the breaking point: time and coordination.

First, time. A single bacterium contains about 2,000 enzymes, but according to Fred Hoyle, the chance of obtaining them all at a random trial is 1 in $10^{40,000}$, and enzymes are only one step in the formation of life. In a now famous analogy, Hoyle said the likelihood was as close to possibility as a tornado whipping through an airplane junkyard and leaving behind a working 747, even given eight billion years. Second, coordinating all the factors that had to come together at precisely the right time for a new skill to occur staggers the imagination. Bat radar, for instance, as Michael Crichton points out. In order for that skill to come about, the following had to occur *at the same time*: the special physical apparatus to make sounds, specialized ears to hear echoes, brains to interpret the sounds, bodies and wings adapted to swoop for the insects detected.

Lotta luck there, Carl.

The human eye alone seems to demand a Designer;

The human eye alone seems to demand a Designer; even Darwin was hung up on that. The most brilliant human could not construct an eye. Each has a lens and bellows which work automatically, even for mentally impaired persons. They take color pictures, 16 hours a day, and you never have to change the film or send it out to be developed. And very often, when they’re damaged, they repair themselves! What’s more, the brain behind those eyes turns the pictures into abstract ideas!

If you found a watch ticking away in the desert, or a coke bottle on the moon, or a turtle perched on a fence post, could any sane person be convinced they got there by themselves?

Contrails of God in the Universe

We can tell much about artists’ personalities, what he or she likes and dislikes, from their work. You can tell the differences between Rembrandt and Mondrian, Handel and Gershwin from the ways they handle the same basic materials. So too with the Architect of the Universe.

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We know the Mind Behind It All is “into” order: the predictable courses of the stars, the regularity of the seasons, the patterns in objects which allow us to use universal words like “oak,” “circle,” “chair.” But God also reveals a whimsicality that refuses boxing in; God is also into surprise. Every planet does follow predictable patterns, yet each is unique: fiery, chalky, glacial, ringed with debris. Every snowflake in Antarctica is made on exactly the same pattern, yet no two are alike. Even two sides of the same human face are not mirror images of one another. We find perfect geometrical shapes, in fact, only in man-made artifacts. The hexagons in beehives are a bit lop-sided; no tree trunk is a true cylinder; even earth is a rather bulgy sphere. Though the Creator is into

Though the Creator is into order, he is not a fanatic about it,...

order, he is not a fanatic about it, like people who would like to bring the Leaning Tower of Pisa into plumb. One can only be grateful. Imagine a forest in which every tree was a perfect cylinder, every apple an exact sphere, every lumberjack a Brad Pitt clone.

The Instigator of the Universe also seems undeniably into evolution and growth, though again, he seems in no great hurry about it as we are, nor is he very efficient, willing instead to dawdle with fantastic species like

dinosaurs and pterodactyls before moving on to more complex enterprises. It appears the Creator made rocks to sit and await the uses of human ingenuity, plants to give oxygen, food, beauty, animals to challenge humans, to provide food and clothing, at times even companionship, and humans to learn and to love -- and, of all species, to continue to evolve their specific human nature until they die, as witness the spectrum of humanity from Dr. Josef Mengele to Dr. Albert Schweitzer.

There is another insight into the Creator which science might suggest, if it isn't a bit too capricious. Science says there can be no reality faster than light. Yet science delights in playing “What if.” What if there *were* an entity faster than light? It would be moving so fast it would be everywhere at once. Like God. It would be so super-energized it would be at rest. Like God. Couple that with Eastern religions' belief there is a spark of the divine in everything that lives, and with the Hebrew belief that God's name is “I AM,” the pool of existence out of which everything that *is* draws its “is.” As Mr. Spock would say, “Fascinating.”

Robert Jastrow, director of NASA's Godard Institute wrote:

For the scientist who has lived by his faith in reason, the story ends like a bad dream. He has scaled the mountains of ignorance; he is about to conquer the highest peak; as he pulls himself over the final rock, he is greeted by a band of theologians who have been sitting there for centuries.

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Astronomy/Cosmology Breakthroughs and the God Question

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Br. Guy Consolmagno, SJ, PhD: “Planetary Science Breakthroughs and the God Question”

Neyle Sollee, MD: “From microscopes to telescopes and the integration of the Book of Nature and the Book of Scripture.”