



This issue of the *ITEST Bulletin* reminds me in a way of my own mind. By and large the articles are relatively short and there seems to be no interconnection between them. In a rather subtle way, however, they all touch on matters contained in the rest of the articles, but the integration does not immediately leap out at the reader.

That seems to be the way my mind is operating as we go through the summer. Maybe that's why God made summers in the temperate zones — to give us a chance to let our minds go to seed along with the summer flowers.

As I was reading Carl Sagan's newest set of effusions (see the "review" of that book below), I kept thinking of the universe that a group of a couple of dozen scientists would construct from their accumulated wisdom. I doubt seriously that I would want to live in it. I further doubt that they would give me the kind of freedom I think I have. Yet, they seem to be totally willing to think that chance development built the one we enjoy, admitting thereby that chance is a lot brighter than they are.

Fr. Donald Keefe remarked in the ITEST Workshop, *A Seminar with Father Stanley Jaki*: "While it is evident that from the merely random nothing can be learned, it is perhaps less immediately evident that the random is supremely without interest, in the sense that it neither arouses nor can arouse curiosity."

So, as the summer moves toward fall and the wheel of the world continues to turn, lift a glass of water (or lemonade) with me to freedom, beauty and love and let the forces of nature fall where they may! Here's to history — to all its ups and down, its joys and pain and then to its ultimate end in God! May it continue for as long as it serves its purpose of bringing us closer to each other and to Him who made us!

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Robert Brungs, S.J.

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ANNOUNCEMENTS

1.) There are an unusually large number of announcements in this issue — as a quick glance will indicate. We ask you to read them all. There is something important in them for each of the members of ITEST.

2.) First, one of our members has very generously offered to finance memberships (for calendar year 1997) for up to 25 students. These will be new memberships, not for those who are already members. The ITEST Board of Directors has voted to match that offer. Consequently, we will offer fifty new complimentary memberships for students for 1997. We ask our members to nominate those who they feel are interested in faith/science work (no more than two or three per member, please). We need your cooperation and help on this. We feel that many of these students, once they are familiar with our work, will remain members. We would like to reserve about 30% (approximately 15) of these new memberships for students from outside the United States. If they are not taken by the end of October we will make them available to in-country students. Thanks.

3.) The Proceedings of the March Workshop on *Christianity and an Environmental Ethos* should be ready for the printer in another month or so. They will be sent to all dues-paid members. We should also be able to send the updated (it will be in use in 1997) Membership Directory to the printer at about the same time. We have tried to make this as error-free as possible but we are all but certain that it is not. If you see any errors please let us know. We will publish corrections in future issues of the *Bulletin*.

4.) The October, 1996 ITEST Workshop is being co-sponsored with BIO (Biological Institute Organization) on the general topic of *Patenting Biological Entities*. Each group is inviting 20 participants. The ITEST invitations have been sent to many of those who are working in the area of biotechnology, law and theology. The Proceedings will, of course, be sent to all ITEST members.

5.) There will be no ITEST meeting in March, 1997. The Board of Directors had decided some time ago that there should be some years during which ITEST sponsor only one meeting.

This decision was made because of the cost involved and the wear and tear of two meetings a year on the staff. The staff needs time to work on some "extra" material — like the long-promised summary volume on *Biology, Law and Public Policy*.

6.) The Board of Directors has chosen creationism/evolutionism as the topic for the Workshop of October, 1997. Quite frankly, we have avoided this topic because the feeling on the Board has been that this is a very old issue that should no longer agitate anyone. Yet, in the real world this is a "live" issue and, consequently, it's one that ITEST should address. We hope to concentrate on issues such as scriptural interpretation and the philosophical baggage that much of the controversy carries. We shall start looking for essayists shortly. If you have any suggestions, please let us know.

7.) After the ITEST 25th anniversary convention in Holyoke, Massachusetts in 1993, most of the attendees expressed a desire for a similar meeting to celebrate the 30th anniversary. The Board of Directors has tentatively approved of such a convention. The details (place, month, topic and others) will be worked out prior to the end of January, 1997. We shall keep the membership apprised of developments for this meeting. All ITEST members, of course, will be more than welcome to attend. If you have a particular place, time or topic in mind please let us know relatively quickly so that it can be mentioned at the September meeting of the Board of Directors.

8.) ITEST is "entering into the electronic age." With the upgrading of our computer capability almost complete, we are developing an attractive and informative layout for the ITEST Home Page. The Home Page can now be accessed at <http://ITEST.slu.edu>. We ask you to do so if you can. We are just beginning and are quite open to suggestions for further development. We are planning to include many of the essays that we have published since 1969. It is amazing how many of them are still "forward looking." Also, if we ever get the time to do so, we would like to summarize the discussions from the meetings through the 1980s. That will be a huge job, but we shall do it

if we can. There is a great deal of excellent material in the discussions.

9.) We are now able to receive FAXES in the ITEST office, thanks to the generosity of Dr. Robert Collier. The FAX number for the office is (314)-977-7264. FAXES sent to the old number [(314)-977-7211] will still reach us, but the new number is the one we prefer.

10.) Finally, in terms of electronic capability, we can receive and send e-mail. The designations for this are: IN:postigm@wpogate.slu.edu for all ITEST matters. Father Brungs can be reached at IN:brungsr@wpogate.slu.edu for messages.

11.) Brendan Niemira, an essayist at our Workshop on *The Science and Politics of Food* (October, 1994) was granted a PhD in Botany and Plant Pathology on May 3, 1996 at Michigan State University. Congratulations, Brendan. We don't think "many happy returns" is appropriate, though.

12.) Congratulations are also due to Mrs. Marie Sherman, one of eighteen exceptional

teachers of science, chemical technology, chemistry and chemical engineering to receive the 1996 Responsible Care® Chemical Manufacturers Association Catalyst Award. This award honors individuals who have the ability to inspire students toward careers in chemistry and science-related fields through their excellent teaching ability in and out of the classroom. Congratulations, Marie. Here, maybe "many happy returns" is appropriate.

13.) We have not forgotten the need to develop faith/science material for students (faculty) at all grade levels. At the March, 1996 Workshop we noted that education (especially in the early grades) is needed. This can be said for education in the Christian Faith. Many, even highly educated people, operate with a less than eighth grade knowledge of what Christianity is and teaches. Any help that you can give the Board and the Staff (and each other) is needed and appreciated.

14.) Dr. Ed O'Boyle has recently edited a book entitled *Social Economics: Premises, Findings, and Policies*. For a review copy contact Ed at OBOYLE@cab.LaTech.edu.

BOARD OF DIRECTORS ANNOUNCES SEARCH FOR ITEST DIRECTOR

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

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

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

Salary/Stipend: Very modest, but somewhat negotiable
 Conditions: One to two-year internship or residency with present staff.

Contact: S. Marianne Postiglione, RSM, Dir. of Communications and member of search committee. (314)-977-2703; FAX 977-7264. Or send resumé with letter of intent.

**SCIENCE MEETS THEOLOGY IN CRACOW, POLAND:
A REPORT FROM THE 6th EUROPEAN CONFERENCE ON SCIENCE AND THEOLOGY**

Dr. Alfred Kracher
Geological Sciences/Iowa State University
Ames, Iowa

If evidence were needed that the study of science and theology is a field of growing international importance, hardly anything could be more convincing than the record attendance at the Sixth European Conference on Science and Theology, held in Cracow, Poland, March 26-30, 1996. Not only does the number of nearly 180 participants reflect the continuous growth of these conferences over their 10 year history, the location also allowed an unprecedented number of scholars from Eastern Europe and the former Communist countries of Central Europe to meet with their Western counterparts.

In fact, the Eastern and Western groups were almost equal in size, each accounting for about 40% of attendance. The remaining 20% of participants came from Canada, the US, Brazil, Iran, Hongkong and Australia. That no less than 22 of the participants of a nominally "European" conference came from the United States, prompted one of the participants to ask whether one had to travel to Europe to find a serious academic discussion of science and religion.

The choice of Cracow at this particular time was also a way of celebrating the 600th anniversary of the Jagellonian University. Though the Faculty of Theology, which had been the oldest part of the university, did not survive Communist rule, it has a direct successor in the Pontifical Academy of Theology in Cracow. The Academy, now an independent institution, acted as host for the meeting.

As in previous conferences of the series, the program was divided between plenary lectures and small workshops. Financial support by the John M. Templeton Foundation made it possible to invite a number of highly distinguished plenary speakers. The series of five lectures opened with Ernan McMullin of Notre Dame University, who spoke on *Evolutionary Contingency and Cosmic Purpose*. Other plenary lectures were delivered by Jean Ladrière (Louvain, Belgium) on *The Role of Philosophy in the Science-Theology Dialogue*, Michael Parsons (Derby, UK) on *Scientific and Theological Discourse - from Dialogue to Integration*, and Xavier Sallantin (Béna, France) on *Do New Insights in Physics Bring a New Light on Creation?* The final event of the conference was a lecture by Józef Zycinski, formerly professor at the Pontifical Academy and now bishop of Tarnow, on *The Laws of Nature*

and the Immanence of God in the Evolving Universe.

Much of the workshop discussion centered on the difficulties of mutual understanding. Of the one hundred eleven papers submitted so many fell into this general area that the workshops on history, philosophy, and methodology all had to be split into parallel sessions to keep the number of papers per group to a manageable number of six to ten. Other topics for the sixteen workshops (altogether) were, for example, *Theology of Nature, Science and Religion in Public Life, and Ethics in the Sciences.*

This concern with mutual understanding is not without a practical significance of its own. Scientists and theologians do frequently misunderstand each other, but in addition the dialogue between them follows decidedly different paths in different cultures. As both the workshops and informal discussions made clear, differences between the Orthodox and Western Christian traditions run deep, and sometimes make communication difficult. Seventy years of Communism have aggravated the situation. As one participant remarked, under Communist rule anyone who wanted to maintain a level of independence chose to work in the natural sciences. Even scholars who would under other circumstances have entered theology or philosophy, studied mathematics or physics instead. As a result, the relationship between these fields is now very different in the former Communist countries from the way it is in the West. This is especially obvious in the predominantly Orthodox region which had a different cultural heritage to begin with, and was under Communist rule the longest.

Although Eastern scholars are usually too polite to mention it openly, Western attitudes are not always helpful. All too often foreign visitors, whether they are exchange scholars, business emissaries, or self-styled religious missionaries, arrive with a patronizing attitude of "showing those poor people how things are done in the real world." Aside from causing understandable resentment, this attitude makes it impossible to engage the long and valuable cultural history of the region in any kind of productive dialog.

Excursions provided a break from the intense discussions for one morning during the conference. Participants could choose between tours of Cracow,

the Auschwitz Concentration Camp, or the Wieliczka salt mine. A highlight of the cultural program was a concert by the *Capella Cracoviensis* arranged especially for attendants of the conference in the National Picture Gallery on the Old Market Square.

ESSSAT, the European Society for the Study of Science and Theology which organizes the conferences, held its plenary meeting and elected a new president. Karl Schmitz-Moormann, a distinguished anthropologist and editor of the works of Teilhard de Chardin, turned the presidency over to Ulf Görman, a theologian of the University of Lund in Sweden. The society also awarded the first ESSSAT prize for young scholars in the field of science and theology to Dr. Hubert Meisinger for his doctoral dissertation at the University of Heidelberg. Dr. Meisinger's work, *Liebesgebot und Altruismusforschung— ein exegetischer Beitrag zum Dialog zwischen Theologie und Naturwissenschaften* ("Love command and altruism research— an exegetical contribution to the dialogue between

theology and the natural sciences") was cited as an original, careful and fruitful combination of exegesis, theology and the natural sciences. The cash award that accompanies the prize was made possible by the Radboud Foundation of the Netherlands.

Conferences in the series have been held every two years since 1986. After Germany, the Netherlands, Switzerland, Italy, and Poland, the probable venue for the 1998 conference will be Durham in Northern England. Graced by one of the oldest and most famous cathedrals in the world, as well as a famous university, the town has long been a focal point for the science and religion dialog within the Church of England.

An assessment of the conference from a specifically Catholic viewpoint, together with some general comments on the science-theology dialogue, will appear in a future issue of the ITEST Bulletin.

ITEST STUDENT CHAPTER ACTIVE IN OKLAHOMA

Kudos to Sister Marcianne Kappes, CST, for establishing a student ITEST chapter at St. Gregory's College in Shawnee, Oklahoma (the photo on page 6) shows some of the members).

Using ITEST's goals and objectives as their foundation, the students formulated their specific purpose and goals:

- 1) To provide a framework within a Christian ethos for scholars of all faiths concerned with an interdisciplinary search for values in a context of cultural upheaval.
- 2) To develop an awareness of, and a concern with, rapid cultural change.
- 3) To communicate such awareness and concern to other segments of Saint Gregory's College and the community.
- 4) To arrange situations in which methodological approaches may be brought to bear on problems with a theological significance.
- 5) To accept gifts and grants, to make disbursements, and to enter into contracts of a kind related to the accomplishment of these purposes.

At their weekly meetings during the academic year the

students discussed topics of interest often using audio, visual and print materials from ITEST Bulletins, Proceedings and articles. Some topics studied this year were: Ecology and Environment, the Wildlands Project, Carbon dioxide and the Atmosphere, Electric Cars or Alternative fuels, Eco-Ethics and the Bible, among others.

This student chapter engages not only in intellectual debate and research but it attempts to put that study to "work" in the field of spirituality. According to Sister Marcianne the students planned an activity to tie in with the theme of the Spring, 1996 ITEST workshop, *Christianity and the Environmental Ethos*. To that effect, with the help of the ITEST offices, a group of students and faculty advisors planned a trip, "Landscapes of the Sacred" to some "sacred" places in Oklahoma and Arkansas. The first stop on this retreat experience was at Fountainhead State Park at Lake Eufaula for prayer at sunrise. Then following mid-morning prayer at Spiro Mounds Archaeological Park, Oklahoma, the group headed to Subiaco Abbey in Arkansas for noon prayer with the monks.

Student Erin Hudson remarked after the retreat experience, "...I am glad that we had this opportunity to reinforce what we discuss in our ITEST meetings."

(Amy Otto, student at St. Gregory's College provided some of the material for this article)



On the steps of Subiaco: From left to right: Top row: Sr. Marcianne Kappes, Norman Cartwright, Gerard LeMoine; Middle row: Father Hugh OSB, Patricia Willis, Erin Hudson, Tom Bell Joe Briggs, Shaquonia Shaver; Bottom row: A.J. Scallon, Happiness Mapira, Edolina(Ninya) Penaloza, Amy Otto.

The ITEST Board and Staff is gratified that S. Marcianne uses her initiative, talent and energy to create a "model student chapter." We are confident that she would be happy to share the secrets of her

success in forming and continuing the work of this student chapter with campus ministry groups. Please contact the ITEST offices if you are interested in contacting Sister Marcianne.

RUSSIAN CHURCH SURVIVES, ENDURES

Dr. Charles E. Ford

[This article is reprinted from The University News — The Saint Louis University student newspaper — for March 22, 1996. Dr. Ford, an ITEST Board of Directors member, has been quite active in researching faith and science in Russia, especially in the earlier years after the Revolution.]

This century has witnessed the most monumental act of destruction in the history of the West — the attempted annihilation of the Russian Orthodox Church by Soviet power. It has also witnessed not only the survival, but the revival of this Church.

In fact, this revival began at the very beginning of the century, well before the revolution of 1917 that brought the Soviet regime to power. The revival began around 1900 with a movement called the Russian religious philosophical renaissance, which saw some of

the leading intellectuals return to the Church.

This return to the Church continued after the revolution and became a mass movement by the 1920s. It was lost sight of when the Church was practically annihilated by the "cultural revolution" of the 1930s, but it continued throughout the Soviet period and continues to this day.

Of the 50,000 major churches existing before the revolution, perhaps only a few hundred were still open, in 1939. The vast majority of priests, monks and nuns had been executed. The toll among the laity is difficult to estimate. The culminating event of the "First Five Year Plan" launched in 1929 was the deliberate starvation of 7 million peasants, mostly in the Ukraine, in 1933.

The history of this event has been told by the renowned historian Robert Conquest in *The Harvest of Sorrow*. This act of mass murder was the direct result of the campaign to collectivize agriculture. A primary reason for it was the necessity to eradicate the "remnants of religious superstition" among the peasantry.

Conquest describes the campaign by sympathizers in the West to minimize or deny the famine, the most influential of whom was Walter Duranty, the Moscow correspondent of the *New York Times*. Although Duranty himself knew that there was a famine, many who believed his denials were idealists who were convinced that the Soviet campaigns to collectivize agriculture and eliminate "religious superstition" were completely based on scientific truth.

Indeed, a major part of the appeal of Marxism has been its claim to be scientific, a claim that was asserted with particular fervor in the campaign to collectivize agriculture and the attack on religion. As it happens, Marx's views on both agriculture and religion were perceptively analyzed well before the 1917 revolution by one of the most famous figures of the Russian religious renaissance, the future priest Sergei Bulgakov.

As a student in the 1890s, Bulgakov had become an admirer of Marx, until his research into economics convinced him that Marx's ideas on agriculture were completely wrong. After that, he began to investigate

Marx's views on religion. In an article first published in 1906, Bulgakov concluded that the essential feature of Marx's thought was a passionate hatred of religion. With the comment that they make "a most repulsive impression on me," Bulgakov analyzed the following quotes from an article by Marx, published in 1843.

Let us not look for the secret of the Jew in his religion, but let us look for the secret of his religion in the real Jew.

What is the secular basis of Judaism? Practical need, *self-interest*."

What is the worldly religion of the Jew? *Huckstering*. What is his worldly God? *Money* . . .

An organization of society which would abolish the preconditions for huckstering, and therefore the possibility of huckstering, would make the Jew impossible. His religious consciousness would be dissipated like a thin haze in the real, vital air of society . . .

Here we have graphically expressed the central idea of Marx's thought, which he stated more succinctly in another article from 1843: "It is man who makes religion, and not religion which makes man." This is the central tenet of Marxism and is at the root of the many attempts by Marxist revolutionaries in the 20th century to annihilate religion.

I have been studying Christianity in Eastern Europe for nearly 25 years and the Russian Orthodox Church under Soviet power for over 15 years. Since 1988 I have been engaged, together with a Russian historian of mathematics, in a joint research project on the early history of the Moscow school of mathematics, whose founders were major figures in the Russian religious philosophical renaissance. This historian, Sergei S. Demidov, is part of the living tradition of this renaissance, one of many scientists who helped preserve Christian intellectual life in Russia during the Soviet period. I spent the last five months of 1995 on sabbatical leave in Moscow, continuing this research.

[Dr Charles Ford is an Associate Professor of Mathematics and Computer Science Department at Saint Louis University.]

Daddy, why do angels have wings, Dr. Thomas Sheahen

"Well, dear, it's -- er-- because -- that is -- so they can fly to earth from heaven, sort of . . . I guess."

"But daddy, why don't they just take an airplane like everybody else?"

From here, this conversation goes deeper in the "not exactly" direction, and the best exit strategy is often to say: "Hey, how would you like a nice cup of hot chocolate with marshmallows?"

Adults chuckle among themselves: "Kids sure ask some strange questions," but sometimes such questions only mask a far deeper issue. This question goes to the core of the way we understand God, our images of God, and the way our entire system of thought changes over time.

It's not hard for an adult (or even older children) to understand that it is our *images* of the angels that have wings. It is a big mistake to confuse *images* with *reality*; indeed, the Eastern Orthodox faiths dislike images specifically because of this risk. We *know* so little of supernatural reality that the temptation to devise images is irresistible. There are very few ways to communicate other than by using images.

But why do angels have *wings*? Why not astronaut rocket back-packs? Why not nuclear-powered roller blades? Where did the wings come from?

Art historians can trace the origins of wings on angels back many centuries, well beyond the renaissance artists, indeed before the time of Christ. The ancient Greek legend of Icarus and Daedalus features humans with artificial wings attached so as to fly toward the sun. Throughout the great majority of recorded history, mankind was constrained to live on the surface of the planet, with no chance to rise above it. It was out of the question for a natural human to travel in the air, and, hence, (by weak but typical reasoning) only supernatural beings could do so. The image of angels with wings follows immediately from assigning a *natural* mechanism (wings, as found on birds) to explain this *supernatural* capability. It is a very basic error even to try to do this.

Along with this came several other notions, plausible enough to be taken for granted: for example, heaven was "up there" in the sky. This notion persisted for millennia. There were other examples where images evolved into "facts". During the renaissance, Michelangelo painted the Sistine Chapel ceiling showing God as a bearded old man, reaching out his finger to Adam to transmit the spark of life. Although people understood it as imagery at the time, a few centuries later, when electricity was discovered, there were clergymen of limited scientific acumen going around calling electricity the "spark of life," a notion derived from Michelangelo's artwork. What had begun as an *image*, pointing to a higher reality, had been slowly transformed into an *explanation* of that reality: and

thus the reality was cheapened by being compressed into terms of mere human existence.

Rapid advances in engineering and astronomy have brought us in the 20th century to a point where it is widely agreed that heaven is not "up there"; in fact, it is not a "place" at all. Rather, it is a new and different state of being. Still, we yearn for some kind of images, and are left unsettled in the absence of adequate images. That's where we stand today. This condition has led to very adverse consequences.

A substantial fraction of the scientific community has abandoned religion altogether, via a four-step process: first, realize that the description of an image (of something spiritual) is inadequate to give a natural explanation of it; second, reject the image; third, confuse the image with the reality; fourth, conclude that the underlying reality does not exist. Many other people, impressed with the learned demeanor and authority of scientists, go along with this line of thinking.

The truly well-educated scientist, who has a command of a particular field, sees more clearly the limits of his/her own knowledge, and is less susceptible to the arrogant presumption that knowledge of everything is attainable. A certain humility before the awesome expanse of science is an important step toward developing humility before God. And once achieved, the foremost application of that humility is to realize that all our human minds will ever grasp are *images* of God, which fall far short of the reality.

Each time God allows the mind of man to unlock another secret of nature, He reveals a little more of Himself; collectively, we call this the "Progress of Science." Going on in parallel, there is an advance in our understanding of the spiritual side of life, as God reveals more and more to the developing human mind. *Both* paths to knowledge are a gift from God. Surprises along *either* path are part of the bargain, but this should not be alarming. In science, we adapt by revising our models — our images of reality. If we trust in God's goodness, we can accept without fear the similar task of revising our very limited understanding of God. That is exactly what Jesus Christ invited us to do, nearly 2000 years ago. The Gospel of Mark is a testimony to how surprised the disciples were, again and again, at the new understanding that Christ offered to them.

Lately, the progress of science has been extremely rapid. We have seen in this century the overthrow of several long-cherished assumptions about nature. Einstein's Theory of Relativity challenged the most

basic structure of human thought and language, wherein time had seemed utterly immutable. All conventional languages fail us when we try to discuss the interchangeability of space and time. As we advance toward the 21st century, we can be confident that there will be further advances in science, which will repeatedly undermine our man-made images of reality. When we cast aside an obsolete image, where is the replacement, that better, more fitting image that still points to the higher reality? If it is slow in forthcoming, then a lot of people who equate images with reality will experience severe challenges to their beliefs. It doesn't have to be that way. The essential point is that images are intended to point to a higher reality. The danger is that, by taking an image too seriously, people will forget the fundamental distinction between what *we* can grasp and the higher reality of God.

If we can accept that *every* image is ultimately inadequate, then even old images can remain helpful. "Angels we have heard on high, sweetly singing o'er the plain" still points to God's message that the birth of Christ is worthy of celebration. "No room at the inn" still conveys the idea that the natural tendency of humans is to think only of short-term expediencies, rejecting the message of Christ. The three wise men from afar still indicates that Jesus came for everyone on earth, not just his immediate neighbors. Dwelling on these old images, as we do each Christmas, should serve as a reminder that God's reality goes well beyond our grasp.

The 1990s child who considers wings irrelevant to angels is actually just like the rest of us. We are all struggling with inadequate images. Fortunately, God's love is unconditional, and doesn't depend on our human struggles and weaknesses.

A WORD FROM OUR CREATOR: A COMMUNICATOR'S LOOK AT NATURE AND NATURE'S GOD

Father Bert Akers, S.J.

[The following article is reprinted from Some Christian and Jewish Perspectives on the Creation, the Proceedings of the ITEST Workshop of the same name, held in March, 1991. It seems particularly relevant to the Editor at the present time.]

The secular world is strangely touchy about the topic of Creation. The greater the achievements of Science, the more Nature reveals a breathtaking 'given-ness' threatening the complacency of the past four centuries. Wonder is not yet worship, and religious answers are officially disbarred. But the perennial questions cannot be. Do such astonishing 'givens' as we daily discover make it more or less credible that there is also a Giver?

Idol or Icon? True Man or manikin? *Theos* or *Theios*? One iota of a difference.¹ Could it possibly matter? It did. It does. To the fevered mobs reeling through the streets of Byzantium, Damascus, Jerusalem, rumbling by torchlight on the back lots of Alexandria and awaiting late reports from the current doctrinal war, nothing could have mattered more. We think it altogether strange, barely credible, untroubled as we usually are about ultimates and absolutes and theological niceties. Except of course when it comes to this business about Creation. Unlike practically any other philosophical or theological topic in our society, Creation has always had a way of making the News. There was the celebrated Monkey Trial. But only recently a highly respected writer was fired from the *Scientific American* when they found out that he accepted Crea-

tion: the assumption was that this would make *scientific objectivity* impossible. Fundamentalists and the textbook publishers are always at it. Natural History museums show us in amazing detail the *Artist's Conception* of any and every Missing Link. There is no hint of a Missing Creator.

MUCH ADO ABOUT SOMETHING

Maybe the fact that as Teachings of Faith go, Creation does seem to have a certain directness about it. Almost inevitably as presented in the popular Media, it does become confused in a jumble of religious, philosophical and scientific misunderstandings. But there is a certain Either/Or quality about it is refreshing. Exclusivity, as everyone knows, is out. Both/And is in. Bridging the polarities. It made President Truman long for a one-armed economic advisor who could not say "On the one hand, but on the other." Inclusivity is in. But every now and then, out of the penumbral fog, one of the great classic formulas reassuringly will gleam with a with a hard and gemlike radiance.

Hydrogen was recently defined on a Public Television program about the Living Universe "as a colorless, tasteless, odorless gas which, given enough time, becomes people." The definition is certainly tasteless

and colorless enough, though hardly odorless.

But even by those standards the Master of the Universe put His own special spin, as they say, on Reality: "It is if I say it is." We're one very lucky bunch of atoms just to be talking about it. Whatever *is* belongs to a very exclusive club.

Even the least theological of journalists can stretch to see that besides *nihil* and *aliquid*, there is no third option (*non datur tertium*). No stuff-out-of-which either. Strictly from scratch. Not a little something left over in the great Fridge. Nothing. There was Nothing. Then there was something. *Creatio ex nihilo*. And just to make sure, the Greeks and later the Scholastics packed down the idea, like a shaped charge, that there was a stage (not yet *Time*) when nothing at all existed: "There was," they said, "when there wasn't!"

That kind of directness attracts attention even today. Because there are few voices with that kind of sureness, authority, conviction, courage. And isn't Religion, most of all, supposed to be caring and sharing and Inclusive? Personal, subjective, sweet and soft, with the doctrinal firmness of a Hallmark card? And the last thing in the world to be unpleasant about! Just the opposite is, of course, the case. There are a thousand angles at which the tower will fall; only one at which it will stand. And the omission of that famous iota would have toppled all steeples of Christendom. It might just be that the stark simplicity of this doctrine may touch some long-dormant sense of what Orthodoxy really does mean. The stakes are very high.

A WORK-IN-PROGRESS

Every religious Truth has enormous implications for our world. But none is associated in the popular mind, as Creation invariably is, with all the dramatic unfoldings of the Space Age: with Black Holes, Antimatter, Evolution, Intelligent Life, and a Mother of All Molecules (DNA) for the human family. Yesterday's Sci-Fi is today's Eyewitness News. Moonwalks. Space walks. Star Wars. Spaceship Earth. Spiritually we are all Trekkies.

Within a generation we've learned to think in vastly different scales of Time and Space. Numbers once reserved for McDonald's beef ("Billions Sold") and Congressional pork ("A billion here, a billion there, next thing you're talking real money.") are used handily to talk real galaxies and real years. Fifteen billion of them since the Big Bang. And all recorded history, Carl Sagan reminds us, represents the last seconds of the last day of the last month of a *calendar year* since

the Big Bang happened (*The Dragons of Eden*, p. 11 ff).

He also reminds us in passing that the two scales we use, one for the observable Universe (a 1 with 24 zeros); and Quantum Mechanics for things about a million of a millionth of an inch small are "inconsistent with each other: they cannot both be correct." (Sagan on Hawking's *Time*, p. 9). As once was true of miracles and mysteries in the ages of religious Faith, a thousand difficulties do not make a doubt. Until recently we have been largely untroubled and unquestioning within this scientific and secular *faith*. That may be what is changing.

It is impossible to imagine that all of this is not having its effect on our psyches. But how much of this translates into a sense of philosophical wonder or religious awe seems very hard to say. Limitation, frailty, vulnerability, yes. Aloneness, thrownness, lostness, certainly to some new degree. The other questions, the classic ones: how did it get here? what are we doing here? what's it all *for*? Is there God? By tacit agreement such questions are hardly ever raised in public.

There are concerns and you take your choice: the earth is warming and the sun is cooling. Not to worry, things may work out: since the earth (slowing) is getting near the sun at the rate of about a centimeter per century. We are almost certainly more aware of the splendors and wonders of our world than any generation before us. There is surely less arrogance and scoffing, probably more sense of mystery and kinship with all *Creation*: a work-in-progress, but not clearly a *work of His fingers*.

PLACARDS IN THE PARK

Actually it may well be those picketers in the park can best help us understand how we got this way. Wrong they well may be on the issue. But they are dead right as usual in sensing the critical importance of the issue, the children of this world being street-wiser about this sort of thing. Whatever form it may take, civil liberties, academic freedom, whatever, the real issue is the same Old Enemy. Incredible to these sons and daughters of the Enlightenment that the bony old hand keeps popping up through the leaves. "O well," they say. "Let's do it right this time. *Ecrasez l'infame!*"

It's a strange lot, the protesters and demonstrators and lobbyists. A roundup of the usual suspects. The crowd you can always count on for political action when there's trouble in the Secular City. They understand as did their predecessors in the parks of Chalcedon and Nicaea, that Truths have consequences.

Still, why Creation? With so many unpalatable religious affirmations to choose from, in a society so largely unaffected by religious teachings anyway, why make a such a public to-do about this one?

Almost certainly because they sense that something altogether crucial is at stake here. It has to do with God and Revelation and the Church, with Education and pluralism, and the Great Wall of Separation. Only far more fundamental. It has to do with Meaning and the Material world. It has to do with Intelligence and Intelligibility. It has to do with Nature. And, one might cautiously assume, with Nature's God.

THE BOOK OF NATURE

Kierkegaard observed that only way to understand our lives is to trace them backwards; but that unfortunately we have to live them forwards. The West lived so long off the accumulated riches of the classic and Judeo-Christian inheritance that it has taken centuries to achieve a kind of spiritual bankruptcy. Conversely, for us, after four centuries of conditioning, it is hard for us to imagine how our modern way of looking at *Nature* could ever have been otherwise. Not very different from our everyday lives; because most people live rather sanely in their world. But very different from our *theory*: from the sort of *explanations* offered in the textbooks.

NATURE'S VOICE

How do we know the fire is hot? To say it *tells* us so is neither projection, nor poetry, nor anthropomorphism. Reality *speaks* by being and doing. "Each mortal thing does one thing and the same. . . Crying what I do in me: for that I came." (Gerard Manley Hopkins, Poem 571).² No sane philosophy ever doubted it. It is in fact the ultimate criterion for sanity. In philosophy and in people. Reality therapy means looking at, listening to, Reality.

None of the great philosophies ever doubted that things *expressed themselves* by the very fact of being themselves. Their question was rather the mystery of it all. How it could it be? whence it came? where it might be found in its purest expression, this inner intelligibility of things? The universal Exemplarism of Plato, and above all the Greek understanding of the *Logos* made possible a synthesis in which the Alexandrine Jews, the Fathers of the Church, and Christians for the next thousand years took it for granted that all creatures, great and small, glorified their Creator, each with the voice of its very nature.

For Bonaventure, "The created world is a book where-

in we may read the creative Trinity. It is a resplendent mirror showing forth the wisdom of God" (Lacroix, p 26 f). For him and for all Christians, the *Logos* made Flesh, itself the Symbol, the Sacramental Center of the Cosmos, brought about the unity of all things, visible and invisible, in Christendom.

The Finger of God (*digitus Dei*) was not only there (quickenng Adam in Michelangelo's great mural), it left traces, patterns, impressions, calling cards (*vestigia Dei*). If we can tell in an instant that it was John who parked the car and Aunt Flo who made the soup, is it conceivable that things so splendid, so unlikely, so funny, would bear no mark of their Maker?

What is *Nature*? Nature according to Thomas is that: *ratio cuiusdam artis, scilicet divinae, indita rebus, qua ipsae res moventur ad finem determinatum*. The standard translations are not good:

The reason of a certain art, namely, the divine, written into things, whereby they are moved to a determinate end. (*In II Physics* lec. 14. Cited by McCoy, p. 163.)

Despite the translation, what shows through is a theology, a spirituality, a prayer and a hymn of praise. It is also the kind of real philosophy anybody's uncle could say "Yup" to with a lot of understanding. But it is nearly impossible to translate into English for the very reason that we are talking about here: the severing of our metaphysical roots. Roughly, *Nature* is the very design, meaning, essence, structure that the maker's art, skill, know-how, builds right into things (a wrench, a light bulb); by reason of which (design, structure, etc.) things do what they are designed to do, achieve the purpose they were intended for (tighten bolts, light the room). In the case of things not made by us (the sheep, the rose) it is the Divine Artist who puts that *Nature* into things, that power by which they are themselves, *do their own thing*, and achieve their purpose and that of the Artist who made them.

Not without reason the changed relation to Nature in modern Science and Philosophy almost perfectly parallels the very concept of the "artist," human and divine.

THE MODERN SPIRIT

The change was barely perceptible, at first. Most of the early modern scientists were Believers. Often their scientific quest was scarcely distinguishable from their reverential awe of God's handiwork. Each puzzle solved only led them to greater admiration for the *Mind of the Maker*. Above all they were astounded at the correspondence between the way things worked

and the mathematics that first explained what happened and then even predicted what would happen, what in fact would have to happen.

The *Laws of Nature* seemed to take care of everything. But for that very reason the sense of mystery gradually diminished. And of course the more admirable the machine, the less need for maintenance, let alone for the Inventor to be hanging around. Not that God was honored less, but that Nature was honored more. So the Creator became at best the God of the Deists, the God of the Philosophers.

As is so often the case, it is the poets, like canaries in the mineshafts, who first express alarm. None were more prescient or more uneasy than John Donne:

And new Philosophy calls all in doubt,
The Element of fire is quite put out;
The sun is lost, and th'earth, and no man's wit
Can well direct him where to looke for it. . .
'Tis all in pieces, all cohaerence gone;
All just supply, and all Relation. . . .
For the world's beauty is decayed, or gone,
Beauty, that's color, and proportion.

The metaphysical experience of contingency, stupefying wonder that the Great Clock of the Universe was running so well, or existed at all, was fading fast. Asked by Napoleon where God would fit into such a perfectly functioning Universe, LaPlace gave his reply: "I have no need of that hypothesis." LaPlace would not be the last among the great mathematical and scientific minds who seem to find it almost impossible to distinguish computation from causality. We hear it continually in explanations about Relativity, Quantum Mechanics, Randomness, Chaos. We are taught that the earth's axis is off, or its speed or orbit not exact. It is a very understandable mistake, an occupational hazard. But it's a Faustian slip if there ever was one.

Both Aristotle and Thomas had taught that the mode of the natural sciences must be *dialectical*, inquiring, with reserve and tentativeness, because we are not after all the *artists* who made these things. Far different is the spirit of the *New Learning* which sees that Knowledge is Power. Now instead of just listening to Nature, letting her *speak*, we should put her on the rack and make her tell us what we want to hear.

So obvious today. But it was clearly both shocking and exhilarating to the early modern mind. Even for an Immanuel Kant. We can still hear the fascination in this passage which provides exceptional insights both into the methodology of the sciences and the psychology of the modern soul:

It is hypotheses, then, that our reason produces after its own design, and compels nature to reply to [the *rack* theme, by then a commonplace].

When experiment confirms our hypotheses, we are flattered to find ourselves *artists*, as it were, who have made the *designs* which we recognize in nature. But the reason for this is that we increasingly share in the *divine art by which the universe is made*. [Italics mine]. (Preface to the 2nd Edition of *The Critique of Pure Reason*. Cited by McCoy, p. 162).

The view does indeed begin to look familiar, though probably not from this angle. In classic and Christian philosophy knowing (theoretical, speculative science) was the highest occupation; then *doing* (the exercise of virtue); then *making*. But the modern spirit finds that being an *artist* is far more fulfilling (*flattering*) than contemplating the works of the Creator.

What is all important is that this spirit is by no means confined to the natural sciences. In the Arts, creative genius becomes a law unto itself. With Machiavelli, Politics, once the highest exercise of Virtue becomes pragmatic professional technique (both lion and fox, knowing how to be bad as well as good). Not even the traditional Common Good is any longer the norm, but an arbitrary goal established by the Artist/Ruler. Form and Finality, *Nature in her givenness*, all is melting away. This time Tennyson:

O Earth, what changes hast thou seen.
There where the long street roars, hath been
The silence of the central sea.
The hills are shadows. For they flow
From form to form, and nothing stands.
They melt like mist, the solid lands;
Like clouds they form themselves
And go. . . .

So that in its final stage, it is not a question of any sort of further *desacralization* of Nature. But rather its denial. In what would seem to be in obvious contradiction to the very object and dynamism of Science, a denial of fixity, of form, of causality, of certitude, objectivity, meaning itself.

The problem is not really that mountains, thought to be the very symbol of permanence, are peaking and troughing like waves; that there is more *space* than *solid* in Professor Eddington's famous table (nor thereby any less a *Table*); or that the cellular structure of the mongoose has any bearing on the philosophical meaning of its soul, animating principle, organic Form,

Nature.

Agreement (or even disagreement) is difficult since the frame of discourse has been so long neglected. But the problem is almost certainly deeper, a thing of the spirit rather than of the mind. It will not accept *Nature* because it feels that it cannot, whether for reasons of pride or self-respect, accept the givenness of things.

Cannot accept being given, gifted, graced. It is not *flattering*. And then there is always the worry that where there is the *given*, there may also be a Giver.

POST-MODERN WORLD

It is no longer the age of purely *objective* Science in the distorted sense. We are much more aware of how much we do indeed *structure* our world, whether the symbol-system we use is that of myth or metaphor or mathematics. That is just another way of saying that we are living in the *post-modern* world.

Science is rightly esteemed. But the mood has changed. It the age of Hi-Tech. But also of Hi-Touch. It is the age of The Person. And no message will sound like *Good News* to men and women today if it does not contribute to *being a person* — whatever that may turn out to be. But with *Person* we are drawing very close to the greatest of the Mysteries. All *things* the Fathers used to delight in point out, "are created in God's Image; but only of Man and Woman is it written that they are made also in His Likeness."

And here, in the coming age, our differences from the secular world may grow more apparent. The enlightened secular may realistically doubt that all human needs and desire will ever be satisfied; but seems very confident in knowing what those needs and desires are. The believer is not entirely sure what the depths of his mind and the hollows of his heart are aching to be filled with; but he has no doubt that filled they will indeed be, pressed down, heaped up, and running over. "I shall make them drink the torrent of my pleasures!," saith the Lord who telleth it like it is.

It is not a question of disinterring *that old-time religion*. The gifts are not lacking. We have scarcely begun to open them yet. If we do, we will find them consonant with our greatest hopes and aspirations. Only greater. Greater than our hopes, our logic, our hearts.

For the Theology of Creation, of the Image, and of the Logos is centered on the culmination of all *Nature*: which is Person. It is not as splendid *thing* but

uniquely *as person* made in His very Image and Likeness that we are:

HEARERS OF THE WORD

God stands in need of nothing, we would say, protecting the divine sovereignty. But for the modern person, it's not much fun trying to relate to someone who stands in need of nothing. And protecting His sovereignty hardly seems what He was about. Since we are here, it seems much more likely that He wanted somebody to talk to, maybe even talk with. Maybe we're not listening.

SPEAKERS OF THE WORD

In what are we more like Him than in His creativity? Like the Divine Artist, we too have the *creative word* that constructs, fashions our world. Not in *words* only but everything we do, creating our world, creating ourselves. So it is that we are the Lords, *having dominion*. That we are the Scientists, *naming the animals*, knowing their natures. Artisans. Charged with *keeping the earth and working it*. Collaborators with God.

SHARERS OF THE SELF

Finally we have learned that the ultimate expression of the Self is the gift of the Self. That's the ultimate *word* that can be spoken. Amazing, as the old joke had it, how much Our Father seems to have learned in such a short time. St. Paul keeps asking what did God know and when did He know it. But the evidence is overwhelming. He knew all along, Paul concludes, planned the whole thing. *That* was the *Mysterion* hidden from the beginning. Even then. The Word was with God. And the Word was God. And the Word was made flesh and dwelt amongst us.

But we will need the grace of asking for the grace of accepting the gift. And so we pray:

*Adjutorium nostrum in nomine Domini.
Qui fecit coelum et terram.*

Our help is in the name of the Lord.
Who made heaven and earth.

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ENDNOTES

1. In the Arian controversy, finally settled dogmatically at the Council of Nicaea in 325 AD, the difference

between orthodoxy and heterodoxy literally was the difference of an iota: is Christ Jesus *theos* (God) vs *theios* (God-like) or *homoousios* (of the same substance) vs *homoiousios* (of like substance) as God? As we know, The Fathers at Nicaea proclaimed Christ as *theos, homoousios*.

2. Citing Hopkins is always a problem because many of his poems have no "titles." This famous poem is often referred to by its first line ("As kingfishers catch fire . . ."). This standard numerical reference is from *Poems of G. M. Hopkins*. W.H. Gardner (ed.). Oxford University Press. Third Edition. 1956.

**SOME THOUGHTS ON THE DEMON-HAUNTED WORLD:
SCIENCE AS A CANDLE IN THE DARK**

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The Editor has thoughtfully re-printed Fr. Aker's essay immediately before this pseudo-review. I personally am not sure whether this is a benefit or a curse. I am more inclined to the latter, because Bert writes so much more "legibly" than I do.

A few months ago, while I was in a more than usually penitential mood, I decided to review the latest book by Dr. Carl Sagan. It has the very interesting title *The Demon-Haunted World — Science as a Candle in the Dark*. Dr. Sagan does seem to be demon-haunted, or hag-ridden — as the case may be. Reading this book carefully was a penance for me but one which had a strange result. I had expected to grow even more frustrated with Sagan, but I ended up pitying him and praying for him. I hope that the reasons for this will become apparent in this treatment — I really don't want to call it a review.

Sagan's book is such a scatter-shot of opinion (digested and undigested, if you'll pardon the mixed metaphor) that it is almost impossible to react to it in a systematic way. Consequently, my own reaction will be far less than systematic — and probably the more human for that.

I am told that at one time good reporters were instructed to ask the five "W-questions" (and relate the answers): who, what, where, when and why. Another question might well relate to how was the above accomplished (or not accomplished). The answers to these questions would validate the story and, in that sense, lead to the "truth" of the report. Dr. Sagan often invokes "truth," but never clearly points out that "why" at least is not a scientific category.

ry. Nor does he mention why "why" is not a scientific category.

Sagan remarks (pp. 322-23):

But there's something else: I find many adults are put off when young children pose scientific questions. Why is the moon round? Why is grass green? What is a dream? How deep can you dig a hole? When is the world's birthday? Why do we have toes? Too many teachers and parents answer with irritation or ridicule, or quickly move on to something else: What did you expect the Moon to be, square?" Children soon recognize that somehow this kind of question annoys grown-ups. A few more experiences like it, and another child has been lost to science. Why adults should pretend to omniscience before 6-year olds, I can't for the life of me understand. What's wrong with admitting that we don't know something? Is our self-esteem so fragile?

What's more, many of these questions go to deep issues in science, a few of which are not yet fully resolved. Why the Moon is round has to do with the fact that gravity is a central force pulling toward the middle of any world, and with how strong the rocks are. Grass is green because of the pigment chlorophyll, of course — we've all had that drummed into us by high school — but why do plants have chlorophyll? It seems foolish, since the Sun puts out its peak energy in the yellow and green part of the spectrum. Why should plants

all over the world reject sunlight in its most abundant wavelengths? Maybe it's a frozen accident from the ancient history of life on Earth. But there's something we still don't understand about why grass is green.

. . . . But every question is a cry to understand the world. *There is no such thing as a dumb question* (italics mine).

That last sentence being true, I'd like to refer to an earlier set of statements by Dr. Sagan. I put it in a spirit of questioning. Would Sagan be put out with me if I put a further question — asking why gravity is a central force? How might he respond beyond saying that it is a central force. "Why" doesn't enter into it. That's true, but only because final causation is not treated in science.

How does the dissertation on why grass is green differ from he calls "special pleading" (cf. 213) in a chapter entitled "The Fine Art of Baloney Detection." It is part of what Sagan calls his "baloney detection kit." Strangely, he doesn't mention that that kit is really nothing more than a list of rhetorical fallacies developed by the ancients. It was well known and widely used by the "ignorant and superstitious" medieval logicians, philosophers and theologians. These people of course were not "skeptical" — one of Sagan's great scientific virtues.

* special pleading, often to rescue a proposition in deep rhetorical trouble . . . (*How can there be an equally godlike Father, Son, and Holy Ghost in the same Person? Special plead: You don't understand the Divine Mystery of the Trinity* (italics his). . . .

My question (and remember: "There is no such thing as a dumb question") is this: why is the response "we'll know more later" why grass is green is not special pleading while "we'll know more later" about the Trinity is special pleading? Actually, the answer to that, in Dr. Sagan's thought, may be less difficult to discover than a we might imagine. It probably comes down to the simple statement: "That's different."

It is indeed different because Dr. Sagan does not admit to an afterlife. He does not admit to anything that cannot be quantified. After all, Sagan is a materialist and we should not expect him to deal very seriously with quality, even though he dwells on awe. If we grant him his assumptions, though, we will have to grant him his conclusions. The devil is almost always in the assumptions. What are Dr. Sagan's assumptions?

Like all "modern scientists" and opposed to most "modern deconstructionists," Sagan presumes that the universe is knowable, is intelligible. Otherwise, the science he loves would be impossible. But, one wonders why Sagan didn't note that this concept of the intelligibility of physical creation is both a Jewish and Christian notion — not a product of the Enlightenment. It is a clear position by the time Basil of Caesarea (ca 350 AD) wrote the *Hexaemeron*. Modern science depends utterly on the commensurability of the human mind with physical reality. I wonder why this wonder is not met with more wonder — not only by scientists but also by every thinking person. Is it not an awesome thing? Is there any necessity that such harmony exist?

Sagan builds what he considers an unassailable case on science's success at predicting eclipses. He says:

Think of how many religions attempt to validate themselves with prophecy. Think of how many people rely on these prophecies, however vague, however unfulfilled, to support or prop up their beliefs. Yet has there ever been a religion with the prophetic accuracy and reliability of science? There isn't a religion on the planet that doesn't long for a comparable ability — precise, and repeatedly demonstrated before committed skeptics — to foretell future events. No other human institution comes close.

Is this worshiping at the altar of science? Is this replacing one faith by another, equally arbitrary? In my view not at all. The directly observed success of science is the reason I advocate its use. If something else worked better, I would advocate something else. Does science insulate itself from philosophical criticism? Does it define itself as having a monopoly on the "truth"? Think again of that eclipse a thousand years in the future. Compare as many doctrines as you can think of, note which ones are precise, and which doctrines — every one of them subject to human fallibility — have error-correcting mechanisms built in. Take account of the fact that not one of them is perfect. Then simply put the one that in a fair competition works (as opposed to feels) best. If different doctrines are superior in quite separate and independent fields, we are free to choose several — but not if they contradict one another. Far from being idolatry, this is the means by which we can distinguish the false idols from the real thing [from real idols, I ask?].

Sagan continues with more of the same sort of thing. It seems strange (inconsistent?) that he uses the logical fallacy of setting up a straw man (cf. p.215): caricaturing a position to make it easier to attack. How many religions are in the business of predicting (not prophesying, as Sagan would have it) the incidence of eclipses? I have been a Christian for 65 years and a priest for 32 and no one has ever asked me to predict the occurrence of an eclipse. And "No, Dr. Sagan, I don't as a Christian yearn for a comparable ability to foretell future events." Christianity is profoundly interested in prophecy — not in predicting the future. For a Christian, prophecy is proclaiming the wonderful works of God, not in predicting eclipses. And, as an aside, when was the last successful prediction of an earthquake? Not lately. Will such predictive ability ever be available? Probably. But not yet.

There is a very interesting clue to Sagan's thinking in the paragraph immediately preceding those quoted above.

. . . . If you want to save your child from polio, you can pray or you can inoculate. if you're interested in the sex of your unborn child, you can consult plumb-bob dangles all you want (left-right, a boy; forward-back, a girl — or maybe it's the other way around), but they'll be right on average only one time in two. If you want real accuracy (here, 99 percent accuracy), try amniocentesis and sonograms. Try science.

What's apparent from this — aside from using straw men — is the either/or nature of Sagan's view of reality. This either/or mentality pervades the entire work. It never seems to occur to him that perhaps one might both inoculate a child against polio and also pray for the child not to get polio. In almost every way Sagan reveals himself as an either/or not a both/and. This, is a crucial observation. Sagan has ruled out the possibility of the reality of anything that escapes the scientific method.

For Sagan it's either science or religion. If you want predictive ability you turn to science or religion. If you want skepticism you find it either in science or religion. But almost by definition, Sagan sees the believer as gullible, uninterested in fact and willing to believe almost anything. I suspect that it might come as a surprise to him that Christianity has to know and live in the world-that-is. That, however, may come as a surprise to some Christians as well.

We believe in an incarnate God, born of a woman — as we are. We look forward (not by way of prediction) to a future final stage of our lives. We must know

both the universe as it is (or as best we can know it at present) *and* the will of God (as best we can discern it). These are not options for Christianity. There is no either/or. For us, it *must* be both/and. This, of course, does not mean that each individual Christian must know as much as possible about the creation — but the Faith must do its best.

Sagan makes a big deal about science being a self-correcting operation. Well, if he took the trouble, he would discover that Christianity has always been self-correcting. The error is known as heresy. Quite often, Ecumenical Councils were called precisely to correct interpretations of the Catholic message that were alien to the truth.

Also, at one point Sagan with pride talks about probing arguments in scientific meetings as if it were true only of science. Perhaps he has never sat in on a philosophical or theological seminar.

Another problem Carl Sagan has concerns visions. On page 145 he writes: "Both Jeanne d'Arc and Girolomo Savonarola were burnt at the stake for their visions." In the case of Joan of Arc, the reason for her burning at the stake was political, her visions were at best secondary. The immediate reason, as I say, was political — the English were losing. Sagan is also deeply bothered, so he says, by the *prosaicness* of medieval Marian apparitions. He make the following comment on the ordinariness of "Mary's message":

. . . . Why not important and prophetic messages whose significance could be recognized in later years as something that could have emanated only from God or the saints? Wouldn't this have greatly enhanced the Catholic cause in its mortal struggle with Protestantism and the Enlightenment? But we have no apparitions cautioning the Church against, say, accepting the delusion of an Earth-centered Universe, or warning it of complicity with Nazi Germany — two matters of considerable moral as well as historical import, on which Pope John Paul II, to his credit, has admitted that the Church has erred.

Is Dr. Sagan thinking more about himself than about a Spanish peasant in the 13th century? Try to imagine the reaction of the latter to a message about Nazism that would be appropriate to someone in the 20th century. Would he or she have any idea of the nature of Nazism or even what Germany was? Would he or she have gained any knowledge of God's will to be applied to his or her life? Sagan's idea of the purpose of a vision is vastly different, evidently, from God's.

God seems monumentally unconcerned whether a 12th century vision helped Carl Sagan more than the person to whom it was given. This stance of Sagan's, however, gives some insight into his reasoning and desires.

In line with that, although the line of argument is certainly not confined to him, Sagan must mention the Inquisition and the "medieval (so he says) witch hunts. I wonder why he doesn't include in this list of horrors the glorious accomplishment of the Goddess Reason — the Reign of Terror. Oh well, maybe it would have made the book too long.

There are many other examples of Sagan's myopia but I will conclude with just one more.

If you accept the literal truth of every word of the Bible, then the Earth must be flat. The same is true for the Qu'ran. Pronouncing the Earth round then means that you're an atheist.

...

What nonsense! I suspect that Sagan knows that this is nonsense, but it's an argument. My counter-statement would be to ask Sagan whether, if the Bible had pronounced the Earth round, he would be a believer. If so, he has an extremely superficial notion of Judaism and Christianity. If not, why does he even bring it up? It's easy to ridicule the notions of 3,000 years ago. But what *data* did the ancients have beyond their own personal experience? It would have been extremely difficult if not impossible to posit a round Earth. To turn the tables just a bit, can't we snicker a bit at LaPlace's nebulosity theory — the great scientific pronouncement of less than two hundred years ago?

As I have said, there are many such examples like this throughout the book. This makes a rather jaded reader like myself wonder whether Dr. Sagan is engaged in page after page of special pleading. I must admit that the book reminds me of a nine year old whistling past a graveyard. Sagan opines:

... many religions — devoted to reverence, awe, ethics, ritual, community, family, charity, political and economic justice — are in no way challenged, but rather uplifted, by the findings of science. There is no necessary conflict between science and religion. On one level, they

share similar and consonant roles, and each needs the other. Open and vigorous debate, even the consecration of doubt, is a Christian tradition going back to John Milton's *Aeropagitica* (1644). Some of mainstream Christianity and Judaism embraces and even anticipated at least a portion of the humility, self-criticism, reasoned debate, and questioning of received wisdom that the best of science offers. . . .

The religious traditions are often so rich and multivariate that they offer ample opportunity for renewal and revision, again especially when their sacred books can be interpreted metaphorically and allegorically. . . .

Sagan then goes on to congratulate Pope John Paul II's acknowledgement "that Galileo was right after all, that the Earth does revolve around the Sun. . ." It seems to escape Sagan's understanding that Galileo was not condemned for being wrong — he was condemned for going back on his promise to teach this only as a theory. Sagan must certainly be aware that Galileo's "proofs" did not prove and that his contemporaries knew it. So much for history! Clearly, Sagan worries only about religions that proclaim their message "in season and out." If they're willing to bend and shift with the scientific winds, they're terrific. It might come as a shock to him that at least some of those religions he approves of still believe and proclaim that Jesus Christ is both God and man.

As a final riposte to one who lives in a "demon-haunted world" and feels perfectly free to call science the opposite of superstition (which includes any kind of belief in anything that cannot be quantified), I'd simply point to vocabulary. Sagan is big on *truth* (as he understands it), *awe*, *wonder*, *evidence* (again, as he understands it) and *independence of authority* (without yielding the authority of scientific methodology and enterprise. He rarely (if ever) uses such words as *goodness*, *kindness*, *hospitality*, *beauty* and *love*. That tells me all I want to know.

I am told that Sagan has written in *Parade Magazine* that he'd like to believe in God, but can't. I urge that we all pray to God to move him beyond the wish to the deed, but, if that can't be done, to accept the wish and save Dr. Sagan to enjoy the real richness of the creation and of the Kingdom.