



# *Institute For Theological Encounter* *With Science and Technology* *“Where Faith & Science Meet”*

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## The Puzzling Viewpoint of Atheists

During 2010 there has been a resurgence of anti-religious writing, speaking and activity, a lot of which seems to originate in England. The Pope, during his recent visit there, encountered hostility from demonstrators. The strident atheist Richard Dawkins is always ready with a TV sound bite blasting religion. Just recently, in a new book by the esteemed British physicist Stephen Hawking, he asserts that the universe created itself, not needing God at all.

In this issue, ITEST member Francisco Muller reviews Hawking’s book *The Grand Design*. Another book, published roughly about the same time, is Fr. Robert Spitzer’s *New Proofs for the Existence of God*. Among other arguments, Spitzer carefully examines the incredibly tiny probability that the universe we live in could be a result of chance alone. It comes down to a binary choice: either you *believe* that God created the universe, or you *believe* there is an infinite number of universes (a “multiverse”), all but one of which cannot be observed, even in principle.

Being trained as a physicist, I’m familiar with the “canon of parsimony” also known as “Occam’s Razor” by which you prefer the uncluttered explanation and never festoon a theory with extraneous notions that are unobservable in principle. Every theory in physics obeys that rule; we all know it and all agree with it. To embrace the multiverse hypothesis, you have to abandon the scientific method, essentially resigning from the world of science.

I wonder what goes on in the minds of scientists who adhere to the multiverse theory? There must be some absolute blockade that causes them to refuse *a priori* to consider God’s role. Only after you’ve rejected God (and rejected the observational evidence coming from what we see all around) can you entertain the thoroughly unscientific notion of an infinite number of unobservable universes. I suspect there must be some urgent interior demand to reject God at all costs.

In a recent speech in Rome, as reported by *Zenit*, Archbishop Raymond Burke reminded us that “Satan does not sleep” and in the culture of today, he is tempting humankind to act “as if God does not exist.” Instead, Satan is “teaching us a radical individualism and self interest which leads us away from the love of God and love of one another.”

That may provide the answer to my question. Hawking’s book is based on the premise that God does not exist, and he spends 150 pages circularly arguing back to that point at the end — and leaves a trail of mystified readers thinking “Hawking surely must be smart... I don’t understand anything he says.” It must be a very strange sort of “radical individualism and self interest” that enables anyone else to accept his atheistic credo.

The “Theological Encounter” that ITEST seeks begins with an openness to new concepts and new ways of looking at nature. On one hand, I wish those scientists who are not open to God would re-examine their commitment to atheism and allow the possibility that we might have something useful to say. On the other, I realize that our main task is to provide support and encouragement as we strive toward (in Archbishop Burke’s phrase) “the love of God and love of one another.” We depend on each other to make progress, both intellectually and spiritually.

Thomas P. Sheahen, Director

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## Announcements



1. This year the ITEST Board of Directors decided to experiment – as true scientists—with a one-day conference, “Food, Glorious Food.” Held at the Rigali Center, in St Louis, September 25th, this format drew people from the surrounding area who ordinarily would not invest in a weekend conference. Thanks to the generosity of an anonymous donor who subsidized a portion of the registration for attendees, we attracted high school teachers and students from science and religion classes who were eager to hear about the aspects of genetically modified food, organically grown and produced food and the differences between the two. At the same time they learned about the strengths and weaknesses of both. Since theological reflection is a basic component of every ITEST meeting, the analysis of food in the Gospel of St. Luke provided an all encompassing structure for the entire day. See page 11 for the essay Mary Margaret Pazdan, OP presented at the conference, “Meals and Hospitality in the Gospel of Luke.”

2. The annual Fall, 2011 ITEST conference will deal with progress in stem cell medical technology, including its ethical and moral implications. Recent advances pertaining to adult stem cells, notably re-programming to the earliest stages, have far outstripped developments in embryonic stem cell research. ITEST’s intent is to give participants an updated grasp of the issues of the debate. This conference will be under the leadership of Fr. Kevin FitzGerald, SJ, a nationally well-known expert in this field. Professor Donald Sparling of Southern Illinois University at [dsparl@siu.edu](mailto:dsparl@siu.edu) is managing the structure of the program. Presentations will include both invited papers and contributed papers. To have your paper considered, send ITEST an abstract (<500 words) by March 1, 2011. The location will be in the St. Louis area. The final dates have not yet been settled.



3. Agustin Udias, SJ, an ITEST member and professor of geophysics at the University of Madrid, has written a book in Spanish titled, “Ciencia y religión: Dos visiones del mundo” published by Salterae, 2010, pp. 423. If anyone would like to review this book, we would be happy to send you a complimentary copy.



4. Our faith/science educational project, Exploring the World, Discovering God, is well underway with pilot schools signed up to teach the material for grades 5-8. According to our project manager, Evelyn P. Tucker, “...we have 25 teachers in 12 schools in St. Louis, MO, Fall River, MA, Grand Rapids, MI, Portland, MI and Sullivan MO. We have pilot modules being taught in the following grades: Grade 5: eight teachers; Grade 6: ten teachers; Grade 7: six teachers; Grade 8: seven teachers.” At the end of the school year, in the spring of 2011, Ms. Tucker will collect all the evaluations, analyze and assess them and make further refinements to the lessons using recommendations of the pilot teachers. Then our web designer, Bill Herberholt, will convert the WORD documents to PDF’s and upload the lessons to our web site. To refresh your memories, we urge you to review the K-4 faith/science lessons at [www.creationlens.org](http://www.creationlens.org) The last count revealed close to 145,000 actual downloads of K-4 lessons worldwide.



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## A Physicist-Philosopher Reviews “The Grand Design” of Stephen Hawking.

by Francisco J. Muller

Stephen Hawking, the popular English genius, bound to a wheel chair and to computerized voice communication, has produced, together with co-author Mlodinow and in less than 200 pages, one of the most impeccably printed and beautifully illustrated books of recent years, which contains, unfortunately, a grandiose summary of the latest and most advanced scientific gaps and philosophical aberrations of our times. If anyone enjoys a blunt attack on the Judeo-Christian idea of Creation in the name of “science,” this is the book to read.

Right from the very first chapter, entitled “The Mystery of Being,” a summary of those grandiose ideas are presented without shame: the Universe has not one but several histories, all taking place at the same time (hence the idea of “multiverses”); we select, by just existing here, our own Universe. Yes, as you hear it: we *determine* the past history of the Universe. In this sense, we are “the kings of creation,” (actually the gods of creation). The crucial questions of life are: “*why there is something rather than nothing?*”. “*Why do we exist?*” “Why are physical laws the way they are?: All these questions are certainly philosophical questions, as Hawking recognizes, but since “philosophy is dead” as he triumphantly declares on page 5, then scientists must become, by default, the new “torch bearers of discovery” and of rational explanations.

The final conclusion: in the name of String theory, especially in its hypothetical version called M-Theory, is that “*because there is a law like gravity, the universe can and will create itself from nothing.*” This conclusion is written on page 180, just one page before the last one of the book where he kindly adds and clarifies for us that “*M-theory is the unified theory Einstein was hoping to find*” Hopefully, “*if the theory is confirmed by observation,*” then... “*we will have found the grand design.*” Hence the title of the book.

Readers of the previous book by Hawking, the arch-famous “Brief History of Time” must remember how differently he ended that book of 1988: “*if we discover a complete theory... then we shall all, philosophers, scientists, and just ordinary people, be able to take part in the discussion of the question of*

*why it is that we and the universe exist. If we find the answer to that, it would be the ultimate triumph of human reason – for then we would know the mind of God.*”

It seems that after 22 years, the philosophers, for Hawking, have produced only “*dead philosophy*”; ordinary people have become victims of the “*naïve view of reality... which is not compatible with modern physics*” (as he writes on page 7) and, of course, God has lost his job as Creator.

In spite of the great different endings, both books show a striking similarity: they both end with a grand IF word: “*If the [M-] theory is confirmed...*”; “*If we find the answer...*” So given this “iffy” condition of both books one could just forget them as well and put them to rest under the category of “wishful thinking”, or “hypothetical dreams”. My review could end here. But of course, the amount of philosophical contradictions and scientific gaps in the Grand Design are so many that it is almost entertaining to describe them.

1. On page 7, when confronted with different scientific models of reality, “*we are free to use whichever model is convenient.*” But then, on page 32 he writes that “*it seems that we are no more than biological machines and that free will is just an illusion.*” So on page 32 we lost the freedom (for human purposes) that we enjoyed on page 7 (for scientific ones).
2. On page 34 he says that his book “*is rooted in the concept of scientific determinism*” namely, in the old style of 19th century Laplacian determinism, which is the main reason why Hawking destroys freedom, not only human but even divine, (so there cannot be miracles). And then on page 70 he presents “Heisenberg’s uncertainty principle,” which is the exact opposite of Laplacian determinism. This opposition, of course, is not Hawking’s fault. In fact, he struggles through a good number of pages (thirteen indeed) to try to conciliate both opposing philosophies of science. He even quotes Einstein’s famous dictum that “God does not throw dice,” to attack quantum indeterminism. But then Feynman “saves” the case by inventing “the sum over histories” and performing calculations with his famous “diagrams” that have all been proven by experiment. Some of these diagrams include the bizarre idea that time can flow backwards, (a minor philosophical atrocity, but which we can “swallow” for now). At the end Hawking, following the trend of contemporary quantum Physics (and again this is not

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Francisco J. Muller

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his fault), introduces the observer as the main actor of nature. Indeed, here is where the idea that we determine the Universe comes from. He goes as far as quoting John A. Wheeler, the famous cosmologist who believes that human consciousness not only shapes the present state of nature but even its past as well. In an (in)famous cosmological thought-experiment of Wheeler, Hawking writes that light photons have a “*choice whether to take one path*” or another. And that that “choice” has been made “*billions of year ago, before the earth or perhaps even our sun was formed, and yet with our observation in the laboratory we will be affecting that choice.*”

The reader can pause here for a moment to “admire” how people who are supposed to be intelligent can create so much nonsense. First we are not free (just biological machines). Next deterministic nature becomes indeterministic and makes “choices” about paths. But finally, we, who have no freedom, can interfere with the choices nature made billions of years ago and end by freely “affecting that choice.” No wonder Feynman once said, (and Hawking quotes him on page 74), “*I think I can safely say that nobody understands quantum mechanics.*” And indeed, I think that I can also safely say that physicists confuse “understanding” with “calculating,” and confuse “explanation” with “observation.”

3. The next contradiction I want to point out is actually a scientific “gap” that Hawking, in some kind of unfair manner, does not clearly present. He does fairly describe, and even beautifully, in Chapter 7 (The Apparent Miracle) the amazing “fine tuning” that cosmologists have discovered in recent decades, making possible the existence of life on Earth, and eventually of us. Is this the result of Intelligent Design? Of a Providential God in the style of Aquinas 5th Way? Not at all. Science has a better answer, Hawking says.

To describe it he relies heavily on String Theory and its epitome, *M*-Theory (Chapter 5). Nobody knows what the letter *M* means; it is left undetermined on purpose to indicate that the theory is still unknown; (in fact, a sheer speculation or “hope”). What happens is that String theories (five of them) “live” in so many dimensions, (ten!) that the outcome of their “predictions” result in the fabulous amount of  $10^{500}$  theories. As Lee Smolin honestly says, those are “more theories than atoms exist in the Universe”. Consequently, Smolin admits “we have failed.” In the search for a “unique” TOE (Theory of Everything), the “complete theory” that Hawking dreamed of in 1988, physicists have found more theories than atoms exist in the Universe. But Hawking, together with other String leaders like Leonard Susskind

and many others have found a “gold mine” here. No, we have not failed! That means that there really exist all those solutions in as many “parallel universes.” This is the multi-verse idea. So... this Universe of ours, which seems so finely-tuned to accommodate life and our own existence, is just one of sextillions of sextillions of Universes. Hence, it is just by pure chance why we are here. How, however, does the universe “know” that we are here? Very simple: we determine the Universe by our own interaction with it. As Hawking said at the very beginning: “we are the kings of creation.” Indeed: fabulous kings. Yes: pure biological machines with no free choice.

Once you enter String Theory you can do and say anything you want. So approaching the climax of his grand conclusion he describes in Chapter 6 “the manner” in which the Universe creates itself out of nothing. This happens, briefly, because Hawking adds “*the effects of quantum theory to the theory of relativity,*” so that in “*extreme cases warpage can occur to such a great extent that time behaves like another dimension of space.*” So if there is no time, then, of course, we need not explain the “beginning of time” and of the Universe. It always existed without time. Hence, no god is needed for the creation of the universe. In essence Hawking does not deny God. He simply creates another one: the Universe. In fact, the “multi-verses,” because using string theories and Feynman “sum over histories” all probable solutions exist in reality.

Again we must pause for a moment and contemplate the abominable philosophy Hawking is using here: in essence, he destroys time confusing it with space (which is Einstein’s and Minkowski’s fault, not Hawking’s). In essence he believes that “probability” is identical to actual existence. In essence he confuses the idea of a “beginning of time” with the “cause” of existence. For Aquinas, for example, God is not creator because he “precedes” nature, but because He “sustains” it in its being, all the time, (even if nature existed from all eternity).

But I must add that Hawking is not playing a “fair game” even from the scientific point of view. When he says that he joins “the effect of quantum theory to the theory of relativity” he is claiming something *that has not being accomplished yet by the scientific community*. In fact, he does not mention how disparate are the two main theories of Physics, (relativity and quantum physics). That is the “dream” of scientists: the TOE, the “quantum gravity.” But so far the discrepancy is so big, says Leonard Susskind, “that it is almost funny.” When quantum theo-

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ry tries to calculate the cosmological constant of General Relativity the discrepancy is  $10^{120}$ , that is, 120 orders of magnitude (a one followed by 120 zeros). It would make the universe explode in a microsecond. This is “the mother of all physical problems” writes Susskind more honestly than Hawking. So “swallowing” this discrepancy, Hawking concludes with the famous paragraph of page 180 which I transcribe now completely:

4. “Because there is a law like gravity the Universe can and will create itself from nothing in the manner described in Chapter 6.” That “manner” is the joining of gravity (General Relativity) with quantum physics, something not achieved yet. That is why he admits the “iffy” nature of his whole “proof.” “If the [M]theory is confirmed by observation... etc. But he not only glosses over the scientific gap; he ignores also the philosophical contradiction of posing a “creation from nothing” when, indeed, a “law like gravity” already is in operation, and, hence, it is not really a “nothing.”

Summarizing the aberrations contained in Hawking’s book it is fair to say that he is not responsible for most of them. He simply uses them to give an evasive argument to avoid the rational proofs of God’s existence. He avoids the argument from design (Aquinas 5th way) by resorting to the multi-verses. He avoids the argument of existence (only God exists *per se ipsum*) by confusing “time” with “existence,” and in turn eliminating time by turning it into space. As I mentioned above, that metamorphosis was the work of Minkowski. From the very beginning

it was a mistake to take “time” as the “fourth-dimension” of space. As physicist Tom Sheahen points out, time never appears alone in the equations, but multiplied by the speed of light, as *ct*. And *ct* is not “time” but “space” traveled by light. One does not need to go all the way to ten-dimensional string theories to destroy the nature of time. One has just to be a mathematician with absolutely no taste for philosophy. Mathematics is an eternal science. It does not even grab “motion” in its universe. To learn about “time,” “mass,” forces, indeed, about “history,” “freedom,” one has to be a real philosopher, not a “dead philosopher” as Hawking is. When he says that “philosophy is dead” he is just proving that philosophy is dead in him.

The sad thing is that Hawking not only evades God, but in the process destroys humanity (free will) and nature as well (which becomes a disjointed and chaotic multiverse). The cause of all this reminds me of a wise saying of St. Thomas written in the *Summa Contra Gentiles*:

*Nam error circa creaturas redundat in falsam de Deo scientia.*

Any error about creatures redounds in an error about God. Hawking and all materialist scientists (like Carl Sagan, like Francis Crick, even like Einstein, who denied free will) must necessarily end up by denying a personal God.

It is up to us, Catholic scientists, believing scientists, to start from God, to go back to nature, and save it for humanity, for freedom, for world peace; all in the name of God.

### Excerpt from *Biotechnology, Patent Law and Theology* (2005)



*Fr. Brungs reflects on the inter-connectedness of all creation — thoughts still applicable to the topic five years later, especially in light of current research with embryonic stem cells and the Fall, 2011 ITEST symposium on Life issues:*

“...because of our mutual relation with everything created, there is a difference between research objects of the various sciences — research objects or subjects, however we want to say it — and research subjects that are alive. There doesn’t seem to me to be much of a difference between them in reality in contemporary science. What if a research subject becomes a research object in the laboratory? There should be some fundamental difference in our attitudes in research between non-living reality and living reality. Until we develop more respect for living material we will get coarser and coarser in our treatment of them. Are they going to be simply and fully at our disposal in our research? I don’t think they are simply at our disposal. There is a part of living things that calls for our respect no matter how ‘low’ they are on our list of valuable items.”

## Infinite Thy Vast Domain

by Thomas P. Sheahen

### Introduction

The human desire to know *more* is never fully satisfied. The experience of “now I understand better... but still not quite perfectly” is familiar territory. Everyone wants to advance to higher stages of understanding. We spend our lives striving for something “other” or “more,” without knowing exactly what that is. Wondering and questioning underline the human insistence that there *is* something more, something beyond the world we perceive. But a satisfactory understanding is elusive.

There are many ways in which our constraints are obvious: every human has a natural fear of death; our lives are ruled by *time*; and so forth. There must be some barrier in the way. From the expressions of mystics to the formal logic of philosophers, over the millenia a wide range of partial explanations have been provided. *Every* explanation is necessarily presented in *some* language, and hence is limited by the boundaries of a language.

Recognizing a limitation is the first step toward overcoming it. To look beyond the limits caused by language, this essay borrows a notion from the field of mathematics: it deals with the concept of higher dimensions. It emphasizes that the realm of God’s creation is far beyond our human ability to think and express ideas; and that our language and thought processes pose impediments.

The “language” of geometry and mathematics permits an excursion beyond customary bounds, beyond what can be visualized, and that is what I explore here. Simply stated, I suggest that dimensional thinking may facilitate a small step toward understanding God.

### Visible and Invisible

One very familiar limitation is this: the words on the page in the Bible often don’t convey the full meaning. The statement by Jesus “My kingdom is not of this world” leaves an obvious question unanswered. When the disciples asked Jesus why He always taught using parables, they at least grasped that He must have been talking about “other” or “more.” The Christian faith has retained that principle from the outset. It is embodied in the Nicene Creed, which begins: “I believe in one God, the Father Almighty, Maker of heaven and earth, and of all things visible and invisible.” In church booklets, that last clause is often rendered as “all things seen and unseen.” (In the briefer Apostles’ Creed, that clause is truncated away; an omission that usually slides past unnoticed.)

Many centuries later, today the words “all things visible” generally refer to everything that is accessible via the human

senses, aided by scientific instruments. The microscope, the telescope, X-rays and ultrasonics have greatly extended the range of our senses. When something is made out of atoms and molecules, it’s part of “all things visible.” Things that exist in space and time (even distant galaxies) are included. The knowledge derived from measurements falls within this category. The mathematical laws of physics that describe what happens within space & time are likewise associated with “all things visible.”

But what about that “invisible” creation? The Nicene Creed contains an important commitment on the part of the Christian believer: that God created *more* than just the world we see; that there *is* a lot more to which we must attend. *And* it’s of a type that will elude our scientific instruments.

### Space – Time and General Bias

As a preliminary to distinguishing between “seen” and “unseen” creation, it is valuable to look closely at one aspect of the way we perceive things via science. Comparing past and present understanding provides insight into the way human thinking advances.

In contemporary physics, we commonly speak of the “space-time continuum,” referring to the four-dimensional manifold made up of 3 spatial dimensions ( $x$ ,  $y$ ,  $z$ ) together with time ( $t$ ). The laws of physics have a mathematical symmetry among these 4 dimensions, and the spatial dimensions are interchangeable with the time dimension via Relativity. In fact, it is a requirement upon any new proposed theory that it must contain such symmetry and equivalence of dimensions, or it will be dismissed.

That way of comprehending physics is not even one century old. In the days of Isaac Newton, time was certainly not considered a “dimension,” but was thought to be absolute and immutable. His equations of physics described how objects in space moved *within* time. Newton’s achievement greatly advanced science, and Classical Mechanics remained dominant even into the 20<sup>th</sup> century. Today we look back upon Newtonian physics as an approximation to our more comprehensive laws of Quantum Mechanics, General Relativity, etc. However, a lot of important developments in thought took place during the centuries of Newtonian dominance.

In Newton’s day, there was no reason to think of “time” as having any similarity to or association with “space.” His picture corresponded perfectly well with the ordinary experience

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of human beings, in which space and time are perceived as entirely different. From a child's earliest perceptions onward, the complete distinction between space and time is embedded in our thought structure; it is reinforced through every culture and language. Sentences contain verbs, and verbs are "action words," which treat time as different from space. I have never been able to string together 3 sentences without including some form of time reference.

Tucked away in long-forgotten history was the statement by St. Augustine (circa 400 AD) that God created space and time together<sup>2</sup>. But that didn't mean anything to people of the 17<sup>th</sup> century; Augustine was regarded as just an "ancient philosopher," not of practical interest. Experimental observations ruled, and the synthesis of Newton succeeded explicitly because it so elegantly explained both motion on earth and the celestial data of astronomers.

In mid-20<sup>th</sup> century, in his book *Insight*, the philosopher Bernard Lonergan examined the processes of the mind by which knowledge is reached. Among many other contributions, he pointed out that there is "bias" that obstructs a person's ability to grasp realities beyond one's own limits. Lonergan denoted "individual bias," "group bias," and "general bias." For example, group bias is when everyone you know believes the same things, and it only gets corrected when someone from outside enters and introduces a new paradigm. General bias<sup>3</sup> is the most insidious and difficult to overcome, because *everybody* suffers from it, and there is no pathway, indeed no motivation, to correct it.

The way that people have always thought about time, based on everyday experience, is an example of general bias. There was no motivating reason at all to question Newton's treatment of time as absolute and immutable. The centuries that followed included the Enlightenment period, and naturally all those philosophers perceived time as Newton did. Approaching the 20<sup>th</sup> century, it was widely believed (including by most churchmen) that the world was *deterministic*, playing out through inexorable unfolding of Newton's classical mechanics.

Toward the end of the 19<sup>th</sup> century, inconsistencies began to appear in physics and experiments showed that the classical picture could not be entirely correct. Using mathematics wherein space and time were placed on the same footing, motion could be better understood. Thus began the unity of space and time. In the early 20<sup>th</sup> century Einstein introduced Relativity, wherein space and time appeared with complete symmetry, and by 1920 there was convincing experimental verification of Einstein's theory. Ever since, the four dimensional *space-time continuum* has been standard in physics.

We may look back and ask "how was the general bias [about time being totally different from space] overcome?" The

answer is "mathematically." In particular, it was a *belief* in the power of mathematics to represent reality beyond what could be accessed via the senses that led to new insight. Because physicists (notably Einstein) *believed* that symmetry principles are at the foundation of physics, it was possible to choose among multiple possible mathematical pathways. Many physicists looked at Relativity theory and said in hindsight "of course!" because of the very beautiful symmetry displayed. But there were many others (not only scientists, but including philosophers, churchmen and practitioners of disciplines far from mathematics), who resisted the notion that space and time were in some way interchangeable. It just didn't square with everyday human experience, and hence there was no reason to think in such terms.

To this day, the vast majority of people have no need to think about the symmetry of space and time, or to pay any attention to Relativity. It's a "glaze-over" topic, totally abstract. Even the astronauts could get along with only tiny numerical errors by using Newton's classical mechanics.

Nevertheless, the general bias has been breached, and the 21<sup>st</sup> century understanding of nature places space and time in a symmetrical relationship. Although we look around and still *see* only dimensions  $x$ ,  $y$  and  $z$  (back & forth, sideways, up & down), through mathematics we have been able to adapt our understanding to go beyond sensory perception and think of a four-dimensional concept that includes time as one dimension.

Knowledge has advanced, and we understand somewhat better the "all things visible" part of creation. Mathematics has been essential to that advance. We got there by stepping up to a new level of thinking, where an additional dimension beyond space alone was recognized.

### Other Mathematical Advances

Within the confines of some sub-fields of science, the use of additional dimensions has led to new promising theories and some applications. For example, solid-state physicists have worked with "reciprocal space" for decades, using not {spatial coordinates and time} but {momentum variables and frequency}, and the results are excellent: everyday electronic devices such as computers and TV are rooted in the validity of that theory. The new branch of physics called "String Theory" uses a manifold of ten dimensions to construct a model of elementary particles. String Theory so far has not made physical predictions that can be experimentally verified, and some physicists dismiss it because of that limitation; but the beauty and symmetry of the equations give it strong appeal to other physicists. Separately, I have seen one theory of gravity that says gravity is a force in 5 dimensions, but we experience

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only the 4-dimensional projection of it.

For a multi-dimensional theory to have applicability to physics, it has to predict something that can be measured by our instruments, which sooner or later come back to the space-time continuum and our sensory perception. The pathway of measurement and interpretation may contain a goodly dose of additional theory. For example, detection of neutrinos is indirect and has to do with their decay products, as hypothesized by theory. When the whole story fits together and any alternative explanation of the data is convoluted and implausible, then we say something has been “measured.” But without such experimental evidence, how can anyone choose among many competing theories? No measurable predictions, no credibility. That’s the rap against String Theory.

The wider point is that humans *can* imagine higher dimensions, and manipulate them mathematically without being limited by constraints of conventional language; hence additional dimensions have become routinely used to develop theories. It is entirely reasonable to say those dimensions are *real*, even if they don’t connect directly to the dimensions familiar to us. An indirect connection is sufficient, if it does not cause a conflict between the theory and the measurements.

Higher-dimensional thinking works so well in the physical sciences that it is natural to seek ways to apply the method to issues of interest to humanity. The constant risk in doing so is that some additional implicit assumption will slip in unrecognized and lead to a seriously distorted outcome.<sup>1</sup>

### Deficient Human Models of God

For a believer in God, it is a very short step to acknowledge that if humankind can imagine many more dimensions, then God can certainly do at least as well. The opening words of Genesis include terms like “void” or “abyss.” (In some Hebrew translations<sup>4</sup>, we find “In [the primordial substance] there is potential.”) It also says “The spirit of God was stirring above the waters.” All this could just as easily be visualized as an infinite set of dimensions available to God. There is truly no reason to confine our thinking about God to fewer dimensions. Every such constraint really only expresses a boundary of human thought, not a limitation of God.

A very natural error for man to make is to think that God somehow exists *within* time, because all of us do. We have no experience of time “not being there.” and we are unable to construct an image of anybody else existing independent of time. Way back when St. Augustine wrote *The City of God*, he addressed the traditional question of “what was God doing before he created the universe?” Augustine explained quite clearly that God created time and space together, and therefore

the word “before” has no meaning until “after” time has been created. The wisdom of St. Augustine was forgotten long ago. The question persists to this day, because most humans simply aren’t capable of grasping a state where time is not one of the parameters.

Isaac Newton made this same mistake by calling time absolute. Newton wouldn’t logically have done anything else, because there was no data to suggest otherwise – such data appeared only around Einstein’s time. Nevertheless, in placing everything including God *within* time, God was assigned a role subordinate to time. The mistake was certainly not obvious (3 centuries passed), but still it had the effect of placing a false god (time) ahead of God. And every philosopher and theologian over the ensuing centuries accepted the very same error, and constrained their images of God to match that restriction.

Recognizing and overcoming this mistaken perception about time is definitely an advance in our human understanding of God. But it is impossible to go back and repeal all the theology that was constructed upon a basis where *time* was thought supreme. It’s too deeply ingrained in everyday human experience and thought processes. But what should be the path *forward*?

If we go back to square one, finding God simply *present* to an infinite manifold of dimensions, then He could easily carve out 4 of them “for starters” and create space and time together, as indicated by St. Augustine. In doing so, God’s affinity or accessibility to all the other dimensions is in no way compromised. (In fact, going back to square zero, God originated logic, mathematics and the very concept of dimensions.) He can incorporate various dimensions however He wishes, including establishing linkages with the dimensions of space and time. That freedom is quite different from the restriction and subordination to time that was inherent in a Newtonian world-view.

### Higher Dimensionality

Naturally, we would like to know “what are all those other dimensions?” I have no expertise that enables me to specify them, because I too am a captive of human thought, culture and language. Aided by the language of mathematics, the baby step I take makes only the general assertion that realities lying beyond atoms and molecules exist in dimensions that lie beyond space-time.

The merit of using the word “dimension” may not be apparent; it conveys “math” to lots of people, and perhaps some discomfort. “Space” was formerly limited to only *x*, *y* and *z*. Prior to Relativity, hardly anyone applied the word “dimension” to time, but now we do. That advance enhanced the clarity

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of our thinking, of our model of the universe, and we have beautiful and symmetric equations of physics to express that clarity. Stretching the idea further, by associating “dimension” with the higher functions of humanity, will seem awkward to those not geometrically inclined. The term “degree of freedom” is preferred by some, and can be used interchangeably.

The notion of higher dimensionality is not new. Long ago, in *The Republic*, Plato stated the analogy of the cave, wherein the world that we experience is like a shadow (a projection downward to fewer dimensions) of a higher reality. The Greek mythology about Icarus and Daedalus addressed the desire to enter a higher dimension.

More recently, in 1872 Edwin Abbott wrote the short story *Flatland*<sup>5</sup>, in which the central character (named A. Square) is a two-dimensional being, living in a Euclidean-geometry space. A sphere comes to visit from a higher dimensional space, and his abilities make him seem a miracle worker. We are amused to watch A. Square’s struggle to comprehend what is obvious to us; the concept “upward, but not northward” is mind-boggling for the inhabitants of *Flatland*. The moral of this lighthearted story is similar to Plato’s: that our human perception and interpretation of experience is drastically limited, while reality is far more -- if only we could comprehend it.

Throughout history, a great deal of religious expression and literature has utilized the notion of higher dimensions. We take air travel for granted and forget that until recent centuries, we couldn’t get off the surface. Under that circumstance, someone wishing to express “other-world” concepts would simply refer to the z- axis: Heaven is “up there,” meaning a place you can’t get to. The imagery was used so extensively in paintings, prose and poetry that a literal interpretation became the norm for centuries. But all the while the underlying concept was “beyond” or “more.” not merely “up.”

### Accessing More Dimensions

Additional key questions are “Can we become involved in higher reality somehow? Or are humans confined to only the 4 space-time dimensions in which atoms and molecules are found?” The adherents of *nihilism*, *materialism*, and *scientism* would promptly answer “No, we can’t” and exit the conversation at that point. Their belief structure ensures that the only part of creation they perceive is the part accessible to science, the “visible.”

It is at this point that the Christian affirmation that God created “all things seen and unseen” makes an enormous difference. To us, it is obvious that God *can* do whatever He likes with additional dimensions, so He presumably has done so. Our enterprise is to follow the upward steps that lead to higher dimensional reality.

We can recognize some of these higher realities easily. The well-known “ladder” or “hierarchy” of disciplines goes math → physics → chemistry → biology → behavior → ... → music, art, etc. At each new stage, there is something new added; e.g., living systems are more than just chemistry. The upward march to successively higher levels approximately corresponds with the advance from a bare rocky planet to modern civilization. When marching back down the ladder the other way, something is deleted at each stage. Characteristics like eyesight, hearing, memory, language, abstract thinking, intelligence and so forth -- all familiar concepts -- cannot be reduced to elementary levels. The futile attempts to reduce human culture to genetics illustrate that truncation process.

Here, without getting mathematical but staying only qualitative, I associate these advancing faculties with additional dimensions beyond the 4 of the space-time manifold. I am unable to specify any one-to-one correspondence, nor can I assign names to dimensions. But I am fully confident that human life exceeds the dimensionality of space & time. Many successive upward transitions over eons have positioned the human being at a level somewhere in a multi-dimensional space.

To gain access to each additional dimension is to establish a connection with it that links it to the dimensions we already have. For example, nothing that happens in chemistry violates the laws of physics. Stepping upward: in higher animals any voluntary movement decided by the mind flows through the brain to the electrical nervous system to synapses and the chemistry of muscle contractions. Still further upward: enjoying beautiful music involves a cascade of highly complex behaviors, including discerning interwoven themes, interpreting pitch and overtones of frequencies while listening, and reaching all the way back to the physics of sound waves.

On the level of interactions within a complex society, the ability to construct social policies based on law, politics, and history necessarily relies on yet another cascade of cooperating steps, including the characteristics of memory, speech and judgment. The output of one mind is the input to another, and results are *real*. These higher realities are built on a lower platform but not reducible to a collection of lower functions. In every case, there is an association between the consecutive steps that connect the higher dimensions, back to the level of measurable phenomena.

The human being naturally wants to advance to additional higher stages. The Christian sees this as moving in the direction of harmony with God. We are seeking access to the “unseen” part of God’s created reality. For the Christian reading the Bible afresh, there is hope for a new insight *today*. We seek new pathways of perception to better appreciate truths God makes available to us.

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But we need to be aware that our languages (crafted from sensory perception and experience) will take us only so far. God has given to some humans exceptional access to a level of spiritual awareness (in still higher dimensions?) which they are unable to express in words to those devoid of comparable experience. Christian mystics over the centuries have acknowledged this obstacle to communication, and the difficulties of translation exacerbate the problem. External guidance is pretty scarce to those progressing higher up the ladder.

There comes a point where the only available option remaining is humility, accepting one's limitations. No human during their lifetime is going to rise beyond some level, and that varies from person to person. I'm certainly unable to make projections about the topic.

### Beyond Space – Time

Acknowledging the inevitability of bodily death invites an interesting speculation: At death, when the atoms and molecules return to dust, the higher-dimensional reality that is a human being loses its connection to the 4 dimensions of space-time. The many remaining dimensions, although uncoupled from space and time, certainly need not vanish. Their existence is independent of the platform of the body in 4-dimensional space-time. Time, which was never really "absolute" in the Newtonian sense, is simply not involved. Life continues in a way unrelated to time. (I add a caution here: the word "continue" in ordinary parlance often conveys a sense of time, which isn't the case here.) Time does not "stand still"; time does not "run forever." The word "eternal" indicates that time simply is *not* one of the variables.

The trouble with this picture is that it defies description, because description requires words in a language, any of which go back to space-time. This is very unsatisfying to nearly everyone, who expects a description in terms of recognizable images or analogies. But think for a moment about what we, as Christians, are taught to anticipate: When St. Paul wrote "Eye has not seen and ear has not heard ..." he was essentially saying (expressed in contemporary physics) that the new form of life is uncoupled from eyes and ears, from sensory perception, from measuring instruments, from electromagnetism, from space & time.

This has always remained in the realm of mystery. Centuries ago, Christianity acknowledged that heaven is not a *place*, but rather a *state of being*. Listeners accept the condition that further description necessarily will be scant and limited to analogies. However, so far it has been too big a step to say that heaven is not a *time* either. The term "after" -life persists in the lexicon of nearly everyone. Modern physics may demand that time be on the same footing as space, but people just can't break free from their Newtonian perception of time.

A lot of pertinent Bible verses can be quoted to support this "dimensional" perspective, but they're not completely persuasive. Conceptually, a person may agree that the word "after" isn't applicable, but no one has a good alternate way of speaking. The urgent question "what happens *after* I die?" is still on everyone's mind, and pointing to the space-time symmetry of Relativistic equations is only a partial answer, unsatisfying.

### Conclusion

Human perception is very limited, and there has been a long and sad history of humans projecting such limitations upon God. What we have learned about space and time in the past century points to the reality of more dimensions than just space and time alone. *Materialism* and *Scientism* won't consider taking any step in that direction, but the Christian creed invites us to look deeper. A "dimensional" way of framing certain questions may have merit: we can instantly accept that God manages countless dimensions, enabling His creatures to access some of them. The human endeavor is presented here as a progression upward toward God, rising through additional higher dimensions. However, trying to assign a correspondence between particular human traits and particular dimensions is fruitless. Rather, the need for faith and humility before God's creative power becomes obvious. One outcome of this kind of thinking is that those higher dimensions don't necessarily vanish when the connection to space-time is broken at death. A state of being uncoupled from both space and time is easy to acknowledge, even though human language will always fail to provide a description.

### End Notes

1. There have been past attempts to apply dimensional thinking to express ideas about humanity, dating back to the ancient Greeks, such as Plato's "cave" analogy. The 17th century mathematician & philosopher Leibnitz lived at a time when maximization principles were fashionable in physics, and he held that implicit assumption. Leibnitz constructed an expression of God creating a world in which the "good" was maximized. That led subsequently to Voltaire's derision of "the best of all possible worlds" in the novel *Candide*. Ever since, people have been wary of using any type of mathematical description of philosophical concepts.
2. St. Augustine, *The City of God*, book XI, section 6 (Random House: 1950)
3. B. J. F. Lonergan, *Insight, A Study of Human Understanding*, Ch. 7, section 8 (Longmans-Green: 1957, 1958)
4. G. L. Schroeder, *The Hidden Face of God*, ch. 5 (Touchstone Books, Simon & Shuster: 2001)
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## “Come, for everything is ready now” (Luke 14:17): Meals and Hospitality in the Gospel of Luke

by Mary Margaret Pazdan, OP, Ph.D.

*Food, glorious food! We're anxious to try it. Three banquets a day -- Our favourite diet!  
Just picture a great big steak -- Fried, roasted or stewed.  
Oh, food, Wonderful food, Marvellous food, Glorious food.<sup>1</sup>*

The marvelous dreams and songs of Oliver and the other orphans who lived in a dismal London orphanage were quite a contrast to their daily food—gruel. Today, “more than 24,000 children die every day — most from preventable causes such as hunger” and preventable diseases.<sup>2</sup> According to *Americans Feeding Americans*, 1200 hungry families in St. Louis are being helped in September.<sup>3</sup> Our media broadcasts human suffering from wars, floods, fires and other catastrophes. Agencies drop food and medicine in devastated areas. Others volunteer to provide relief. However, the media does not address hospitality as a human right.

When we think of hospitality in our country, we imagine meals for families, relatives, friends, colleagues and neighbors. Sometimes, we extend overnight or a few nights welcome. However, welcoming, feeding and providing lodging for strangers are often restricted to the ministries of food pantries, shelters and meals on special occasions.

What a contrast the first century of the Common Era provides.<sup>4</sup> In the Greco-Roman world, there was hospitality to strangers although it could be dangerous and expensive. Their motivation was often “the fear of Zeus, the god of

hospitality, or a desire for politically advantageous alliances with powerful counterparts.”<sup>5</sup> Jewish and Christian citizens also extended hospitality to strangers. Their motivation was the love of God and neighbor. “Some ... likely were motivated to extend hospitality to strangers by their desire to cultivate God’s blessings upon their own lives and households.”<sup>6</sup>

When we study the gospel of Luke, we find many stories of hospitality. These stories are based on Jesus who is the paradigm and embodiment of the hospitality of God.<sup>7</sup>

First, Jesus receives hospitality.<sup>8</sup> “The angel said to her, ‘Do not be afraid, Mary, for you have found favor with God. And now, you will conceive in your womb and bear a son, and you will name him Jesus’” (Luke 1:30-31, NRSV).<sup>9</sup> Jesus is conceived in his mother’s womb where he is sheltered and fed. Two weeks ago my niece gave birth to her first child. Throughout the pregnancy she and her husband were solicitous about their son’s nutrition and well being in the womb. They were diligent about their meals, exercise and stress-reduction during their work hours and afterwards.

Throughout his life Jesus was the recipient of meals. Simon’s mother-in-law provided for him.

After leaving the synagogue he entered Simon’s house. Now Simon’s mother-in-law was suffering from a high fever, and they asked him about her. Then he stood over her and rebuked the fever, and it left her. Immediately she got up and began to serve them” (4:38-39).

We remember how hospitality is the debate between Martha and Mary.

Now as they went on their way, he entered a certain village, where a woman named Martha welcomed him into her home. She had a sister named Mary, who sat at the Lord’s feet and listened to what he was saying. But Martha was distracted by her many tasks; so she came to him and asked, ‘Lord, do you not care that my sister has left me to do all the work by myself? Tell her then to help me’” (10:38-40).

Jesus even asked for hospitality from Zacchaeus, a rich tax collector, who was persona non grata for the Jewish people.

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He entered Jericho and was passing through it. <Zacchaeus> was trying to see who Jesus was, but on account of the crowd he could not, because he was short in stature. So he ran ahead and climbed a sycamore tree to see him, because he was going to pass that way. When Jesus came to the place, he looked up and said to him, ‘Zacchaeus, hurry and come down; for I must stay at your house today.’ So he hurried down and was happy to welcome him. (19:1-6).

While Jesus welcomed the hospitality of many persons, his actions at meals often caused controversy. For example, when a woman interrupted a meal of Pharisees, Jesus accepted her <bathing> his feet with her tears and to <drying> them with her hair... she continued kissing his feet and anointing them with the ointment (7:38-39).

*No one crashed a dinner party.* Meals were ceremonies where the person presiding is the leader.<sup>10</sup> In our story, “one of the Pharisees asked Jesus to eat with him, and he went into the Pharisee’s house and took his place at the table” (7:36). The function of meals is “to confirm roles and statuses with the chief institutions of a given group.”<sup>11</sup> The Pharisees had very strict rules about food, when to serve, how to serve, and especially, the invitees and their order of seating at table. “The woman in the city who was a sinner” would never be invited. The narrator describes the reaction of the Pharisee, “If this man were a prophet, he would have known who and what kind of woman this is who is touching him—that she is a sinner” (7:39).

The family meal, too, “confirms the basic family unit and bolsters the respective roles of father as provider and mother as nourisher.”<sup>12</sup> What foods did a family enjoy? For breakfast there was a light meal, e.g., bread and milk. For dinner,

a large meal with cheese, wine, vegetables and fruits, and eggs... fish was most common, followed by chicken or fowl. Red meat (beef and lamb) was served only on special occasions, and pork and crustaceans were absolutely forbidden. Most foods were boiled or stewed in a big pot and seasoned with salt, onions, garlic, cumin, coriander, mint, dill, and mustard. Food was sweetened with wild honey or syrups from dates or grapes. Food was generally served in a common bowl and eaten by dipping in with the fingers.<sup>13</sup>

We also remember cups of wine for the Sabbath meal, for Passover and other festivities.

What a contrast these descriptions of meals are to Jesus’ hosting crowds in the countryside. He broke all the ceremonial customs by inviting 5000 persons who did not observe proprieties, i.e., Jewish people washing their hands before meals. There was no washing of feet, greeting with a kiss or anointing the head with oil.<sup>14</sup>

In particular, this meal on the hillside did *not* follow the maps of a particular meal. Think back to the story with me and notice the lack of ceremony:

- (a) *Who:* *who* eats with whom; who sits where; who performs what action; who presides over the meal; <a motley crowd of families and strangers, including lame, blind and deaf persons for whom Jesus asks a disciple to provide food><sup>15</sup>
- (b) *What:* *what* one eats (and does not eat); how it is grown and prepared; what utensils are used; what talk is appropriate; <They eat bread and fish with their hands. We do not know their conversations>.
- (c) *When:* *when* one eats (daily, weekly, annually; when one eats which course during a meal; <There is no distinctive date for the meal>.
- (d) *Where:* *where* one eats; where one sits; in which institution, family or temple <The hillside picnic does not fit categories of “where.”

Second, as we can see from the hillside meal, ordinarily the gospel does not record sumptuous banquets for wealthy and powerful persons. One exception would be Jesus dining with the Pharisees whose meals could be lavish. Rather, the eager guests are the poor and oppressed. In the parable of the dinner, Luke 14, the host had invited prominent people. Each one had an excuse not to come: property, cattle and newly married (14:15-21). When the host heard about their excuses, he ordered the servant, “Go out at once into the streets and lanes of the town and bring in the poor, the crippled, the blind, and the lame” (14:21). When the servant reported that there was still room at the tables, the host gave him a second order, “Go out into the roads and lanes, and compel people to come in, so that my house may be filled” (14:22).

Third, Jesus’ teaches on hospitality through the familiar parable of the Good Samaritan.<sup>16</sup> He also commissions seventy-two disciples who are to continue receiving hospitality even as Jesus did

Carry no purse, no bag, no sandals; and greet no one on the road. Whatever house you enter, first say, ‘Peace to this house!’ And if anyone is there who shares in peace, your peace will rest on that person; but if not, it will return to you. Remain in the same house, eating and drinking whatever they provide, for the laborer deserves to be paid. Do not move about from house to house. Whenever you enter a town and its people welcome you, eat what is set before you; cure the sick who are there, and say to them, ‘The kingdom of God has come near to you.’\*

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But whenever you enter a town and they do not welcome you, go out into its streets and say, ‘Even the dust of your town that clings to our feet, we wipe off in protest against you. Yet know this: the kingdom of God has come near (10:1-11).

Jesus empowered by the Holy Spirit received hospitality and extended it to all whom he met. He gifted the disciples with that same Holy Spirit to continue in his name. We discover hospitality through the stories in Acts in which Paul predominates. First, as Saul, he is struck blind and falls to the ground. A disciple leads him by the hand to a household where he fasts for three days. Later, another disciple lays hands on him and he is healed and begins his extraordinary ministry among Jews and Gentiles alike.<sup>17</sup>

Second, Paul created house-churches throughout the Mediterranean world. These churches were gatherings of women and men, Jewish and Gentile, children and slaves. They shared meals, memories of Jesus, and some letters of Paul. They broke bread and shared the cup. The hosts changed from house to house. Carisse Mickey Berryhill observes that the house “become a new sort of sacred space, where the reign of God produces the community of grace, the house of God, *Beth-el*, where God dwells.”<sup>18</sup>

We know some of the hosts who provided hospitality for Paul: Priscilla and Aquila in Corinth (Acts 18:1-4), Lydia in Philippi (Acts 16:11-50, 40), Euodia and Syntyche, a missionary couple (Phil 4:2-3), Phoebe at Cenchreae (Rom 16:1-2) and many others in whose houses Paul would live and preach.<sup>19</sup>

Third, one particular house church in Corinth illustrates difficulties and challenges. Paul found more differences in a group of less than forty persons than in other households.<sup>20</sup> Some members were single like Crispus and Gaius (1 Cor 1:14); others represented households like Stephanas (1:16). In 1 Corinthians 7, we hear of his advice to married, unmarried, widows, virgins, spouses, and spouses who were non-believers.<sup>21</sup> The community also consisted of several factions who followed Apollos and Cephas (1:12) and those whom Chloe’s people reported to him (1:11).

Did Paul expect individuals and families alike to become a new, symbolic household by relinquishing familial relationships? Did he, like Jesus, invite others to *fictive kinship*, that is, a gathering of persons who voluntarily associate with one another rather than be bound to a specific household? Paul is not explicit in describing how a household and a community of believers are related. However, in First Corinthians 5—15, his exhortations about vocation, sexuality, freedom, worship and resurrection effect both groups.

Specifically, the great diversity of members would challenge household roots and participation as a community. That the

community questioned Paul’s leadership in these areas is evident from his topics and powerful rhetoric in both letters. Nonetheless, Paul adopts the body metaphor to describe the significance of the members who believe in Jesus: “Now you are the body of Christ and individually members of it” (1 Cor 12:27). Some prefer to separate themselves from others because of their spiritual gifts like prophecy or tongues (1 Cor 14:1-5). However, Paul exhorts them to remember each member is essential to the body.

It is at Eucharist that the Corinthian community becomes the sacramental body as an assembly and as individuals. Different social and economic status affects their behavior at the Lord’s Supper. Some bring fine food and wine while others are hungry. They are not attentive to one another’s needs (1 Cor 11:19-22). They do not realize what they become when they eat the bread and drink the cup: “you proclaim the death of the Lord until he comes” (v. 26; cf. 2 Cor 4:10). Paul warns them: “Examine yourselves, and only then eat of the bread and drink of the cup. For all who eat and drink without discerning the body eat and drink judgment against themselves” (1 Cor 11: 28-29).

Paul’s instructions to the community at Corinth about gathering for the Lord’s Supper illustrate how meals have different symbolic values. Each time we read a meal story in Luke and Acts we can also interpret its significance for our gathering on Sunday as well as God’s banquet at the end of time.

We know that family meals and formal meals among Pharisees and other groups were highly ceremonial with specific protocols. Our fast-food and microwave meals lack ceremony. Often times we eat alone, on the road, hovering over a computer. Engaging in conversations and sharing experiences are left out. No amount of texting supplies the loss. Perhaps this is why formal meals for birthdays and anniversaries as well as holidays can be uncomfortable. How we eat, what we eat, and with whom we eat reflect conscious choices and some understanding of God’s providence.<sup>22</sup>

When we attend some churches, first century hospitality is sometimes apparent. There are greeters, song leaders, readers and one who presides. At St. Pius the V, food is collected once a month as part of the offering. There are donuts and coffee after the liturgy. There are many volunteer committees who work with our multi-cultural, multi-generational members. Some questions that surround both family meals and worship are: Who is invited to the table? Who comes? Who stays?<sup>23</sup>

Finally, there is God’s banquet at the end of time. Here there are no limitations on the guest list. God invites everyone, “Come, for everything is ready now” (Luke 14:17).

End Notes

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*Continues on page 14*

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10. Jerry Neyrey, "Ceremonies in Luke-Acts: The Case of Meals and Table Fellowship," In *The Social World of Luke-Acts: Models for Interpretation* (Peabody, Ma: Hendrickson, 1991) 362.
11. Ibid.
12. Neyrey, 303.
13. Food, <http://www.jesuscentral.com/ji/historical-jesus/jesus-firstcenturycontext.php>, accessed September 17, 2010.
14. Neyrey, 371.
15. <> comments belong to the author while the numbered comments are from Booth quoted in Neyrey, 368.
16. Yong, 103-04.
17. See Acts 9; 22; 26.
18. Carisse Mickey Berryhill quoted in Yong, 105.
19. See my "Behind Every Apostle..." Liguorian (September 2009): 19-21.
20. For a broader understanding of the metaphor or the body and house churches, see my "Being a New Creation (2 Corinthians 5:17) is Being the Body of Christ: Paul and Feminist Scholars in Dialogue," in *Earth, Wind and Fire: Biblical and Theological Perspectives on Creation*, eds. Carol J. Dempsey and Mary Margaret Pazdan (Collegeville: Liturgical Press, 2004) 132-46.
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22. Raymond Bailey, "LUKE 14:1, 7-14," *The Lectionary Commentary: The Gospels*, Ed. Roger Van Horn (Grand Rapids: Eerdmans, 2001) 403.
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## Unique Project Yields Positive Results

### High School Students Collaborate in Religion and Science

by Laurie Ghigliotti,

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"When Howard Wright decided to introduce a unique project, it caught the interest of his students and drew participation from another Catholic school across town.

Wright, a dentist-turned-chemistry teacher at the all-boys Chaminade High School in St. Louis, presented his students with the opportunity to apply their knowledge of chemistry to a project designed to build awareness of the human fetus.

"I wanted to teach chemistry, but I wanted to put something important into the curriculum," Wright said. "Some people think that science and religion are diametrically opposed, but the more I get into science, the more I see what a great work of God science is."

The effort included teacher Liz Miller and her religion class at Notre Dame High School, an all-girls school. "The project provided a great opportunity to discuss abortion," Miller said. "We have a responsibility as Catholic educators to help our students understand."

According to Wright, the intent of the assignment was not to argue abortion but to find a commonality between disciplined Euclidean science and the Church's view on the humanity of the fetus.

Michael Corte, chair of the theology department at Chaminade High School, was impressed with his colleague's ability to connect with his students and engage them in the project. "The greatest thing about it is that it took a science discussion and

a theological discussion and put them together," Corte said. "Interdisciplinary investigation doesn't usually happen."

"The assignment was talked about among the other teachers," Corte said. "It opened up possibilities for me. I could work with other schools too."

Wright's chemistry students approached the nature of the fetus armed with their knowledge of science, including the unique character of the fetus' hemoglobin, DNA and chromosomes.

Miller's religion class examined the issue from a theological perspective using Scripture, papal documents and Catholic doctrine.

The project required the students to write a paper to explain to a member of the other class how the fetus is an independent living person. With names withheld, papers were exchanged between the two classes, and each student composed a response to the paper he or she received.

Reading what their counterparts had written was an eye-opening experience for both classes. "One of the Chaminade boys wrote, 'The girl is able to speak from the heart, as she knows that she herself may become pregnant someday. I could never have this point of view,'" Wright said. "In contrast, the boys spoke of the issues often in the third person."

Both groups of students concluded that an unborn baby is human. The chemistry students arrived at this conclusion based on scientific facts, including fetal perception of pain and the

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discovery of an enzyme produced by the fetus which scientists believe prevents the mother’s body from rejecting it.

The students in Miller’s religion class reached the same conclusion from a moral and theological perspective.

Bringing students from the schools together to study the issue from different perspectives highlighted for everyone how seamlessly the scientific precepts commingle with the faith, Wright said.

One Notre Dame student remarked that she was amazed how her paper compared to the Chaminade student’s paper. “I knew science and religion had related views about when life is really formed, but I did not realize how similar they actually were,” the student said, according to Wright.

The boys’ defense of the status and rights of the fetus as a human being surprised the girls. “In a same-sex environment, the girls don’t always know how and what boys think,” Miller said. “It was a new idea for them: that the guys would care about a fetus. The biggest thing was understanding that abortion is a man’s

issue too. Their perception was that abortion is a woman’s issue. I was reminded that we have a lot of work to do with our students.”

Chaminade student Matthew Gauvain was glad to learn that others were opposed to abortion. “I was surprised that there were so many people who think the same as me,” he said. “It caught me off guard.”

Overall, students responded to the assignment in a positive way. “One of my students said, ‘It was one of the best assignments I’ve ever had in high school,’” Wright recalled. “It made the kids really think.”

Both teachers had the approval of their respective school’s administration for the joint project and plan to incorporate the assignment into future classes. Wright recalled a prayer of Blessed William Joseph Chaminade, the founder of the Brothers of Mary and the patron saint of Chaminade High School: “Help us ponder your designs in our hearts.”

This unique and engaging interschool class project led students to do just that.

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“Literalness”

by Fr. Robert Brungs, S.J.

*Originally published in 2003 in Readings II in Faith and Science, Fr. Brungs looks at three versions of the “creation story” and asks some penetrating questions of science and scientists today.*

Over the last few months I have read in various works three interesting -- and very different -- descriptions of “the beginning” of creation. The author of the first claims that, if Genesis were written today, it might read as follows:

In the Beginning, God fixed the Numbers of Creation. God fixed two Numbers [physical constants] to operate at the smallest level of existence, the level of the nucleus of the atom; and a third Number to operate at the largest level, the level of the planets. Then God released enough of God’s own energy to provide the substance of the universe. And God watched as the first two Numbers formed this energy into gases which could burn to provide light and heat for eons; and as the third Number formed these gases into burning suns with planets of the right size and distance from these suns, so that life could emerge on such planets...

Or take another description:

There was Eru, the One, who in Arda is called Ilúvatar; and he made first the Ainur, the Holy Ones, that were the offspring of his thought, and they were with him before aught was made. And he spoke to them, propounding to them themes of music; and they sang before him, and he was glad. But for a long while they sang only each alone,

or but a few together, while the rest hearkened; for each comprehended only that part of the mind of Ilúvatar from which he came, and in the understanding of their brethren they grew but slowly. Yet even as they listened they came to deeper understanding, and increased in unison and harmony...

Or, finally:

Yahweh created me (Wisdom) when his purposes first unfolded, before the oldest of his works. From everlasting I was firmly set, from the beginning, before earth came into being. The deep was not, when I was born, there were no springs to gush with water. Before the mountains were settled, before the hills, I came to birth; before he made the earth, the countryside, or the first grains of the world’s dust...

...when he laid down the foundations of the earth, I was by his side, a master craftsman, delighting him day after day, ever at play in his presence, at play everywhere in his world, delighting to be with the sons of men.

Which of these is a true account of the creation? Clearly all three are, and equally clearly none is. One of the real problems of our age is our cultural tendency to assume that, if one is true, the

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others are false. One of the worst results of a “scientific” culture is the literalness with which we now take everything. We live in a “prosaic” culture, not a “poetic” one. Everything is taken literally, nothing can really be playful; it can be satiric, yes, but one uses satire at his or her own risk these days. All too often it is simply taken literally, hence is “the truth” or a lie. Often enough in such a culture the truth is seen as a lie.

Perhaps, I am simply projecting my own biases and my own inner tendencies when I say that our culture is prosaic. Imputing such a condition to any particular person is something only that person can do in the secrecy of his or her own heart. Nevertheless it seems as if the culture has lost its sense of play. To think of Wisdom playing everywhere in the world is a thought that is not very congenial to our western culture at the moment. Above all, we must be intellectually serious - even dull, if I may say so. Perhaps that’s because academics have laid special claim to wisdom.

I personally do not advert often enough to the statement of St. Paul in Ephesians 2:10: “We are God’s work of art, created in Christ Jesus to live the good life as from the beginning he had meant us to live it.” If Wisdom in the beginning was at play, we might well ask ourselves what the role of play is in our lives. We must be careful, however, not to over-intellectualize it while we reflect on it. Even our games have become very serious business. There is no sense of fun; cultural humor is not so much playful as mordant. Too often it’s meant to hurt, not to delight.

Note, though, that we are God’s work of art. Should we, because of that, be somewhat cautious in how we set about to change ourselves? In earlier and perhaps less complicated times, it seems that the first response to scientific discovery was a sense of wonder at what God has wrought. Now, it seems, if we can trust the literature, the first thought is not wonder so much as a desire to change the research object (or subject). Again, if the literature can be trusted, God doesn’t even enter into any scientific reflection nor into thoughts about how it might be used to improve the human situation. Everything has an ad hoc flavor to it.

This, I think, is one of the things at the bottom of the Church’s “problem” with scientific advance. There is, whether we like it or not, a Promethean character to the contemporary scientific enterprise. It is not the sole characteristic of that enterprise, but it is certainly an important one. While it will be centuries or millennia before we can alter galaxies, it will be in the lifetime of most people presently alive that we shall be able (deliberately and predictably) to alter living systems. Of course, we have been able to alter living systems from the beginning, if only by killing them. It would be more than mere curiosity to read the story in Genesis of Jacob’s attempts at “genetic engineering” as he tended Jacob’s flock. So, the story is not all that new. But that ability and attempts to alter things was basically trial and error, not rising from a determined effect scientifically to renew the

face of the earth and its inhabitants, man and beast and plant.

This is not a call to renounce science and technology. It is a call, perhaps, to restore a sense of beauty and wonder to our sciences and to our technologies. Perhaps, it’s little more than an early morning reflection on our human need to control, to domesticate, our environment. Management has become the focus of our lives and of our attempts to cope with the world around us. I certainly see in myself the need to domesticate my surroundings, even to try to domesticate the living God. Yet, if I am God’s work of art I ought to let him finish what he has begun. I believe the same is true of the world.

Does this get us off the hook? No, in fact it fixes the hook more firmly. God certainly will not finish his work of art, will not sing the rest of the aria of creation, alone, without us. We are in the choir now. Indeed, each of us and every other creature is a part of the music. In continuing the story of Ilúvatar which I quoted above, J.R.R. Tolkien writes:

Then Ilúvatar spoke, and he said: “Mighty are the Ainur, and mightiest among them is Melkor (the one who fell); but that he may know, and all the Ainur, that I am Ilúvatar, those things that ye have sung, I will show them forth, that ye may see what ye have done. And thou, Melkor, shall see that no theme may be played that hath not its uttermost source in me, nor can any alter the music in my despite. For he that attempteth this shall prove but mine instrument in the devising of things more wonderful, which he himself hath not imagined.”

We may well propose new themes for the completion of the divine symphony. We will produce things (good and evil, harmonic and discordant) for that symphony that God will weave into greater melody. But we cannot just sit around and listen. We ourselves are part of the song. Yet, we must never forget that it is God’s music, leading to his delight and joy above ours.

Perhaps by taking ourselves, our works, our scientific and technological achievements so seriously, we work to trivialize them. We try to exalt ourselves, individually and communally, rather than exalting (and exulting in) God who has given us the creation. Shouldn’t we be as delighted to be with Wisdom as she delights to be with us? We cannot so delight if our achievements are directed to self-definition, to self-creation, rather than to the flowering of the creation.

Which of the quotations I started with is the best way to our truth and God’s? All three, integrated in our quest for union with Mystery, with Love. The scientific has a beauty of its own; the poetic has a splendor we cannot afford to lose; Wisdom must always be our companion as we walk through the creation and through our very lives to God.