



# *Institute For Theological Encounter* *With Science and Technology*

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## **Wondering**

Lately I've been listening to audio CDs from *Now You Know Media* entitled "Galileo: Science, Faith and the Catholic Church." Brother Guy Consolmagno, SJ explains in depth the entire Galileo affair. Brother Guy is a longtime ITEST member and was an ITEST conference speaker in 2007; today he is THE Vatican Astronomer, head of the entire Vatican Observatory. Fortunately he made these excellent CDs before his promotion to a position of endless time-obligations.

At one point, Brother Guy observes that when people find out he is both a scientist and a Catholic, they always hit him with Galileo, "...because it's the only thing they know" [about science and the Church]. The folklore believed by nearly everyone (including most Catholics) is that the Catholic Church {executed, condemned, tortured, jailed – pick one} Galileo. The presumption that religion and science are enemies is strong. I too have experienced that expectation.

Brother Guy reviews the entire history of those times, spanning over a century from the Protestant Reformation onward. By 1616 Galileo was told to stop preaching the Copernican system, but nothing much came of that. In 1633 he was put on trial, and Consolmagno explores the question of "Why then?" It turns out the 30-years war was under way, and the Protestants were pushing the Catholic Church very hard to stick to literal Scripture. In an earlier time, the Catholic Church's blend of Scripture *and* Tradition would have enabled the kind of re-interpretation needed to accept Copernicus' theory; but alas, at that moment in history, rigorous adherence to Scripture was deemed necessary. The Galileo trial might never have happened except for that bad timing – and we would have been spared four centuries of animosity.

That got me to wondering what *else* might have been different in those times. As we commemorate the 100th anniversary of the apparitions at Fatima in 1917, we acknowledge that it is possible for God (who transcends time) to grant visions of the future to selected individuals. 2017 is also the occasion of the 500th anniversary of the start of the Protestant Reformation, when Martin Luther, according to legend, tacked 95 theses to the cathedral door. By 1550, the Church acknowledged that most of Luther's points were valid, and called the Council of Trent.

But what if Martin Luther had been granted a vision of the 20th & 21st centuries, and been allowed to see the carnage that has accrued in the world since the division of Christianity? In America alone, we count almost 60 million innocent and defenseless unborn babies slaughtered by abortion; across the entire world, the figure is pushing a billion abortions. Add in the totalitarian movements of the 20th century – another 100 million killed. Would Luther still have publicly split from the Church, or instead chosen to work from inside to achieve reform? Did Christianity really have to be torn asunder? And today, amid the threats from secular humanism (effectively, atheism wrapped in the mantle of "scientific materialism") we ask: Can Christianity ever be put back together again?

Finally, I wonder how the visions given to the children at Fatima have changed the course of history. Did Karol Wojtyla, living under the thumb of Stalin, have an inner confidence that we would prevail? We're still too close to those years to see history clearly. But Fatima was far more than just a singular anomaly. God, who is present to *every* time, can blend our prayers today with the people of 1917 to benefit humanity in some entirely different year.

*Thomas P. Sheahan*  
Director, ITEST

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## Announcements

### ITEST's 50th Anniversary

Plans are progressing for the celebration of our 50th anniversary in 2018. In the last issue of the bulletin we began to mark this significant anniversary by reprinting the theological essay introducing the then newly created faith/science modules, Exploring the World, Discovering God (EWDG). In this issue we are reprinting Dr. Tom Sheahen's article on the complementarity of faith and science emphasized in the lessons. We plan to celebrate throughout the coming year by holding a conference on ethical, scientific and theological considerations of the CRISPr technique of genetic manipulation as well as pursuing another possibility for a one day meeting on the Shroud of Turin. More detailed information will be forthcoming in the summer issue of the bulletin.

### Magis Center App

The Magis Center app has launched and is available for both Apple and Android users free of charge. The new app serves as a hub for all Magis content including YouTube, Twitter and Facebook. Like all Magis Center content, it provides resources that revitalize belief in God, the transcendent dignity of the human person, authentic virtue, happiness, love and freedom and the reality of Jesus Christ.

### Temporary Change To Web Site

If you attempt to access [www.creationlens.org](http://www.creationlens.org) the web site for Exploring the World, Discovering God (EWDG), side by side faith/science lessons – Pre-K —Grade 8, you will be directed to the paragraph below. Although the lessons have been downloaded more than ½ million times free of charge, it has become necessary to start charging for their use. To that end, the ITEST Board of Directors has decided to restructure and develop the [creationlens.org](http://creationlens.org) web site to reflect that change. It will take some time to make the changes necessary. Therefore, when you access the web site above and go to Learning materials you will see the following notice at the bottom of the page:

How do I obtain the Lessons? The faith/science lessons/modules in Exploring the World, Discovering God (EWDG)

are temporarily off-line as we restructure and develop the site for your convenience. If you need more information on these popular faith/science lessons for Pre-K – Grade 8, please contact Sister Marianne Postiglione, RSM at 314-792-7221 (9:00am-5:00pm Central Time - Monday-Friday) or email her at [mariannepost@archstl.org](mailto:mariannepost@archstl.org)

### In Memoriam

We ask your prayers for the following ITEST members who died and rose to New Life within the past few months:

**Anne E Bannon, M.D.** who died January 30 was the Founder and President of the National Doctors for Life organization. Among her many accomplishments, she served as volunteer physician in Vietnam treating children in Da Nang in the late 60s, taught at St. Louis University School of Medicine and held the position of chief of pediatrics at St Louis City Hospital.

**William E. Biernatzki, SJ**, a Jesuit Brother for 59 years, died in April at the age of 85. Before entering the Society of Jesus, he served in the US Army in Korea for several years. In 1967 he earned a PhD in anthropology and sociology from Saint Louis University. He spent much of his life in Korea, professing his final vows there in 1979, teaching and doing research at Sogang University in Seoul from 1968-1989. He was a writer and editor par excellence often assisting the staff at ITEST with this skill and his critical "editing" eye.

**Herman L. Kriegshauser** of St. Louis who died December, 2016. Mr. Kriegshauser was a long-time member and loyal supporter of ITEST. He was co-owner with his family of Kriegshauser Funeral Home in St Louis.

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



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(In the last issue of the bulletin we reprinted Sister Cara Mae Streeter's essay "The Sacred Story" written as the introductory theological base for the then newly launched project, *Exploring the World, Discovering God (EWDG)*, side by side faith/science modules/lessons for Pre-K through Grade 4. In this issue we are printing a slightly edited version of the other side of the project: science. Dr. Tom Sheahen makes a strong case for the reasonableness of faith/science complementarity and the strength it affords the education of young Christians.)

## The Complementary Roles of Science and Religion

Dr. Thomas P. Sheahen

...in awesome wonder, consider all the worlds Thy hands have made...

These words, taken from the familiar hymn *How Great Thou Art*, convey a very essential point about the symbiosis between science and religion. God is revealed through nature. A corollary of this is that we can learn about God by studying nature. The basic intent of our present endeavor is to show how that can be done.

The idea that faith and science are complementary ways of seeking truth dates back to very early Christianity. For the great majority of the Christian era, scholars were completely comfortable with this unity. Here is a quote attributed to St. Augustine: "The book of nature and the book of Scripture were written by the same author, and they cannot be in conflict." In the 21st century, we need to restore that ancient confidence in the unity of faith and science. Everyone recognizes that we cannot teach *all* of science any more than we could ever teach *all* of theology. But first, we have to make students comfortable within both the realms of science and religion.

**Dr. Thomas Sheahen, PhD**  
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Dr. Thomas Sheahen attended M.I.T. and received BS (1962) and PhD (1966) degrees in physics. He is a registered Professional Engineer in Maryland. His professional career as a scientific researcher was primarily in energy sciences, especially about ways to use energy efficiently. Dr. Sheahen is the author of the textbook "Introduction to High Temperature Superconductivity." He has also taught physics at both the college level and in high school. With Fr. Ernie Spittler, SJ, he co-taught "Issues in Religion and Science" at John Carroll University. More recently, he has co-taught [with Sr. Carla Mae Streeter] the on-line course "Theology and Science" for Holy Apostles College & Seminary. Sheahen currently serves as Director of ITEST.

### 1. Prerequisite: Overcoming the "fear factor"

The media commonly assert that science opposes religion, but that's just a way of floating a provocative sound byte. Many excellent authors<sup>1,2</sup> have described the types of interactions between science and religion. For example, Jack Haught<sup>3</sup> defines four easily-memorized categories:

- a) Conflict: religion and science are opposed
- b) Contrast: religion and science are completely separate
- c) Contact: religion and science are distinct but interact
- d) Confirmation: religion supports science

ITEST promotes a combination of c) and d). However, it is first necessary to address the first two categories.

a) Conflict: It was not until relatively recently (< 2 centuries) that the perception of science and religion as enemies was asserted. In the audio-CD course *Science and Religion*<sup>4</sup>, Lawrence Principe traces the "enemy" notion to two books of the late 19th century. The essential point for our purposes is that it wasn't always this way. From early Christian days until well beyond the Reformation, scholars were comfortable pursuing knowledge, and never really distinguished between science and religion.

Nowadays, due to the influence of *scientific materialism*, that "enemy" notion has received very wide publicity, and is standard in colleges. In fact, we find many *Christians* believing it, without looking at the history of Christianity. Out of fear, some deliberately turn away from science, worrying that science might damage their faith. This is very regrettable, because in fact science offers an excellent pathway toward appreciating the glory of God.

Here's an important principle to remember: Unless the tension and fear associated with faulty perceptions about "enemies" is overcome, little will be accomplished; people will revert to their old ways quickly.

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b) Contrast: This is basically a way of side-stepping the perception of conflict, in which the two camps essentially say to one another “stay off my turf and I’ll stay off yours.” It is in the nature of a truce, and contains inherent instability. The term *Non-Overlapping Magesteria* (NOMA) was introduced by Steven J. Gould<sup>5</sup> as a label for this segregation. The instability arises because people find it unsatisfactory to hold different blocks of knowledge and never strive to unify them. Nevertheless, a fair fraction of scientists and engineers successfully separate the activities of their professional occupation from their religion, and live with the truce.

The two latter categories c) and d) are much more optimistic, and trust that God wants us to understand His creation. When we search for unity between science and faith, it displays our commitment to the idea that science and religion have something to say to each other, and can interact constructively.

## 2. Unity of Science and Religion

Despite enormous contemporary publicity (to the point of hype) about “Science **against** religion,” authentic Christian teaching has always considered them partners.

### a) Early Christian Faith/Science

The foremost expert on scientific matters in the Patristic period was the Church Father St. Augustine (356 – 430 A.D.). Augustine’s insights have stood up exceptionally well over many centuries, and indeed he perceived the principle of the unity of space and time, which was long forgotten and only rediscovered as part of *General Relativity* in the 20th century. I consider St. Augustine was the most under-rated scientist in history: under-rated because we’ve all heard of Newton and Archimedes, etc., but nobody thinks “science” with regard to St. Augustine.

St. Augustine held that nature offers a pathway to learn about God; and that God’s creation of nature is parallel to the revealed truth of scripture. His foremost accomplishment was to unify the Christian faith with the pattern of reasoning that had come from the Greek philosophers. That unity is embodied in four major principles<sup>6</sup>:

1. There is a unity of truth – both in nature and in theology.
2. The Book of Scripture and the Book of Nature have the same author, and they cannot be in conflict (when interpreted correctly).

3. However, both books require careful interpretation.
4. While religious knowledge may be primary, scientific knowledge plays a very important supporting role – even in understanding the Bible.

Augustine stressed the importance of using reason as a tool to discern truth, and was very critical of those who refuse to seek compatibility between faith and reason. He was quite scornful of Christians who wouldn’t strive to apply reason to articles of their faith; and he wouldn’t settle for compromise where a conflict seemed to occur. Any apparent conflict simply signaled the need for deeper interpretation of *both* science and religion, which would march forward together.

Augustine’s emphasis on the need for proper interpretation of *both* books is too easily overlooked. People have a vague feeling of what “Biblical interpretation” means, but generally ignore the fact that scientific observations demand careful interpretation as well. The history of science over the last several centuries is filled with examples of how new ways of interpreting the same data gave rise to better theories and more comprehensive understanding of nature: The Ptolemaic vs the Copernican theories of planetary motion; *phlogiston*; the *ether*; all were part of the continuing effort to interpret the book of nature. Contradictions have to be resolved, as Augustine said. It is little-remembered that 19th-century classical physics predicted a contradiction (known as the *ultraviolet catastrophe*), because of which Max Planck introduced the new hypothesis of the *quantum* of electromagnetic energy<sup>7</sup>.

Augustine said that God created space and time together<sup>8</sup>, and *that* was the beginning. He did so on philosophic grounds, arguing that “the beginning” could not have anything existing *before* time and space came into existence. Here, Augustine did not take the coordinate system for granted, but insisted it was God’s creation. This was a brilliant leap forward, about 1500 years ahead of his time. (Pretty good for a fellow who never heard of the *Theory of Relativity*!) In the present day, reason (mathematics and physics) comes around full circle to verify what Augustine first stated via faith.

His insight was forgotten over the ages, and by the middle ages, people assumed that the spatial coordinates of the earth defined the center of the universe. Newtonian

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physics was built around the concept that time is absolute and immutable. Only in the 20th century did Einstein rediscover (when formulating the *Theory of Relativity*) that space and time are interchangeable and comprise a unified coordinate system.

Augustine saw clearly that the familiar question “What was God doing before he created the world?” was a nonsense question, because the word “before” has no meaning in the absence of time. Regrettably, Augustine’s brilliant insights were lost, and to this day some people still ask the “before” question – because they still think of time as absolute, and incorrectly believe that God must exist *within* time, and be *subordinate* to time. They are placing a false god before God.

The key point to notice in all this is **that** St. Augustine always kept faith and reason together as his knowledge moved forward. When interpreting Scripture, he understood that humankind’s ability to absorb what God wants to reveal is limited. That limits the accuracy of what is written down on paper. When interpreting the book of nature, he realized that sensory perception is likewise limited, and only presents the human mind with filtered information about an underlying reality. Hence in *both* cases there is a need for careful interpretation, using both faith and reason to achieve understanding. Augustine’s insistence upon using *reason* enroute to an interpretation took him completely away from Biblical literalism as we know it today. This Father of the Church, writing around 400 A.D., dismissed the six-day story of creation, because it didn’t stand up under even the science of those days. Augustine merged a very high confidence in the combination of faith and reason with a clear acknowledgement of humankind’s limitations, and thus reached a high comfort level with both religion and science, knowing full well that both gave incomplete pictures of The Divinity.

With the passage of 16 centuries, can we do very much better? We know a lot more details, but Augustine’s principles still stand.

### b) Faith and Reason

One person who did not forget St. Augustine was Pope John Paul II, who in 1998 issued the Encyclical *Fides et Ratio* (“Faith and Reason”).<sup>9</sup> In this document, St. Augustine is shown to be highly relevant for today. Pope John Paul II takes on a number of contemporary errors, based variously in too much reliance on faith alone or

too much reliance on reason alone. The consistent theme throughout this Encyclical is that faith and reason have to function together in a unified way, or else error is the result.

Remarkably, this Encyclical does not deal specifically with Catholic doctrine. Rather, its central messages are that *human life has meaning* and *there exists an eternal and transcendent truth*. *Truth* is conformity between the intellect and objective reality. Notice that these are “faith-statements,” that is, statements which cannot be proven by reason alone, but which nevertheless are held to be true.

Errors on the side of overemphasizing faith include *Fideism*, a blind adherence to faith-statements that rejects the use of reason. In fact, *Fideism* doesn’t even demand consistency, a fatal flaw under the light of reason. It “runs the grave risk of withering into myth or superstition.” *Biblicism* (relying on Scripture alone) is likewise flawed, for several reasons, notably the limitations of a human recipient of God’s revelation.

On the side of too heavy emphasis on reason alone, there are a number of 20th-century errors: *relativism* (no ultimate truth or objective reality; truth determined only by consensus); *nihilism* (no purpose or value to human life); *pragmatism* (no transcendent ideals); and *scientism* (no knowledge exists except that which comes from science). *Scientism*, which is very prevalent nowadays, asserts that all knowledge claims outside of science are nonexistent or irrelevant; it rejects the possibility of ethics, aesthetics, etc. *Scientism* leads to merely economic production, not human enlightenment. What is technically possible becomes indistinguishable from what is morally permissible.

*Remarkably*, *Fides et Ratio* points out that all these errors involve their own faith-statements, of a negative kind: “you cannot know [something]”; “you cannot discern truth.” All those assertions diminish human culture, human dignity, human life. In contrast, striving toward ultimate truth is a worthy objective that should not be abandoned. John Paul II says to those positions: abandon your **negative** faith-statement and consider the **positive** faith-statements that there **is** meaning to life, that there **is** such a thing as transcendent truth; and see where it leads you. The Pope’s familiar slogan “Be not afraid” comes to mind. His optimism about humanity is apparent.

The “bottom line” of *Fides et Ratio* reinforces St.

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Augustine once again: Faith does not oppose reason; rather, it guides reason and challenges reason to reach further upward than it could on its own. Working together, faith and reason can bring you closer to truth, and hence to God.

### c) Invisible Realities

One extremely important proposition is this: There is more to reality than meets the eye. At church we recite in the *Nicene Creed*:

*We believe in one God, the Father, the Almighty, maker of heaven and earth; of all that is visible and invisible.*

Most of us gloss over that last clause; it isn't even present in the *Apostles' Creed*. The *Council of Nicea* put it in because there were doubts about invisible things like grace, and whether God created everything. Here we assert that there really **is** an invisible part of life and of the universe. And not just *dark matter* or *dark energy* out in space<sup>10</sup>. There are realities that exist but are not material: culture, music, interpersonal relations, love, honor, courage, and so on – the entire spiritual realm. We state that we believe that such things are **real**. The *visible* world is that which can be detected with our scientific instruments, via their interaction with our senses<sup>11</sup>. The *invisible* realities are discerned through mental processes like thinking and reasoning – and faith.

## 3. Appreciating God's Created Universe

### a) Beauty in Symmetry

At the deepest foundation of physics<sup>12</sup>, we build theories based on our *belief* in *symmetry principles*. Physicists discern exquisite *beauty* in mathematical symmetries<sup>13</sup>, and cherish a symmetric theory<sup>14</sup> while disdaining any theory that violates certain symmetry principles. Scientists put great *faith* in the existence of symmetry principles.

This theme is developed more fully in the ITEST book *Transfiguration*<sup>15</sup>, where the connection between symmetry principles and the laws of physics is explored. There is a symmetry associated with time that says the results of an experiment cannot depend upon whether you set your clock to Eastern or Central time; that gives us the law of *Conservation of Energy*. It also shouldn't matter whether you do an experiment in St. Louis or San Diego; that gives us the law of *Conservation of Momentum*. Each of the major laws of physics derives from another symmetry principle<sup>16</sup>. These makes such good sense that nearly all scientists just "take it on faith," which again

shows how faith constantly acts as a guide for reason.

Notice that this adherence to symmetry principles is a form of faith-statement. There is no guarantee in logic that there must be mathematical symmetry in the equations governing physics; but it surely seems right to the human mind. Upon discovering a previously-unknown symmetry principle, physicists say "of course! How could it have been any other way!" A child in art class folds and cuts paper to construct a snowflake, and calls it "beautiful." The *beauty* that scientists discern in our equations presents a compelling argument that these equations correspond to objective reality, and hence are *true*. Careful dissection of this reasoning may find it circular, but it does appear that God endowed humankind with an ability to appreciate the beauty of mathematical symmetry. This in turn leads humankind to a better understanding of God's creation.

By contrast, when an equation works okay but symmetry is missing, it is not mathematically beautiful, and scientists distrust it. Our subsequent behavior pattern is reminiscent of St. Augustine's assertion that if faith and reason appear to disagree, then both need to be interpreted better until agreement is achieved. In any circumstance where we fail to recognize an underlying symmetry principle, our understanding is weaker for it. As theory advances, symmetry always seems to stand out when "we've got it right."

From here, it is not too difficult a leap of faith for a contemporary physicist to say that all God had to do was think up some symmetry principles, and the universe came into being. Obviously that would be a faith-based statement, and surely it would not be the whole story!

### b) Symmetry of Space and Time

Most people customarily take the coordinate system for granted, but St. Augustine did not. Augustine recognized that absolutely *everything* is created, and taught that God created space and time together. There is no evidence that Augustine appreciated mathematical symmetry; he was led to this insight by careful philosophical reasoning. Augustine also realized that God is totally superior to His creation, and therefore beyond (outside of) space and time. The subordination of space and time to God was a very significant insight. Another insight was that God is present to *all* space and *all* time. Consequently, what we humans perceive as the "passage" of eons of time doesn't bother God at all, because God grasps all time in a unified way.

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Still, human sensory perception is an important factor in life, and everything in human experience tells us again and again that time is different from space. This completely ordinary way of thinking is an example of what Lonergan<sup>17</sup> termed *general bias*, and it is very difficult to correct -- because the structure of language, culture and thinking all reinforces the notion. It takes insistence upon mathematics and symmetry to treat time and space as equal dimensions.

By the 17th century, with Augustine long forgotten, Newton's laws treated time as different from space, and no one even thought about any symmetry being absent. It wasn't until Einstein's *Theory of Relativity* that space-time symmetry was restored. Today, the symmetric way in which space and time appear in the equations of physics is a compelling indicator that "we've got it right." Any better theory that comes along tomorrow must retain those symmetry principles.

When we trust in the validity of symmetry principles, especially between space and time, then reason begins to feed back into faith, refining and correcting our understanding. This is exactly the process explained in

*Fides et Ratio*. The box titled *Reinterpreting Omnipresence* (below) offers an example<sup>18</sup> of how this unfolds.

### c) Faith Within Science

It often goes unnoticed that faith is used within science a great deal. There are non-physical realities at work in science all the time. These factors are drawn from the realm of the intellect and spirit. In fact, it is necessary to make use of these invisible realities in order to do science at all. Trusting in the prior work of others is customary. When publishing scientific advances, the *peer review system* is based on mutual trust, and despite many imperfections, we have no better way to control quality in publications. Science is said to be self-correcting, and there are familiar examples of how new theories have driven out the old. However, it is worth emphasizing that (because it is impossible to personally repeat every experiment) the correction process combines the use of reason with faith in the integrity of the community of scientists. In any field where that integrity breaks down, error is virtually guaranteed, and can only be corrected from the outside.

The way science is done is not all that different from the

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## Reinterpreting Omnipresence

We may ask: "What does God's quality of *omnipresence* mean?" Most people shrug and say "God is everywhere." But God is also present to all *time* as well, so that God is *Everywhen*. This boggles the mind; people are incapable of grasping it, because all our experience is of time running in only one direction, never repeating. We have no experience of anyone being simply *present* to all time. What reason has led us to see here is that our *human* experience is limited, but God is not limited.

There are corollaries of this space-time symmetry. We have long accepted certain statements about space that pertain to God; but we must also extend them to the relation between time and God. For example, we agree that heaven is not a *place*. But it cannot be a *time* either. So heaven must be some completely different form of existence, in which neither space nor time is relevant. "After"-life is too time-dependent a word. "Eternal life" means life where time neither stands still nor runs on an endless clock; time simply isn't one of the parameters of eternal life.

Where do we go from here? How can we even talk about it? The Christian who accepts this conclusion is left with the realization that our language, culture and ways of thinking are all inadequate to the task of describing life without time. A strong faith-statement is embodied in the ancient slogan "*Vita mutatur, non tollitur*" (Life is changed, not taken away). In this domain, scientific measurement goes by the wayside, but reasoning based on science leads religious people to accept a large dose of humility. Images that were helpful crutches in ages past must be set aside. Fortunately, problems and obstacles to belief that arose from those inadequate images also disappear.

work of theologians over the centuries: faith and reason work together to advance knowledge. In both cases, the starting point is the belief that God acted rationally in creating. We also trust that we can figure it out (or at least strive in the right direction). Without these axioms, we'd be back with the ancient Romans, who believed in capricious gods hurling thunderbolts.

#### d) Increasing Complexity

For many people, nature is inspiring in its beauty, even when it is not understood. Astronomy and weather fit that description well. Biology is similarly inspiring; the cell is an amazing object<sup>19</sup>. Life in even a single cell elicits “awesome wonder,” and multi-cellular life is even more astounding.

With biology, what we face (as both scientists and religious believers) is a problem of increasing complexity. At the basic level of the laws of physics, we can understand the behavior of a few particles. As complexity increases, even in the transition to chemistry, our limited capability to keep track of everything prevents us from seeing all the details anymore. By the time we get through chemistry to self-organizing molecular systems, we have lost the thread of direct explanation. To understand even one cell in quantitative detail is beyond human ability.

Science does its best to explain all this, even amid great difficulty. That's the “job” of science. So far, many diseases have been conquered, and medicine is based on knowledge of the way chemicals interact with living cells. Unlike in physics, the basics in the life sciences are not crystal-clear. Nonetheless, advances based on limited knowledge and imperfect theories are still advances. Science should keep on doing more. The origin of life is an extremely elusive question, one that is well beyond contemporary scientific horizons. However, it would be a mistake to begrudge science the right to tackle the issue.

### 4. Evolution:

Evolution is a hot topic at the interface of faith and science. This is the issue that motivates many people to be attentive to science/religion issues in general.

#### a) More than just a Hypothesis

Pope John Paul II's 1996 statement<sup>20</sup> calling the theory of evolution “...more than just a hypothesis...” created a stir among Evangelicals, but it was entirely correct. A theory is an organized body of statements that have explanatory power. The theory of evolution does indeed

have explanatory power. It is the best theory we've got. Without it, nothing in biology makes sense. And with it, we can see the subtle beauty of God's very advanced means of creating. Humans are allowed to share in this, as sketched in the box Guiding Evolution (pg9).

Scientific materialists will argue that evolution disproves God. They claim this God of ours must not be very powerful, because it took *so long* for evolution to advance. That viewpoint is based on the presumption that time is absolute and God is subordinate to time. The materialists fail to realize that God doesn't have to sit around watching time go by on a clock the way we do. 13.8 billion years may be a big deal to humans, but not to God, who is simply *present* to all time. Many Christians have unfortunately bought into the notion that God is subordinate to time, and find themselves unable to deal with the “too long” argument. To evade the argument, they shorten the time scale to 6000 years, based on Biblically-derived calculations.

A more significant point to ponder is that God, being present to all time, knows what we refer to as the *future* of evolution. God knows what humankind is going to evolve into. Teilhard de Chardin examined this important question<sup>21</sup>.

#### b) Information and Evolution

*Information* is an essential component of evolution<sup>22</sup>. It has been all along, but nobody noticed for a very long time. The direction of evolution is toward increasing complexity, where greater amounts of information are involved. The DNA molecule (despite whatever unknown chemistry may underlie its origin) is a carrier of information.

We do not really understand the mechanism of evolution that God used here. Increasing complexity seems to be associated with increasing consciousness. Teilhard de Chardin spoke of the “within” and “without,” “radial energy” and “tangential energy,” and defined the domain of the *noosphere*. For most people, these are just buzzwords. (Moreover, some of the *new age* folks have grabbed onto Teilhard and misunderstood his meaning.) But there are at least a few ways in which information stands out:

Quite often, to be fit and survive it is necessary to have better information than another species. In the wild, we see this in the strategy by which lions hunt in packs. In civilization, the major daily activity of advanced humans

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is predominantly a matter of exchanging information.

There is a lesson to be learned here from St. Augustine: just as he did **not** take the coordinate system for granted, but saw that space and time were creations of God, similarly we need to recognize that *information* is likewise a creation of God. It doesn't *have to* exist. The world doesn't *have to* make sense. *Meaning* is optional. The ability to find meaning within information, and to decide what to do about it, is another gift from God. It is another facet of His creation.

## 5. Opponents

The people who argue that religion opposes science are not going away. They have to be confronted eventually; to do so, we may draw upon the unity explained by *Fides et Ratio*.

### a) Scientific Materialism

Our opponents argue their case based on partial knowledge and limited, selected information. They seize on one thing and then expand their argument via *non sequiturs* to claim something else. *Philosophical scientism* has been refuted by countless texts of scientists neutral toward religion, but not enough people grasp the distinction between science and *philosophical scientism*. When the two are conflated, then *scientism* masquerades as science, to everyone's detriment.

Too many Christians accept the premise that science is opposed to faith, and might destroy their religious beliefs. As a defense, such individuals outright reject evolution and believe in Biblical literalism, perhaps even six-day creationism<sup>23</sup>. The atheists seize upon this and ridicule it, and then jump to the assertion that all religion will someday be swept aside by science<sup>24</sup>. Both the scientific materialists and the Christian fundamentalists adhere to extreme positions. They both promote polarization, avoid rational discourse, and convey to the general public the notion that there must be an either/or outcome.

*Intelligent Design theory* (I.D.)<sup>25</sup> was originally a finite series of statements about how God creates. Regrettably, it has been hijacked by the anti-Darwin contingent and turned into a component of their rear-guard battle against evolution. This is a big mistake, and ID has been tarnished through guilt by association. It is almost impossible for a scientist<sup>26</sup> to explore ID without being held up to ridicule on spurious charges. The battle going on over teaching evolution in public schools has produced the curious effect that the best teaching of evolution takes place in Catholic Schools<sup>4</sup>, where evolution is not visible as a threat, but merely as God's way of creating.

The atheistic challenge was taken on by the *International Theological Commission*, a team of leading Catholic theologians. The document *Communion and*

## Guiding Evolution

For about the last 10<sup>4</sup> years or so, God has gradually permitted the direction of evolution to be set by one part of his creation (people). God has also allowed that creature to discern that God is present, that He cares, and that He has something better in mind. We share in God's creative acts when we discover a medicine (penicillin), breed new varieties of living organisms (think of Alaskan sled dogs), or when we eradicate a disease through concerted effort (smallpox virus). Hopefully, God doesn't give away too much control, because sometimes we are unaware of secondary consequences caused by our intervention (think of environmental effects). Several ITEST conferences in recent years have dealt with humankind's growing ability to manipulate genetics. This is all part of God's decision to allow people to have a share in controlling the direction and future of evolution.

However, evolution also expands into the realm of the unseen. We are advancing in the other categories (like culture, philosophy, music, etc.). The thought of warfare may be unpleasant, but even the *Geneva Convention* for fighting wars is an example of an evolved reality that is not part of the material world. The practice of taking prisoners (as contrasted to killing all the enemy) shows deference to the principle that human life has value. That hasn't always been the case; primitive man did nothing of the sort. Because God taught us that principle, it gradually brought about a shift in the direction of human development and civilization.

*Stewardship*<sup>27</sup> reasons carefully about the nature of contingency (randomness) and reaches the conclusion that true contingency is not incompatible with purposeful divine providence. Anything random can only be random because God made it so. An unguided evolutionary process cannot exist. Quoting St. Thomas Aquinas, the document observes that the causation of God (the first agent) extends to all beings, and God made all the secondary causes. The neo-Darwinians who use random variation as evidence that evolution is unguided are straying beyond what can be demonstrated by science<sup>28</sup>.

### What's next?

Looking back, we see that God created everything. Space and Time were the beginning, followed by a series of changes that most recently produced humans. We wonder "What's next?" and hesitantly inquire "surely it will involve us, right, God?" Teilhard de Chardin had an alternate theory of evolution that included the emergence of new characteristics at each successive level of increasing complexity. The emergence of thought and language advanced evolution to a level beyond what can be found via Darwinian evolution. There is a new level of evolution that humans are experiencing, toward some new being or species not yet there. We are living "on the cusp" of this Teilhardian type of evolution – we can see the direction (*centration*, *Christogenesis*), but we haven't evolved there yet. Teilhard speculated further that a person might have to physically die in order to advance further into the realm of increasing consciousness. His picture of *Christogenesis* (unity in Christ) did not necessarily occur within the domain of existence as we know it here on earth.

#### b) Multiverse

Meanwhile, over in the domain of physics, increasing attention is being given to the *Anthropic Principle*<sup>29</sup>. In its most theological embodiment, this argues that we are not here by accident, that from the outset the universe was created with the intention that we should someday be here. In physics, the ratio of certain numbers is very exquisitely tuned<sup>30</sup> to produce galaxies, stars, nuclear reactions, etc. in such a way that the universe can evolve life. These are sometimes termed "magic numbers."<sup>31</sup> The tuning in one case is accurate to at least one part in 10<sup>15</sup>. As a consequence of these precisely tuned numbers, the probability of us being here by accident is vanishingly small.

This puts the scientific materialists in a very uncomfortable box. The only way to assert that we are a lucky accident is to hypothesize a *multiverse* – an infinite number of universes – in which we just so happen to reside in one

that is working right. **And** those other universes cannot be observed. The foremost trouble with this is that it violates the principle of *Occam's Razor*, a basic canon of science by which you cannot festoon a theory with various features that are unobservable. Any hypothesis that is not subject to being tested is ruled out of physics at square one.

Thus, there is quite a high price to be paid if you want to believe in the *Multiverse* and say that all these very precise dimensionless numbers have no significance -- you have to abandon a basic cornerstone of science! Therefore, the person who assents to the *multiverse* hypothesis thus

effectively **disqualifies** himself from being called a scientist. The *Multiverse* is the last refuge of the atheist who is so totally committed to his position that he will give up everything else to hold onto it.

The two features that stand out here are both bad news for the atheistic position. Regarding living things, the *International Theological Commission* has explained that the assertion that random evolution shows the absence of God is a claim that oversteps

the boundaries of science. Furthermore, at the most fundamental level of physics, the evidence for God's intentional creation is so strong that the only refuge lies in a hypothesis that is total fantasy, completely disqualified from the realm of science.

### 6. Conclusion

To study God's created universe is to do science. To study God is to do theology. The two fit together. They advance our knowledge, enhance our participation in God's creative acts, and bring us closer to God.

When we are comfortable with both science and religion, then we don't have to compartmentalize them, as in the NOMA<sup>5</sup> hypothesis. We can regain the sense of unity of knowledge of which St. Augustine spoke. We can accept Augustine's dictum that sometimes advancing science requires us to re-interpret Scripture<sup>32</sup>. We can enjoy

*Continues on page 11*

looking at God's creation through the two lenses of faith and science. The principles enunciated in *Fides et Ratio*, that there is value to human life and that there is objective truth, provide guidance through the assortment of modern errors.

Having only partial answers does not disturb those who see science and religion as friends. We have confidence that God is in charge and knows what He is doing. We are comfortable with St. Paul's famous admonition that "we

see only imperfectly, as if in a mirror; but then we shall see face to face." We accept our position as one of His created entities, and are happy to have a role in the furtherance of evolution. We don't ask for too much all at once.

Studying science contributes to the forward progress of humankind. But to do so correctly, it is necessary to appreciate both faith and science, and how they fit together in a unity of knowledge.

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- 25 See, for example, Wm. A. Dembski, *The Design Revolution*, (InterVarsity Press: 2004). See also opposing reviews of this book by Jakob Wolf and by T. Sheahen in ITEST Bulletin 35, # 4 (Summer 2004)
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***"Scientific and technological research forms part of our praise of the creator who made our minds to conform to the real world."***

*- R. Brungs, SJ*

## The Human Person Is a Bioethical Word

by Francis Etheredge

‘Bioethics is about identifying the fullness of human personhood; and, at the same time, it is about forming our self-understanding on the basis of this reality. Indeed, it is not “what” began at conception, as “who” began at conception; or, conversely, that each one of us can look back to a point at which we began to exist. But if, at the same time, each one of us is as inseparably biological as we are psychological, individual as well as social, then what account of being a human person does justice to the whole event: the whole reality of human personhood? Bioethics, then, addresses the heart of being human; and, therefore, it addresses the most fundamental questions about each and every one of us and how we relate to one another. Bioethics, however, can seem to be a very problematic and difficult specialization, dealing with extremely rare medical emergencies, beginning and end of life dilemmas and the rights of human subjects who are, for one reason or another, involved in experimental procedures.

The more, however, the questions raised in bioethics are pondered, the clearer it becomes that bioethics is not actually a remote specialization but a central concern of each and every one of us; for, in reality, bioethical questions and their answers have a bearing on how we understand what it is to be a human being: to be a human person. Moreover, in that we are also social and political beings, how we understand the identity of a human being will also impact on what medical, legal and political processes are necessary in the society in which we live: both to protect people from harm and to promote the good of all. The question of human identity excludes no one and includes everyone; it is just as much a part of each person’s life as

it is integral to marriage, the family and the life of society.

The author, Francis Etheredge, begins with his search to be open to life, the sources that help us to understand who we are and he then goes on to the need to “explore” the specific difficulties that make it urgent that men and women recognize that the gift of human being founds our equality before God and each other. Etheredge hopes that his response, embraced and enriched by a variety of Forewords from other authors, will help to contribute to the family of man welcoming all who dwell in “planet-home”. It is hoped, then, that this work will contribute to the common good, founded on our equal reception of the gift of human being; and, if we are equally in receipt of the gift of human being, then our equality begs to be expressed as universally as each one of us is a witness to the integral beginning of human personhood. Access the book at this link. [www.enroutebooksandmedia.com](http://www.enroutebooksandmedia.com)

### Francis Etheredge

Francis Etheredge: Writer and Speaker lives with his wife and children in Cheltenham. Gloucestershire, UK. Honors received, and earned include: BA (Hons) Divinity, MA in Catholic Theology, Postgraduate Certificate in Biblical Studies, Postgraduate Certificate in Higher Education, MA in Marriage and Family (Distinction). Etheredge has published widely in various scholarly journals and magazines, among them, Homiletic and Pastoral Review, The Catechetical Review and Communio. He may be found on LinkedIn as well.

“I tested the tenets of faith in my life laboratory, and I found them to be true. For example, I obeyed the obligation to attend Mass on Sundays and holy days of obligation, to pray daily, to honor my role as wife and mother, to pursue virtue, and to try to avoid sin. Choosing to do those things clarified the truth I could not see when I was unwilling to enter the laboratory to experiment. When atheists criticize faith, it is as though they are standing in the hallway of a laboratory criticizing the scientists inside, whose work they do not understand. The empirical evidence I gathered gave me confidence that the leap of faith was a leap into truth.”

From *Particles of Faith: A Catholic Guide to Navigating Science*,  
by Stacy A. Trasancos Ave Maria Press, 2016.



## Letters To The Editor

*(We are always glad to hear from our readers who respond with positive or critical comments. The first letter is from one of our long-time members and supporters, Pastor Hugh Beck from Austin, Texas. Hugh's comments and reflections at the early ITEST meetings in the 70s and 80s always left one with plenty of food for thought. We welcome his comments)*

The latest issue (Winter, Vol. 48, No. 1, 2017) from ITEST struck me on several levels, however, and spurred me to tell you how it did it!

First of all, the general theme of Theology and Nature especially struck me – and reading that Kathryn Sheldon, who made a presentation in that area, made me think of a striking “parallel” with an issue of Christian History that I was reading at the same time I received your ITEST release. I wonder if you are aware of that publication – and even more wonder if you have seen Issue 119 of that publication. There is no calendar dating of that magazine, but the copyright of Issue 119 is for the year 2016. The entire issue was released under the heading “The Wonder of Creation” with the sub-heading “How Christians have responded to God’s ‘book of nature.’” It is a meaningful “partner” to a couple of the articles in the ITEST issue you just sent out. You or Kathryn or others may find it a worthwhile effort to obtain a copy. (It is available on an issue by issue order.) I am a regular subscriber to the magazine and find it to be an excellent publication in a number of different ways and on a number of different levels. If an internet “address” is helpful it is [www.ChristianHistory-Magazine.org](http://www.ChristianHistory-Magazine.org).

I appreciated Carla Streeter’s “article” also in many ways, for she has a refreshing way of presenting basics of Christian thought. Thanks for that also.

Finally, the review of Silence was another very meaningful presentation. I read the book long ago and was very struck by its power when I read it and I have never really forgotten what an impact it made on me already then. I have not had opportunity to see the movie – I almost fear to see it, for the book itself impacted me so powerfully that I am not sure a cinematic form of it will do it justice! – but the review you printed was a very helpful way for me to review my “history” with that book. By the way, Shusaku Endo’s other books are also very helpful and meaningful in many ways, for he writes as a committed Christian whose Christianity is very much shaped by Japanese culture and understandings. He communicates the Christian message in a way that forces western readers to consider again what they understand Christianity to be – not challenging those understandings, but forcing a kind of re-orientation to the gospel. Again, I have gained much from reading his writings.

Enough for now. I’m not sure I would have responded to the issue as such all on its own (although Silence may have done the trick!) if it had not been for the “nature” theme that just coincided with my reading of Christian History at the very same time.

Regardless, I repeat that with which I began these thoughts – Greetings in the name and service of our Lord!

*Hugh Beck*

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### ***Two Reflections on End of Life Issues from Mrs Laura Ouellette.***

*Over 50 years ago Laura Ouellette was one of my very bright students at Bishop Feehan High School in Attleboro, MA. The freshman class—200 of them—at this brand new diocesan high school were eager to learn—for the most part. It was a “first” for both teacher and students. I was a newly minted teacher in my early 20s and they were 13-year olds embarking on their teen years with a mixture of apprehension and hope. Fifty years later, Laura, married to one of her classmates, Don, a successful business man, and together raising two children, shares her thoughts with our readers on “The Role of Technology in End of Life Issues: A Christian Response” from*

*the ITEST October 2016 conference. (Sister Marianne, RSM, Editor)*

“Thank you so much for the CDs of the seminar from October, 2016, regarding the topic of death and dying. It was absolutely refreshing to listen to discussions on a subject that most people want to avoid, usually for fear of the unknown. It would be a source of peace, I believe, for most individuals to come to accept their own mortality. We all know that death is a part of life, and I believe that it’s not the worst part. In fact, it may be the very best part.

*Continues on page 14*

Having come to the completion of our mortal experience, how fulfilling to step through the portal from time back to eternity! Isn't that what our spirit yearns for during our entire existence on this earth? I know that this perspective inspires me to seek to fulfill all that the Lord requires of me here, in preparation for a glorious reunion with Him. The Cosmic Dance..."

*Laura reflects again on the conference by telling us of a real-life experience with end of life issues.*

After listening to the presenters share from their expertise, I appreciate so much more the difficulty of the task of ministering to people who are terminally ill. There is such a responsibility not to preach, and yet the yearning to share the ultimate good news at the time when it is needed most is indeed a delicate balance. The oft repeated message of listening to the needs/desires of the patient, and of extending that consideration to the family, was to me the heart of the seminar.

Don and I recently had an experience that brought this home to me. We were in our local CVS store, and we saw a man who looked familiar, but was not anyone we knew. He looked very old, and was walking stooped over and pushing a small wheeled cart, sort of like a walker. We kept glancing back at him because there was something so familiar about him, and yet we couldn't place him. Then the man spoke to Don. He said, "Yes, Don, its me." He was Larry St. Pierre, with whom we have been acquainted for many years. He and Don now serve together on the Board of the Attleboro Land Trust. Don saw him last month at the monthly meeting, and all appeared to be fine. Apparently he was diagnosed around that time with stage-four cancer. He had been receiving radiation, but didn't feel that it was helping. So he cancelled the treatments, and had just signed himself up for hospice. He said that the only thing left was to hope for a miracle. We each shook his hand, wished him well and told him that we would be praying for him. Then he said the most amazing thing. While gripping my hand firmly, he said, "And I will be praying for you". Larry being a deacon in the Church, and a wonderful man of God, we knew that he wasn't speaking lightly. We thanked him, but I so wanted to add, "Especially when you get There, please!", but I was constrained, probably by the same consideration that the speakers at the conference expressed - to not force the point. Maybe I was too shy to speak what was in my mind, and in my heart. I just wasn't sure how far to go. I didn't want to even insinuate that a miracle would not happen,

and that he would be in heaven soon and praying directly for us. That would have been accepting his death for him before it even happened. On the other hand, it could have been an expression of spiritual strength and encouragement. We all need that kind of support, I think, when our time comes. What was the right thing to do?

The next monthly meeting of the Land Trust was this week on Tuesday evening, and Larry had passed into Glory the day before. We went to the wake yesterday, which was held at St. Vincent de Paul Church in Attleboro - a merging of the former St. Joseph's Church and Holy Ghost Church. Larry's body was dressed in his robes as a deacon. There was a service in progress when we arrived, and the words that the priest spoke about Larry having gone to his reward, and actually looking down on all of us and smiling, rang very true for me. It seemed tragic that he was ill for only a month, but his wife told us afterwards that the last week of his life, the week after we saw him, he experienced a great deal of pain. So, God was merciful, and death was a release. Now Larry is pain-free, and singing his "Hallelujahs" directly before the Throne.

Larry St. Pierre was only 67 years old at the time of his death.

*Laura Ouellette, Attleboro, MA*

### **Laura Ouellette**

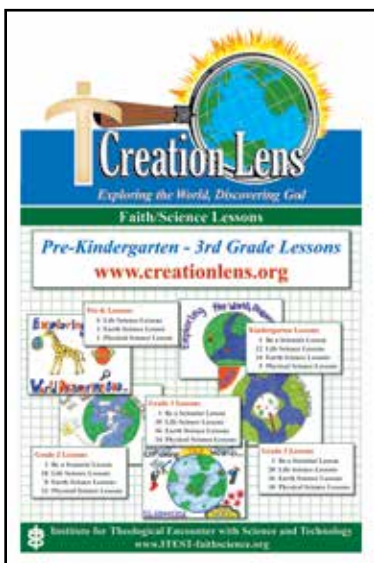
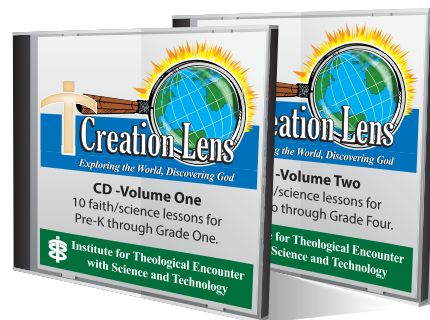
Laura was born in Attleboro, MA in 1947, and has lived in Attleboro all her life. She attended St. Joseph's Parochial School, and graduated from Bishop Feehan High School in 1965. She served for four years on the Attleboro School Committee, two years as Chairman. Her husband, Don and she have owned two businesses, a landscape construction company for 12 years, and most recently a manufacturing company for 27 years. They retired in 2011, and since that time have done a considerable amount of traveling, both domestic and abroad. Laura still works one day a week doing the bookkeeping for a local company owned by a long-time friend. She serves as treasurer for two non-profit organizations - The Chaminade Music Club, and the Chaminade Opera Group. She has been an ITEST member for many years.

## NCEA Convention



As you may recall from our last notice, ITEST sponsored a booth at the National Catholic Education Association Convention in St Louis April 18-20. Tom Sheahen and I staffed the booth from Tuesday of Easter week through Thursday. During that time we met many teachers, administrators, staff and others from all parts of the country who were either encountering ITEST for the first time or renewing "old acquaintances". Incorporated in this article are some of the photos taken at our booth.

Our main marketing effort at the convention centered around the faith/science lessons for Pre-K-Grade Four, Exploring the World, Discovering God (EWDG). Our research revealed that the lessons covering Pre-K—Grade Four were downloaded most often from our web site. Thus we made these lessons available on two CDs: Volume One: Pre-K—Grade One and Volume Two: Grades Two—Four. These volumes are still for sale @ \$6.00 for one and \$10.00 for both volumes. We chose to limit our marketing in this instance to the levels mentioned above even though we intend to promote Grades 5—8 in the near future.



Tom and I consider the time spent meeting and talking with people well worth the time, money and effort necessary to properly prepare for the event and to follow through. We made many contacts and are confident that ITEST is much better known now than it was before the NCEA convention

A handout was distributed to visitors to our booth. We are offering the CDs listed above to our members at the rates listed. Even though you may not be teaching in the Primary or Elementary school level, you may wish to offer a gift to someone who would appreciate the faith/science lessons. To order the modules you can use the order form on page 16 or contact [mariannepost@archstl.org](mailto:mariannepost@archstl.org) or 314-792-7221. We accept only Visa and MasterCard.



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