Institute For Theological Encounter With Science and Technology
Volume 45 - # 2 Spring 2014 Bulletin

Love Letters From A Jesuit

We may gasp at first at that title. Love letters? And from a Jesuit? Not possible! Nonetheless, these excerpts taken from letters written, over a two-decade span by our late founder and director, Robert Brungs, SJ, show the depth of his love and concern for those who were treasured friends, even those who "walk with me no more…" We chose passages that refer to death and resurrection – Holy Week through Easter and the celebration of the body in Christian thought and action.

"Let me exhort you to live through Calvary into the Resurrection we are now celebrating. The older (and hopefully) the wiser I get, the less effort I spend on searching for truth. I am slowly becoming content to let Truth find me. I am convinced that the greatest thing we are called to do is to let God love us *as He would*. And I think that the history of the Church shows that God would love us in ways we would never think of. He leads us down roads we never expected…

"Today is Good Friday. It is in my estimation (only mine, I guess) the second greatest feast of our Faith. Christ our Lord has died, but in three days he will rise from the dead…In heaven we will be embodied as he is; we will be what we were meant to be from the beginning…we shall meet then, with a joy and love and affection that neither you or I can now imagine. I look forward to that. So now I am torn between the sorrow that is Good Friday and the joy that is Easter Sunday. But I really look forward to heaven where we can be truly ourselves in the Lord.

"I have the fantasy that when I die a new body will rise out of the ruins of the old–like a tree or flower– to be with Christ. With you, I look forward to that.

"Christ really died for all, particularly for you and for me. And on Easter Sunday, in a great convulsion of love and joy (even ecstatic love and joy), he rose again to prepare us to finally join with him in the presence of his Father (and mother, the Lady of the marriage at Cana and the foot of the Cross). You know these things as well as I do. But it's still nice to say them from time to time. His love for and desire for union with us is too good not to mention.

"Take time and enjoy the Lord at his rising. I often think of the old opening prayer at Mass in the Roman rite: "Resurrexi sicut dixi…" The triumph of that cry is what impresses me. I suspect that he died and rose in faith. He was like us in all things except sin…and faith is not a sin. I think the need for him to have faith is part of his "emptying himself" to become a man. Anyway, it helps me at Easter."

(All quotes taken from *Written in Our Flesh: Eyes toward Jerusalem 2008 ITEST Faith/Science Press. 2008, Editor: Marianne Postiglione, RSM, pp. 347.)*

In This Issue…

Announcements

Faith/Science Course

The Paul VI Catechetical Institute of the Archdiocese of St. Louis continues its support of the mission of ITEST by offering a faith/science course, CH 121. This course, ***Where Faith and Science Meet: 2000 Years of Catholic Scientists,******* offers 2 credits. The goal of this class is to equip Catholics with the historical and theological information they need to speak clearly and persuasively about the Catholic Church's understanding of the relationship between faith and science. They will learn to do that by studying the contributions of Catholics scientists to both faith and science, throughout the ages and the Church's on-going sponsorship and support of the natural sciences throughout the ages. The class studies the role of the Catholic Church as ardent sponsor of science throughout the ages. It also allows the student to see how faith and science work together to attain truth. It does this through case studies which include The Shroud of Turin, The Incorruptible Bodies of Saints, the miracles of Lourdes, Eucharistic Miracles. The students also look at the science and church teaching on issues such as cloning, *invitro* fertilization, and all the theories of creation. In each case the role of science and the role of faith are clearly defined and the course demonstrates how the cooperative effort brings truth. The class is taught by Ms. Evelyn P. Tucker, (photo above) former Project Manager for Exploring the World, Discovering God. For more information visit www.archstl.org/paul6. ***(CH /ST 121)*

Fundraising Campaign 2014

Our "Fundraising Campaign 2014" is going well. Generous members have donated a total of $3700. thus far. We are on the way to attaining our goal of $12,000 which is approximately twenty percent of our projected yearly budget. We raise the other eighty percent through grant writing requests and of course, through pure begging!! Those who are not members but who receive the bulletin via e-mail attachment or hard copy are also asked to donate to this campaign. Those who donate **$80.00 or more** will receive a copy of Rocco Martino's book, *The Resurrection: A Criminal Investigation,* reviewed in the Fall issue of the ITEST Bulletin 2013.

Second notice of membership renewal for calendar year 2014 went out recently. We urge you to send in your dues: $75.00 regular membership; $125. Institutional membership; $25.00 Student membership. For those who are on a fixed income, please send what you can afford.

Our next issue of the bulletin will be devoted generally to news about the ITEST/Magis Center collaborative workshop: **"Faith/Science Challenges: And the God Question – How Do We Answer It? Do Teens Really Care?"** held at the Rigali Center, May 2-4, 2014. In that issue we will have summaries of the group discussions, and an executive summary of the weekend's deliberations. We hope to have a DVD of the lectures Father Spitzer delivered at the workshop and make that available to ITEST dues-paid members, for 2013 and 2014. If you haven't paid your dues, you will be missing some exciting and challenging material. A $23,000 grant awarded by the Our Sunday Visitor Institute made it possible for us to engage Father Robert Spitzer, SJ to lead the workshop and for ITEST to issue invitations to teachers and administrators from the area. Thirty-one teachers from 18 high schools responded, accepting the invitation.

In Memoriam - ITEST Members

Father Miguel Lorente, SJ
Physics Professor from Spain who died recently

Bishop F. Lukanima of Tanzania
who died in March

Father Walter Nesbit, SJ
who died on May 13

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

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ITEST Bulletin - S. Marianne Postiglione, RSM, Editor
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Real Bodies Among The Avatars And Robots: What Matters?

By Sister Mary Timothy Prokes, FSE

*(*Presented at *"Fearfully and Wonderfully Made: The Body and Human Identity" Conference*
University of Notre Dame, Indiana, November 8, 2013*)*

What do mythical Icarus, Saint Augustine, and transhumanist Nick Bostrom have in common? Long before "Beam me up, Scotty" became a byword, Icarus attempted to fly near the sun. Saint Augustine journeyed inward and recognized that the heart is restless until it rests in God. Our contemporary, Nick Bostrom, seeks "potential developments that could profoundly alter the human condition."[1] What is *common* among the three – whether taken from ancient literature, theology or technology – is the insatiable desire inherent in the human person for a fulfillment of the body-person not yet realized. All in some manner express the human struggle with limitations of the human body

In his book, *Theologies of the Body, Humanist and Christian,* Benedict M. Ashley noted "In fact any question I know how to ask concerns bodies, since even if something exists that is not bodily, I will know it only if somehow it contacts me as I am a body."[2] Within a few decades, questions concerning body and its limitations have become increasingly radical. Beyond innovative attempts to overcome serious diseases, and the diminishment of sense-responses and bodily organs with age, more fundamental questions are now being raised and acted upon. Can the human lifespan be extended indefinitely? Is the body necessary, or is it an impediment to be technically transcended? When will the merging of technical tools with the body-person be so radical that a new species will emerge, in discontinuity with past human existence?

Pope Emeritus Benedict XVI noted in his message for the 45th World Communications Day that the new technologies are not only changing the ways we communicate. They are changing communication itself, "so much so that we are living through a period of cultural transformation."[3] The human body is directly involved in this cultural transformation.

Our bodies locate us in the world and are the primary locus of our communications. As Episcopal Bishop Arthur A. Vogel wrote:

> Words are extensions of the body; they are meaning in matter, a location of presence, embodied presence. Meaning is in words as we are in our bodies, and it is only because we are in our bodies that we can "be" our words – or, as it is usually put, mean what we say. We can stand behind our words because our presence overflows them and is more than they contain, but we choose to stand behind them with our infinite presence because we are also in them.[4]

That the body expresses the *presence and outward communication* of the entire person is no longer to be taken for granted. Our ways of communicating and carrying out practical transactions have become increasingly disembodied. In what is termed the "digital age," there is already

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Sister Mary Timothy Prokes, FSE

Sister Mary Timothy is a Franciscan Sister of the Eucharist. Her doctorate from St. Michael's College, University of Toronto, centered on post-Vatican II insights on Theology of the Body, especially in regard to women's participation in the life of the Church. Her books have dealt with the mutuality of women and men as image of divine love; theology of the body; and the impact of virtual/digital technology on the basic truths of faith.

Sister has taught in several colleges and universities, as well as permanent diaconate programs in the Dioceses of Washington, DC, and Arlington, Virginia. Since 2012, Sister Mary Timothy has served on the staff at the Franciscan Life Process Center in Lowell, Michigan, offering retreats and spiritual direction. In the two previous years, Sister was in Leuven, Belgium, on staff at the American College/Seminary until its close, and did research and writing on St. Teresa of Avila. In recent years she has spoken at conferences in the United States, Austria, Portugal, Canada, and Ireland. Sister is a long-time member of ITEST.

an interweaving of the lived body with the technological tools that facilitate and regulate so much of life. ***Futurists*** use terms such as "post-human" or "transhuman" to describe those beings who – they aver – will supersede human persons within the present century. Ray Kurzweil, for example, predicts that ***an irreversible change will occur by 2045.*** The transition point is called *"The Singularity."* It designates the crossing of an ***irreversible threshold*** when biological human life will be transcended. Ray Kurzweil asserts:

> We are now in the early stages of this transition… The Singularity will represent the culmination of the merger of our biological thinking and existence with our technology, resulting in a world that is still human but that transcends our biological roots. There will be no distinction, post-Singularity between human and machine or between physical and virtual reality. If you wonder what will remain unequivocally human in such a world, it's simply this quality: ours is the species that inherently seeks to extend its physical and mental reach beyond current limitations.[5]

Kurzweil stresses the important distinction between two understandings of human progress: the linear and the exponential. Linear processes advance step by step, adding information from one situation to the next, in order understand how a future development might occur. Exponential processes develop by leaps and do not advance in a particular order. In other words, technology's changes do not occur by simply adding to what is already given. Kurzweil says: " . . .human progress is exponential (that is, it expands by repeatedly *multiplying* by a constant) rather than linear (that is, expanding by repeatedly *adding* a constant)."[6]

Most people think of human development from a linear perspective, says Kurzweil, so they do not perceive the swiftness of changes that will occur in the near future. He avers that "nanotechnology-based manufacturing devices in the 2020's will be capable of creating almost any physical product from inexpensive raw materials and information."[7] In exponential terms, the paradigm-shift rate doubles quickly. "We'll make another twenty years of progress in just fourteen years (by 2014), and then do the same again in only seven years."[8] "[E]xponential growth is seductive, starting out slowly and virtually unnoticeably, but beyond the knee of the curve [referring to a graph] it turns explosive and profoundly transformative."[9]

I would like to focus briefly on Kurzweil's phrase: "starting out slowly and virtually unnoticeably," *in a related but different context.* We speak easily today of *"virtual reality,"* which is an oxymoron. Michael Heim has noted that in former times the word *"real"* referred to existent beings, and *"virtual"* meant "being in essence or effect though not formally recognized or admitted." Now, however we paste to the two together and read *"Virtual reality is an event or entity that is real in effect but not in fact."*[10]

What does that mean – to be real in effect, but not in fact? To be factually real, a hamburger contains meat – beef from an animal. A chair constructed from walnut taken from a walnut tree is a real piece of walnut furniture. Real butter contains the dairy product **cream.** The effects of these are also real – we can be nourished by the foods while we sit on a fine chair.

On the other hand, on the "seductive sliding scale" between the real and the virtual, what may look like a hamburger, even taste like a hamburger may in reality be a seasoned soybean patty. Not long ago, an advertisement for a piece of furniture was touted as "genuine simulated walnut." How often, while shopping in the dairy aisle in the store have you seen "I can't believe it's NOT butter!" What is purported to be just like the real thing is **real in effect, but not in fact.**

Further along on the virtual scale: How many plastic credit cards do we have in our billfolds and purses? By swiping one of them through a slot, a transaction occurs that is registered as so many dollars and cents, but there is no real money involved. It is only a matter of sending a virtual signal that a transfer of money has occurred. In many parishes, the collection plate where actual money is brought for the Offertory collection is bypassed in the name of convenience and security. From my bank to the parish's bank – it has effect, but is not real in fact nor does it involve any bodily presence. Swift, disembodied, impersonal – only virtual.

Try calling an airline to check on arrival and departure times. A masculine-sounding "voice" asks for day, flight number and airport of departure. The same "voice" will say "I can help you with that. There follows a "glub, glub, glub sound" and a time is announced. The airline computer says "I," and has an "ego"! **Once again, there is an *effect* but no personal reality to the computerized "voice."**

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Convenience, speed, and impersonal transactions are alluring in a culture that lives by rush and the elimination of need for personal encounters. These transactions began slowly and can seem so beneficial. I recall coming into a floral shop some years ago and seeing a small advertisement on the counter. It bore the picture of a fine-looking woman accompanied by the message, "Forget her birthday." Inside the brochure, the ad invited a man to list all the days that were important to his spouse: birthdays, anniversaries, etc. Then he could "forget" because the florist would make sure that an appropriate gift would be delivered for each of these days. **"Virtual" gift-giving.** Some of you may recall the antithesis to this virtual gift-giving found in O. Henry's short story, "The Gift of the Magi."

It is less and less possible to live in our present culture without the plastic cards, the finger twirling screens on hand-held phones, as well as the theme parks that are advertised as providing the sensations, tastes, and visual simulations of far distant places -- just inside the "virtual environment" that you pay to enter. It is all so convenient, so rapid, so seemingly non-demanding of human effort. **It is also so disembodying.**

What is increasingly important to realize, however, is that, we are becoming dulled and lulled to far more radical forms of disembodiment – in exponentially-speeding increments. Many philosophers in the ancient world described the body as a tomb or at least a hindrance from which one ought to escape. The notion is being revived in our time, in new forms. More and more of life is being handed over to "the work of our hands." Stephen Garner cites Donna Haraway's comment on society today: "Late twentieth century machines have made thoroughly ambiguous the difference between natural and artificial, mind and body, self-developing and externally designed, and many other distinctions that used to apply to organisms and machines. Our machines are disturbingly lively, and we ourselves frightfully inert."[11]

What a fast-moving progression there has been over the past 80 years – from early technological tools which have made daily life easier, such as telephones and radios, to cars, air conditioning systems and airbuses – to sophisticated robots, virtual environments, space stations, and initial forms of cyborgs. Have you ever reflected on how swiftly these developments have occurred in relation to the history of created realities?

Created In The Image And Likeness Of God

Why should *Transhumanism* and *Posthumanism* be of *immediate concern* to all who seek the advancement of human persons – and more especially, of concern to those of Christian and Catholic faith? I do not come to this panel as knowledgeable in technology. Rather, I come from the perspective of theology of the body, with concern for **the enduring meaning of the body and matter in relation to God's original design, the Incarnation of Jesus Christ, and eternal life.** Recent Popes have consistently urged that, if used wisely and creatively, technological communications can open possibilities for the New Evangelization that were unimaginable a few decades ago. Their effective use in world-encompassing evangelization needs to be permeated with the wisdom of the Holy Spirit.

I suggest **four reasons why it matters how the human person is being deeply affected by processes that promote disembodiment – and by plans to change irreversibly what it means to "be human."** The four areas for concern which I would like to describe very briefly are: 1) the human body in God's eternal design which has been fully realized in the God-man Jesus Christ; 2) the body is crucial in the sacramental life of the Church; 3) death is not simply an "option" for human persons; and 4) the body is destined for resurrection.

God's Eternal Design for Humanity Is Fully Realized in Jesus Christ.

First, then, no matter how extensive the time frame or preparatory phases of evolution may have been, Genesis affirms that ***"God created man in his own image, in the image of God he created him; male and female he created them."*** (Gen. 1:27) A human person is an inexplicable unity of matter and spirit, soul and body. **Gender and the potential for personal relationship** are basic characteristics of created human beings. Pope John Paul II in his General Audience of January 9, 1980, said:

> This is *the body: a witness* to creation as a fundamental gift, and therefore a witness to *Love as the source from which this same giving springs.* Masculinity-femininity – namely, sex – is the original sign of a creative donation and at the same time the sign of a gift that man, male-female, becomes aware of as a gift lived so to speak in an original way. This is the

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meaning with which sex enters into the theology of the body.[12]

Pope John Paul II was describing *fundamental* flesh and blood realities that cannot be replicated or substantially changed by computer programming. The faculties of intellect, memory, imagination and free will **are expressed in and through flesh and blood.** We are – in the language of poetry and data-verifiable fact – "fearfully and wonderfully made." We are not dealing here with non-subjective factors , but ***with mystery.*** Mysteries are truths so profound that they exceed the human potential to fully understand. In one of his penetrating theological articles, Karl Rahner wrote:

> {M}ystery is of itself no merely provisional element of obscurity in a reality or proposition, to be dissipated in time, but always and essentially determinative of the necessary relationship intervening between the created spirit and God. Man, made for mystery, must be such that **this mystery constitutes the relationship between God and man, and hence the fulfillment of human nature is the consummation of its orientation towards the abiding mystery.** [13] (emphasis mine)

While the body-person is a mystery, there are associated wonders to be pondered with gratitude. Some years ago, in a biology text that I was reading, the author observed that it was possible that an electron from that page might now be at the far reaches of the Milky Way, because there is a constant interchange between the lived body and minute particles of matter. How privileged we are to receive and release those particles ***so that they might be able to participate in our CONSCIOUS praise of God.*** In eating, we take in vegetables, animals, and inanimate portions of the earth. It is the **only** way that they can participate in **conscious,** loving praise of God.

God's original design for humanity has been fully realized in Jesus Christ. The Incarnation, the coming of God in the flesh, took place when preparations were complete. As St. Paul wrote to the Galatians, ***"when the time had fully come, God sent forth his Son, born of a woman…"*** (Gal. 4:4) Jesus Christ came to restore for humans the possibility of an eternal love relationship with the Trinity. He brought to perfection the meaning of self-gift in and through the body, and that personal self-gift continues in the Eucharist. Catholics affirm that Christ remains with us in perpetuity in the Eucharist and in sacramental Presence, **enters us in Communion – Body, Blood, Soul, and Divinity.**

"The fullness of time" for the Incarnation did not occur during an era of technological developments, when some might wonder if Jesus would download His perfect mind into a computer as a way of remaining forever with us. He did not leave us an electronically-programmed message of salvation, nor say that He calls us "friends" because we are in His Facebook list.

One of the most frequently quoted passages from the Second Vatican Council is found in *Gaudium et Spes,* #22:

> He who is the image of the invisible God (Col. 1:15; cf. 2 Cor 4:4), is himself the perfect man… For by his Incarnation the Son of God has united himself in some fashion with every man. He worked with human hands, he thought with a human mind, acted by human choice and loved with a human heart. Born of the Virgin Mary he has truly been made one of us, like us in all things except sin (cf Heb 4:15).[14]

Sacramental Life and Eucharist

A second reason why increasing disembodiment is of great concern: the sacramental life of ***faith*** is not simply an **intellectual** assent to a number of facts, documents, and requirements (laws). There is need to safeguard the integrity of the human body regarding the sacramental life of the Church. The Sacraments can only be received by living persons. They are administered through water, blessed oils, sacramental words, and the touching of the body. Hosts made from wheat, and sacramental wine prepared from grapes are brought as gifts for transubstantiation. They are received bodily.

In Christ's life, we can see the person-to-person presence of Jesus to others. He turned to the first disciples and asked: "What do you seek?" (Jn. 1:38) or ""Zacchaeus, make haste and come down; for I must stay at your house today."(Lk. 19:5) **After His Resurrection** He contacted chosen witnesses personally. One he addressed by name in a familiar voice: "Mary!"(Jn. 20:16) He invited Thomas: "Put your finger here, and put out your hand, and place it in my side; do not be faithless, but believing." (Jn. 20:27) To the Eleven and those gathered with them in Jerusalem,

He said: "See my hands and my feet, that it is I myself; handle me, and see; for a spirit has not flesh and bones as you see that I have." (Lk. 24:39)

He asked the Eleven on Resurrection evening if they had something to eat. The Eucharist gives dignity to the act of eating REAL FOOD and shows the significance of eating together. In taking meals together, we receive one another through our sharing, our words, our meeting face to face. If the significance of eating together or feeding another is lost, precious gestures become crude. For example, at a wedding reception, the bride and groom sometimes cut the first piece of cake together. There is a wonderful Eucharistic symbolism that follows if they simultaneously feed one another with the first piece of cake. Sadly, for many, it has become crass – the spouses playfully smearing each other's face.

A third important factor regarding the move toward disembodiment concerns **the meaning of death.** One of the goals of futurists is to overcome human death through technical-immortality. Some wait eagerly a time when it will be possible to download "all that makes one human" into a computer. That is a complete break with the Christian meaning of bodily death. Human persons are destined for eternal love-union with the Trinity, and the Communion of angels and saints. For each person, the human body will be reunited to the soul.

There is great joy today in seeing many persons live for years, even decades beyond what was thought possible even a century ago. Medical interventions, less demanding labor, more nourishing foods, and technological conveniences contribute greatly to longevity. Many futurists, however, want to achieve a measureless earthly existence within a technical device. **Personally, I can imagine no greater hell than being confined indefinitely within a digital code.** We are not made for endless existence in earthly life, as splendid, beautiful, and temporarily satisfying as some moments may be.

Death is a *"transitus"* in which an irrevocable decision is made: either to hand over one's life into eternal life with a loving God – or to make the Eden-decision of separation from God one's own choice eternally. Ladislaus Boros, creative philosopher-theologian of the last century proposed an hypothesis regarding death that differs radically from a "technical fix." Death, he avers, is that passage in which we are capable for the first time of making a completely irrevocable decision to be with God, or reject the loving Creator definitively.

The Body is Destined for Reunion with the Soul in Eternal Life

Two human bodies are already in eternal life: the body of the Resurrected Christ and the body of Mary, who was assumed into heaven. It is not a question of "teleporting" (attempting the transfer of matter from one point to another without traversing the physical space between them)..

In an excellent article entitled "Brains, Bodies, Selves, and Science: Anthropologies of Identity and the Resurrection of the Body," Fernando Vidal, researcher at Max Planck Institute for the History of Science, writes: "The resurrected body will be a new body, imperishable, glorious, powerful, and spiritual. Yet it will be somehow identical to the terrestrial one."[15] St. Paul responded to questions raised by the Corinthians concerning the resurrected body by using the metaphor of a seed:

> What is sown is perishable, what is raised is imperishable. It is sown in dishonor, it is raised in glory. It is sown in weakness, it is raised in power. It is sown a physical body, it is raised a spiritual body… O death, where is thy victory? O death, where is thy sting? The sting of death is sin, and the power of sin is the law. But thanks be to God who gives us the victory through our Lord Jesus Christ. (I Cor 15:42-44; 55-56)

St. Paul insisted clearly that we are not isolated subjects, determining our own reality. He wrote to the Corinthians:"You are not your own. You were bought with a price. So glorify God in your bodies." (I Cor 6:25-26) It is not our prerogative to attempt reducing the body-person to digital data. Our bodies have been sacramentalized from Baptism onward, and they are not matter for endless re-constitution. In the Creed we profess of Jesus Christ that he was "begotten, not made." In death, He submitted to the condition of earthly existence. In the meaning of body as gift the God-man handed over his earthly life to the Father, to be received and loved.

Icarus, Augustine, and Nick Bostrom reveal the ongoing struggle to overcome the limitations of embodied human life. The longing is real. No human cleverness, narcissusly-closed in on itself will satisfy the God-given longing

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that makes our hearts restless until they rest in God.

The surge from within the human heart tells us that we will never achieve fulfillment within a merely cosmic continuity. We are made for mystery and eternal life beyond the magnificence of our earthly existence. Replacing mystery with nano-technical forms of endless manipulation will never satisfy the restlessness of the human heart. Nor will computer programmers who may be called upon to be "digital morticians of millionaires."

> The final sentences of Fernando Vidal's article on the cerebral subject reads:
>
> In its own way, the Christian romance of the resurrection, with its assertion of the ontologically crucial place of body for identity and of community for human existence, may still be an inspiring story for those who, against the neurological reduction of self would rather live with body, desire, history, and **the other** than inhabit the solitude of isolated brains.[16]

I conclude with a poem of former Jesuit General, Pedro Arrupe, who gloried in the reality of genuine love, encounter, and bodily acuity:

Nothing is more practical
than finding Christ,
that is, than falling in love
in a quite absolute, final way.

What you are in love with,
what seizes your imagination
will affect everything.

It will decide what will
get you out of bed in the mornings,
what you will do with your evenings,
how you spend your weekends,
what you read, who you know,
what breaks your heart,
and what amazes you
with joy and gratitude.

Fall in love,
stay in love,
and it will decide everything.

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End Notes

1 Nick Bostrom, "Transhumanist Values," p.1. Accessed October 15, 2013, at http://www.nickbostrom.com/ethics/values.html.

2 Benedict M. Ashley, (Braintree, Massachusetts: Pope John XXIII Medical-Moral Center, 1985), p. 4.

3 Emeritus Pope Benedict XVI, "Truth, Proclamation and Authenticity of Life," (Message for the 45th World Communications Day), http://www.vatican.va/holyfather/benedictxvi/messages/communications/documents/hf, accessed October 17, 2013.

4 Arthur A. Vogel, Body Theology, God's Presence in Man's World (New York: Harper and Row, 1973), p. 92.

5 Ray Kurzweil, The Singularity is Near: When Humans Transcend Biology (New York: Viking Penguin, 2005), p. 9.

6 Ibid., p. 10.

7 Ibid., p. 13.

8 Ibid., p. 11.

9 Ibid.

10 Michael Heim, The Metaphysics of Virtual Reality (New York, 1993, p. 111. See also Mary Timothy Prokes, At the Interface: Theology and Virtual Reality" (Tucson, Arizona: Finestra Books, 2004), pp. 9-15.

11 Donna Haraway, "A Cyborg Manifesto: Science, Technology and Socialist-Feminism in the Late Twentieth Century, in The Cybercultures Reader, ed. David Bell and Barbara M. Kennedy (London: Routledge, 2000), pp. 293-294, cited by Stephen Garner in "The Hopeful Cyborg," in Transhumanism and Transcendence: Christian Hope in the Age of Technological Enhancement, ed. Ronald Cole-Turner (Washington, DC: Georgetown University Press, 2011), p. 89.

12 Pope John Paul II, "General Audience of January 9, 1980," in Man and Woman He Created Them: A Theology of the Body, trans. Michael Waldstein (Boston, MASS, Pauline Books and Media, 2006), p. 183.

13 Karl Rahner, "The Concept of Mystery in Catholic Theology," in Theological Investigations IV: More Recent Writings, trans. Kevin Smyth (Baltimore, MD: Helicon Press, 1966), p. 49.

14 Gaudium et Spes, #22, in The Sixteen Documents of Vatican II, Introductions Douglas G. Bushman, Gen. Ed Marianne Lorraine Trouve (Boston, MASS: Pauline Books and Media, 1999), p. 644.

15 Fernando Vidal, "Brains, Bodies, Selves, and Science: Anthropologies of Identity and the Resurrection of the Body" (Critical Inquiry 28: Summer, 2002), p. 942.

16 Vidal, p. 974.
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HELL: The Natural Result of Staying Completely Within Human Limits

By Thomas P. Sheahen

Among scientists, one conventional viewpoint is to insist upon being very empirical-minded, attending only to the realm of space and time as science experiences it. Consequently, such a person sees in death only the decaying body, and hastily concludes that there is no "eternal life". I want that individual to re-examine the very limited set of facts and premises which led him/her to that view. To encourage that, here I try to show where that line of thinking leads: to a terminal state, a dead end called "Hell".

1. BACKGROUND

An interesting anecdote about St. Thomas Aquinas says that at age 48, he saw a vision of heaven. He was so impressed by this that he stopped writing, and said some vulgar and very disparaging things about the volumes of his own writings, the totality of his life's work. He must have been *really* impressed. Unfortunately, he died three months later, so the only thing we can be sure about is that words failed him. Perhaps St. Thomas found out something about how vastly smarter God is than us.

Fortunately, my topic here is hell, not heaven, and this is a far easier topic to treat. My working hypothesis is that hell is what you get when you don't reach beyond customary human experience, when you only believe what you can see, when you stick entirely within the framework of space and time that we are all so familiar with. Because we know quite a bit about the way nature works, it ought to be possible to construct a description of such a state.

2. SPACE AND TIME

Following St Paul's familiar line "Eye has not seen, ear has not heard,…", it's reasonable to guess that at death there is a transformation into a new form of life, a new existence, a new relationship with God that is totally disconnected from the atoms and molucules, space and time, that we live in now. In that new state, the individual interacts with God (and possibly with others) in a way that defies description in conventional language. There is no "passage of time", nor is anything "statically frozen in time". The entire system is simply unrelated to time, *orthogonal* to our customary framework of space and time. Since language is fashioned within that customary framework, language is at a loss to describe it.

Hell, by contrast, is the condition of remaining firmly entrenched within space and time, with **no** escape from it. Hell is the full, lingering experience of cessation of being, permanently and irretrievably.

At death. if you watch your consciousness go away, experience the dismantling of thought and feeling, that's hell. In hell, one is aware of the fact that consciousness is disappearing, never to return. Moreover, one is also aware that it didn't have to be that way, that there *was* an alternative, now closed off forever.

Because of the unique way humans experience time, Hell lasts "forever"; it is eternal; it is unlike the escape from the constraints and inexorability of time that heaven provides; it is the fulfillment of the natural process that occurs in a domain where time is immutable and supreme.

To make sense out of this, it is necessary to understand the concept of *reference frames* and the phenomenon of *time dilation*. To explain this, an old fable is helpful:

Xeno's Paradox: the Rabbit and the Turtle:

Recall the ancient story of the race between the rabbit and the turtle, known as *Xeno's paradox*. The turtle gets a head start, and the rabbit tries to run past him. Xeno says the rabbit can never pass the turtle, because in each consecutive moment of time, the rabbit closes half the distance, never quite catching up.

This tale is often recited by engineers to humorously underline the difference between engineers and scientists. Actually, if we dissociate ourselves from Xeno's foray into micro-scrutiny, we can sit in the grandstand and watch the rabbit pass the turtle. At earlier times, the turtle is ahead; at later times, the rabbit is ahead. It's that simple.

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What's wrong with Xeno's philosophy? We in the grandstand can see the overall picture, and we call that the "laboratory reference frame". But Xeno has selected a most unusual reference frame, one much like Einstein's moving streetcar, traveling at almost the speed of light.

By considering one moment in time, Xeno locked onto one bit of information. When Xeno returned his attention to the race, both the rabbit and the turtle had progressed forward. Then he paused on a new, later bit of information. But Xeno forgot about the finite rate at which information arrived (Nobody in ancient times appreciated that information propagates at a *finite* velocity, the speed of light). That's a critical mistake!

To accommodate such stop-motion analysis of the race, Xeno has to take a long enough step back from the racetrack so that the light emitted by the rabbit and turtle arrive at that new position somewhat later -- late enough to have finished contemplating the first observations. For the following moment, Xeno must again take another long step back to delay the arrival of information. This process occurs again and again as Xeno goes on philosophizing. Modern physics says that time is *dilated* in Xeno's reference frame.

The required steps backward became larger and larger as the time interval between events became smaller and smaller, as the rabbit closed on the turtle. In fact, Xeno and friends would essentially have to be on a rocket ship (or a fast Einsteinian trolley car) accelerating away from the scene at a velocity approaching the speed of light. Only in this way could they delay forever the arrival of the photons showing that the rabbit had passed the turtle.

Unlike those actually attending the race, Xeno and friends have selected a reference frame in which the arrival of information is severely delayed. In their peculiar reference frame, it is indeed true that the rabbit "never" catches the turtle. In *our* reference frame, they simply never find out about it. The "paradox" comes about when we wonder how *both* could think themselves correct.

By choosing a reference frame with dilated time, Xeno cut himself off from the flow of information. Meanwhile, what we observe is the light arriving from the comparatively nearby point where Xeno's spaceship was several moments ago, and we only *remember* that he left!

The paradox is unresolved only so long as we fail to appreciate the time dilation which occurs when traveling near the speed of light. Of course, prior to Einstein, all observers failed thus, and hence the paradox persisted for centuries.

3. REFERENCES FRAMES AND DEATH

Hell is a lot like Xeno's trip away from the scene of the action. (Imagine how tedious it would be to have nothing whatsoever to do, truly forever, except verify repeatedly that according to the latest information, the rabbit had not yet caught the turtle.) Here is what I think takes place:

At death, the body starts a process of decay. The central characteristic of this process is that the information-handling ability of the brain slows down drastically. Everything in our ordinary-life perception is keyed to a certain familiarity with time, and that breaks down. Indeed, it shuts off entirely eventually, and the body ultimately returns to dust.

We on the outside see this taking place on a time scale in the "laboratory reference frame". The elapsed time may seem quite short by our clock; the "flat EEG" in the hospital room may appear very quickly on the oscilloscope. A fatal heart attack or stroke produces "brain death" very rapidly, as the brain stops giving off EEG signals about 4 to 6 minutes after the supply of oxygen ceases. Sometimes other bodily functions continue, despite the apparent total disconnection of the brain from the outside world. Hence the people in *Persistent Vegetative State* or irreversible coma raise the difficult question of whether they are dead or not.

However, no one has yet asked what death looks like in the reference frame of the one to whom it is happening. Not having "been there" yet, I can't say, of course. The slowing down of the brain's ability to perceive inputs, to process information, will create a backlog of yet-to-be-processed information waiting in line for neurons and synapses to function. However. these functions

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are grinding to a halt, and their processes only get slower and slower. As the information-processing capability fades away, the time scale will become elongated, and the perception of the passage of time will thus be stretched out to infinity. It's analogous to Xeno's unhappy choice of reference frames.

The movie *2001 - A Space Odyssey* contains a scene that illustrates this notion well. The extremely advanced, almost-human computer attempts to kill the astronaut but fails. When the astronaut gets the upper hand, he enters the computer core and starts removing the chips for "higher brain functions". (He can't simply pull the plug, because the computer also manages spacecraft control and trajectory.) As one after another of these functions is shut down, the computer's voice gets slower. It reverts to reciting "Mary had a little lamb", and soon trails off into nothingness as it loses consciousness. This fading away of the "higher brain functions" in the computer is the movie's way of conveying the "death" of the computer.

Returning to the human case, the stretching out of the time dimension makes it last "forever" in the brain's own time frame, even though the external observer sees it all happen in a finite number of seconds. Meanwhile, for the person who at death transforms to a totally different kind of life, unrelated to time and space, this whole process becomes irrelevant.

4. FIRE & DAMNATION

The prophets of old always spoke in terms of hell as "fire." I observe only that the process described here is one in which oxidation takes place. and of course fire is one form of oxidation. Perhaps the awareness of the oxidation of the brain, when the time frame is greatly elongated, is somehow similar to the perception of burning. Perhaps since burning seems a particularly slow and painful way to die (to those of us in the "laboratory reference frame", i.e., the spectators), the mention of "fire" was the prophets' best way to convey "slow and painful." I don't know. But then, the authors of the ancient texts were constrained by their milieu to communicate what they had to say in terms their audience could grasp.

The notion of being aware of, and participating fully in, the total decay and loss of one's personhood is bad enough, but we are taught (by Scripture or church tradition) that those in hell are *aware* of their separation from God. So it must be that one component of hell is the realization that it didn't *have* to end this way.

A plausible reading of Scripture says that at death a new way of life begins -- and a scientist familiar with relativity might add that this life is dissociated from space and time. Those who have explicitly chosen the opposite path, saying there is no such new life, have locked themselves into space and time permanently. They have elevated space and time above God. Accordingly, they get to experience the ultimate that space and time have to offer: death, including the time dilation that makes disintegration into nothingness last *forever*; accompanied by an awareness of that decay every step of the way.

5. CAUTIONS

It is important not to draw hasty conclusions from this description. We all like to speculate on who populates hell -- Dante's *Inferno* has been a source of entertainment for centuries. Most people's list begins with Stalin, Hitler, and then diverges into something reminiscent of *The Mikado* by Gilbert & Sullivan.

Also, it would be wrong to infer that those who regard space and time as immutable are headed for hell. Prior to 1900 everyone believed that time was an absolute (even now, many still do). Surely there are lots of souls in heaven who showed up there inculcated with the expectation of sitting on a cloud strumming a harp. Lack of scientific knowledge certainly doesn't obstruct sharing in the love of God.

My recurring assertion is that God is a lot smarter than us, which must never be confused with "I am almost as smart as God". The thoughts offered here are only one possible scenario, constructed by requiring absolute immutablity of space and time. At best this can be called preliminary thinking; in the years ahead, as we learn more about the mind-body connection, a *much* more sophisticated understanding of death is sure to arise from new discoveries in biological science. This picture is subject to change!

6. SUMMARY

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Throughout history, God has repeatedly offered humankind the freedom to make choices. God presents lots of options. Anyone is free to choose to remain entirely confined to the world of space and time as we know it. I don't want to make that choice, even if many other scientists do. When I look at the plausible ending of a living system confined entirely within the boundaries of ordinary space and time, I give the name "hell" to what I see.

The one new element that I bring to the topic here is that of *time dilation*, which provides an explanation of how different observers can see the same thing happening over short or long periods of time. In this picture, there is no way to get death over with in a hurry; the only "way out" is to transform to an entirely new kind of life. Moreover, this model is silent on the terribly important question about what criteria decide whether that transformation takes place or the interminable decay is fully experienced.

This version of hell has some remarkable similarities to the hell familiar from Scripture. It also has some differences; they may be due to language constraints in olden days, or they could be because I'm just plain wrong. Either way, I think most religious people would agree that heaven is beyond our imagination, while hell is just what we ought naturally to expect, devoid of any relationship with God.

Our scientific knowledge leads us only so far, and when we look over the edge beyond science, we should not assume that everything out there is going to be covered by tomorrow's science. If it were, it would be hell.

Computing and Convergence: Bigger, Faster, Better?

By John Ashby, MA

Part 1

(Eds. We chose this article by John Ashby presented at the ITEST workshop in 2000, as a partner to S. Mary Timothy Prokes' 2013 article on "…Avatars and Robots…" Although separated by 13 years from the Prokes' essay, Ashby warns us "…To be careful of limiting definitions for technologies, for changes will continue as surely as new human needs will emerge." –-A prediction become reality!!)

The use of tools to address personal needs, one of the identifying characteristics of our humanness, underlies the development of most technological invention throughout the history of industrial societies. Whether fabricating tools for agriculture, creating weapons for hunting, or developing more complex mechanisms to address the aggregate needs of social groups, mankind has tended to consider new technologies as tools to address identifiable needs. Many of today's technology consumables, however, have come to be marketed on the basis of "creating needs" in the perceptions of consumers. Nowhere is this more evident than in the marketing of computer products in industrial nations in an endless cycle of "bigger and faster" continuously disposable machinery upgrades, along with the associated software upgrades that fuel further hardware cycles.

In the late 1900s, following rapid advances in electronics on the heels of multiple wars and man's first efforts in space, great strides were made in digital information processing that have allowed us to look at large-scale needs in new ways. In the early 1970s, for example, I waited in long lines at Saint Louis University's West Pine Gym to register for undergraduate classes. Of course, the freshmen registered last, so I vividly recall feverishly filling out forms, all the while dreading the collective moan that would arise from the registration floor when a coveted class was closed on the huge "tally board." But what gave me hope was reaching the front of a departmental line to get a precious "computer punch card" for each class I needed, assuring that I had the keys to the kingdom in my hands! Needless to say, from those humble beginnings SLU has moved through online advising to fully Web-based registration for students, and I don't think anyone misses the "old way" we did things.

Computers have undeniably and in many ways changed the way we process information, but our society has almost lost its sense of perspective about computing as an-

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other technological tool. TECHNOLOGY = COMPUTERS is an unspoken but accepted equation today in much of our institutional technology-planning consciousness, as if the challenge of supplying and supporting the machines we use every day has become self-evident and somehow unrelated to our actual needs as humans. I contend that it is critically important to reject such narrow and limiting definitions, for computers are simply a visible manifestation of our current technological state as a response to human needs. It would be foolhardy to presume that other needs might not be better addressed by other technologies (I don't expect to drive to work in a PC, for example) or that new technologies would never emerge to replace the computer as we now know it. Further, the importance of digital information processing is more far-reaching than just the computer itself. Be careful of limiting definitions for technologies, for changes will continue as surely as new human needs will emerge.

Alvin Toffler framed the issue of technological change in human terms that help us gain a sense of perspective on the challenge:

> It has been observed... that if the last 50,000 years of man's existence were divided into lifetimes of approximately sixty-two years each, there have been about 800 such lifetimes. Of these 800, fully 650 were spent in the caves.

Only during the last seventy lifetimes has it been possible to communicate effectively from one lifetime to another as writing made it possible to do. Only during the last six lifetimes did masses of men ever see a printed word. Only in the last two has anyone anywhere used an electric motor. And the overwhelming majority of all the material goods we use in daily life today have been developed within the present, the 800th, lifetime."1

Toffler's insights regarding the effect of technological change on human social systems led him to a number of incredibly accurate observations about the world we live in today -- but he described these in 1970! *Information overload* is a problem for everyone today as junk mailers, telemarketers, advertisers, and others push unsolicited messages at people every day. *Overchoice* is the inevitable result of feature diversification as comparable competing products vie for our dollars. *Oversimplification* results from excessive complexity in increasingly specialized technological systems, creating an environment where technology management decisions are made on the basis of "executive summaries." Ironically, at the same time that *information sorting* has become our most critical human skill in a technological society, we have developed an appetite and expectation of *instant information* access via fax, email, web, cell phone, and beeper. Yet in the midst of this stressful option-rich society, we struggle to adapt our slow human business models from an industrial age to the scale of demands in the information age.

Technology has always played a role in the management of information in the industrial age, even before the advent of computing. Information *inputs* (phone calls, customer feedback, sales receipts, consulting reports) always drove business processes that required information *management* (file cabinets, planning meetings, memos). Decisions from management processes generate *outputs* (products, reports to investors, advertising) which may in turn create *feedback* to the input stream (lagging sales may indicate a need to reduce production). While the prior example appears business-oriented, it in fact describes a simple linear human communication model as well. But such nice, neat models in communication must also consider the effect of *noise* at each stage of the process, making it difficult to assure that the information remains intelligible and unaltered from sender to receiver. It is easy to envision the problems created by construction noise, phone static, or illegible handwriting as obstacles to communication/information flow. In our business example, a lost file folder, stock market price fluctuations, supply variations, and similar information management challenges create an absolute imperative to have accurate, timely, understandable, and accessible information.

Digital information management technologies emerged as a way to deal with the noise factor in information flow. Analog technologies used for information transmission and storage (recordings, phones, video) have historically mimicked the human experiential environment of continuously variable inputs and outputs. Voice and hearing, for example, work on the basis of the creation and perception of air pressure waves that vary continuously in pitch, intensity, and envelope. While air transmits such sounds naturally for limited distances, the analog telephone enabled man to communicate over long distance by *transducing* these waves into comparable variations in electron flow over an electrical wire. But just as noise disrupts

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information flow in the air, electrical noise can reduce the integrity of analog telephone signals (hum, lightning, static). With digital transmission, by comparison, a signal is either received or not, but it is not received in degraded form!

The mechanism by which digital information integrity is maintained is quite simple: only two possible signals are sent/stored/received, and if noise interferes they can be re-transmitted. Digital signals are characterized in various ways -- as *1 or 0*, as *on or off*, as *high or low* voltages, as *present or absent* signals -- but always as a pure binary condition with no "shades of gray." Thus the information received is exactly the information that is sent or stored; it's possible that transmission could be blocked but what comes through is accurate. By the same token, in order to receive a perceived higher quality signal at the destination, more information must be "digitized" at the point of origination. The human interface to digital information systems still remains consistent with our analog perceptual systems, but the ambiguity and degradation inherent in analog processing, storage, and transmission is eliminated. *Convergence* is the inevitable result of the human need to *input* and *output* information by analog means, but to be assured of accuracy in intermediate information processing. I offer this as a definition of convergence: *the migration of traditionally analog information technologies to digital processing, manipulation, storage, and transport.* In some cases this convergence is strikingly evident to us, as in the replacement of records with CDs some years ago. Many convergent trends go unnoticed, however, as has been the case as telephone companies upgrade many central office "voice processing" components to digital.

Several ideas from communication theorist Marshall McLuhan are worth considering in trying to grasp the impact of convergent technologies as they emerge from the "computing soup" that generates them. First and most important, media are "extensions of man"; they help us to reach farther across boundaries of space and time to communicate more effectively, but do not themselves replace people. Second, new media do not necessarily replace old media, but rather they change them; so even as television changed radio and cable news changed television news, the Internet is changing the role of television in our information consumption mix. Third, *the medium is the message;* that is to say, the physical characteristics of a medium can be as important as the messages they carry, influencing our social patterns and values in ways that can be pervasive but difficult to articulate consciously.

Part Two of this Essay will be published in the next issue of the Bulletin.

" Five years ago, while I was teaching a course at St Louis University, I put some of the required course reading on the Internet. It was a course I teach every two years, but that was to be the first time that I would use Internet material. On the first day of the class, I went to great pains to explain to the students how they could access the reading material, and I tried to be conscientious to make sure that every student would have access to the Internet. One of the students raised his hand and asked, "You referred to the Internet. Where can we buy one of those?" It wasn't until a few seconds later that I realized he was teasing me for talking down to them. Although it was the first time that I was making course reading available online, I incorrectly assumed that the students would need help accessing the online material. They were already quite familiar with the Internet, despite the fact that the Internet had become widely available to Americans only for a very short period of time. In a matter of a few years, the Internet became a regular feature of life, especially for those of us who work in the world of ideas in post-industrialized culture."

From an essay (page 72, *Virtual Reality in a Computer Culture)* by Dr. Greg Beabout, Associate Professor of Philosophy at St Louis University, delivered at the ITEST 2004 conference,
Artificial Intelligence, Computers and Virtual Reality: Social, Moral, Philosophical and Theological Implications, ITEST Faith/Science Press, 2005, pp. 260.

An abstract, foreword and table of contents from this book of proceedings may be accessed at www.ITEST-faithscience.org/mbooks2.html

Origin of the Universe

By Dr. Thomas P. Sheahen

Q. In the movie "God is Not Dead," the professor states that physicist Stephen Hawking proved that the universe just created itself, by the law of gravity. Is that depiction accurate? (Answered by Sheahen in response to a question by a reader of the Bulletin.)

In one sense I can answer "yes" to your question about accurate depiction: Hawking really did write in his 2010 book "The Grand Design" that the universe created itself. On the other hand, on the matter of whether Hawking is right, I would emphatically say "no."

Stephen Hawking is an eminent physicist who has contributed truly innovative ideas about the behavior of black holes, and our understanding of cosmology is better because of that. His work may earn a Nobel Prize in Physics some day. Moreover, Hawking suffers from Lou Gehrig's Disease (A.L.S.), which distinguishes him further. He is famous and well-publicized, mentioned often on TV shows, including sitcoms like "The Big Bang Theory."

However, being famous doesn't necessarily make you right. "The Grand Design" displays a poor understanding of philosophy, and ignorance about theology. There is no logical connection that grants credibility in those fields to persons who are expert in science. Among other things, "The Grand Design," contemptuously says "Philosophy is dead," a point mentioned in the movie. Dismissing philosophy is hardly the way to make your own philosophical speculations come true.

There are some very basic facts about philosophy that need to be kept in mind: it is impossible to prove a negative. You can't prove that something does not exist. Suppose I make the claim "there are no aliens." To prove that, I'd have to visit and inspect every planet in every solar system in every galaxy in the universe. If you wanted to prove me wrong, all you'd have to do is find one alien. Similarly, the claim "science proves that God does not exist" is utter nonsense.

Assorted philosophers have debated the existence of God for thousands of years, and "proof" is always elusive. Related questions like "Did God create the universe?" likewise escape proof; an escape-hatch of some sort is always available. Among philosophers, attention has by now shifted away from absolute proof to a more manageable goal: the best approach is to ask "what is the most reasonable and responsible explanation?"

Evidently Hawking didn't get that memo. His dismissal of philosophy in favor of some favorite theory from physics is overstepping the boundaries. All of us who are trained as physicists know that any theory is always subject to future revision, and we've watched that take place many times over the centuries. That's a very fundamental precept in science. Nothing in science is ever "final."

To me, it seems likely that God has chosen not to force anybody to believe via some absolute proof. I'm fully comfortable going for the "most reasonable and responsible" answer.

Another long-standing principle of doing science (known as "Ockham's Razor") is that we choose the simplest theory that is consistent with the available data. Over the years, as data gets better, theory changes to account for it. That is exactly how Einstein's theory of Relativity eventually replaced Newton's classical mechanics. Newton's theory wasn't wrong, just limited in scope, and Einstein's was more comprehensive. The principle of Ockham's Razor tells us not to festoon a theory with extraneous notions that cannot possibly be observed, even in principle.

The universe we see is "the available data." Over the last several decades, scientists have realized that this universe is incredibly fine-tuned so that we might actually be here. There are certain constants-of-nature (i.e, numbers; about 20 of them) that are precisely tuned, and without that precision there would be no possibility of intelligent life. The probability of it all being an accident is less than one part in 10^(10^123) -- 10 to the power of [10 to the power of 123]. That's not a misprint. The number is so big that it could never possibly be written out. And incidentally, there are only

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about 10^88 particles in the universe, and 10^88 is not even 10^(10^2).

With such odds against us being here by chance, the most reasonable and responsible explanation is that it wasn't by chance, but that God created the universe, using wisdom that enabled the incredibly accurate fine-tuning required.

However, if you believe that only science constitutes real knowledge, then you draw a borderline around your range of thinking, and disallow any explanation that comes from beyond science. God is ruled "out of bounds." So you need an escape hatch, and that is the notion of a "multiverse" -- you postulate that new little universes keep breaking off and expanding, somewhat like a froth of bubbles. There is an infinite number of such universes, and we just got lucky and landed in the one where it all worked out just right.

The trouble with that explanation is that all those other universes are unobservable – even in-principle. No data will ever reach us from outside our own universe. Thinking about a multiverse, the phrase "far-fetched" comes to mind. To believe in a multiverse, you must discard the very basic principle of seeking the simplest explanation of the available data (Ockham's Razor). That puts you outside the realm of the scientific method. You've stopped being a scientist when you go there!

To make matters worse, the fine tuning needed to accommodate the ensemble of other universes is even more unlikely, so the complexity gets worse, which doesn't help explain anything. Perhaps it bears mentioning that Hawking doesn't bring up these little details in "The Grand Design."

Getting back to the movie "God Is Not Dead," the student doesn't prove the existence of God, but he successfully presents the most reasonable and responsible explanation, and the rest of the students in the class agree.

Reason is the ability of the mind to think and arrive at the knowledge of truth. That should never be overridden by the assertions of some famous scientist.

Letter to the Editor

Dear Sr. Marianne:

For quite some time I have struggled to find a fitting way to pay tribute to a wonderful teacher when I was a seminarian some 60 years ago. Today at Mass it came to me that the best way to honor his memory is with a donation to ITEST specifically to the further development of the modules used to teach grade school children about the connection between faith and science.

This wonderful teacher was William (Wilhelm) Noelken SCJ. He was prefect of studies for every student in the seminary from grades 9 through 12. He taught Latin, French, and Greek that he learned as a POW during WWI. Before he was captured by the British on the western front he was a German machine gunner. Years later he admitted killing British soldiers in combat. He told us that he learned and taught languages in POW camp using the wrapping paper from Red Cross parcels.

While he taught us Latin, French, and Greek, he loved most of all music. Sacred music. He was a gifted organist and choir director. Under his direction he put together three boys choirs: SATB, TTB, and TTBB.

He had a special serene look of joy when we managed to do the music well. His blue eyes would twinkle, a slight grin would come across his face, and he would nod his head when the celebrant couldn't find the right note and he had to figure out how to find a note that would get us through the musical crisis. He thoroughly enjoyed pushing down all stops to turn the lion loose in the chapel.

I often think of him and see his wonderful old face before me whenever I hear music that is well done. "Willie, I hope you can hear this."

I am asking that this donation, if possible, be used to support work in the further development of those modules notably to teach with greater emphasis the importance of sacred music as an expression of prayer and the role it plays in reinforcing faith.

God bless,
From a loyal ITEST member.