Institute For Theological Encounter With Science and Technology
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Patriotism

The days surrounding Sept 11, 2011 produced an exceptional outpouring of patriotism around America. People everywhere paused and thought about the way the entire nation came together after 9/11 to fight terrorism.

In my own case, I was privileged to be among the "Flight 93 Memorial Chorus," a collection of over 100 male voices drawn from barbershop societies and church choirs that sang at the dedication of the memorial in Shanksville Pennsylvania to the victims of the crash of Flight 93. Our repertoire was all patriotic songs, and we had practiced once a month since January, acquiring the skill to produce a truly inspirational and harmonious sound.

One song, "Follow the Flag," contains these lines:
They say it's just a dream, it's a dreamer's dream;
That it's an empty thing that really has no meaning.
They say it's all a lie... It's not a lie!
I'm gonna follow the flag 'til I die.

These words reject a cynical outlook found too often on college campuses, and re-assert the importance of patriotism. The passengers on Flight 93 lived these words. Starting as total strangers to one another, they pulled together after only a few minutes time to decide to attack the hijackers and try to take the plane back. The customary expectation of an airline passenger would be to remain passive. Those passengers didn't even ask about their probability of success. We know now that some major target in Washington was spared because of their decisive action.

Elsewhere in the ceremony where the chorus sang, we listened to a recording of the speech by Ronald Reagan at Normandy in 1984. He observed that some things are worth dying for, and honored the fallen for their courage. Where does courage come from? There is a spiritual side of human beings, and that's where we must look for its origins. Jesus' second commandment "love thy neighbor as thyself" is a cornerstone principle underpinning courageous acts. Someone in a warfare situation hasn't the luxury of going through a reasoning process before acting; it's ingrained so well as to look automatic.

Courage is near the top of the list of human virtues, and we highly honor those who show it, because we know that courage is not guaranteed nor automatic. Memorial Day, Veteran's Day, and the commemorations of 9/11 are special occasions for expressing that honor. Patriotism derives from appreciating that we have something enormously valuable, given to us by the sacrifices of previous generations. The flag stands as a focal point around which to remember and honor that courage and sacrifice over the centuries.

As the election year 2012 approaches, we are all mindful that government is imperfect and could be made a lot better. Churchill termed democracy "the worst system of government except for every other system that's ever been tried." The campaign ahead will surely include both constructive criticism and attack ads. Our sense of patriotism forms an important axis of stability running throughout it. We are one nation under God, we are free, we have self-determination, and it's up to us to secure that "liberty and justice for all."

Thomas P. Sheahen

Dr. Thomas P. Sheahen
Director, ITEST

In This Issue…

Announcements

ITEST Fall Symposium – October 12-14, 2012

We will be co-sponsoring a weekend symposium with the Saint Louis University Department of Theological Studies in the fall of 2012: An Open Forum on Issues Raised by Scientific, Moral and Theological Concepts of Early Human Life. The focus will be on stem cell research and will include other issues surrounding the beginnings of human life. Recent advances pertaining to adult stem cells, notably re-programming to the earliest stages, have far outstripped developments in embryonic stem cell research. ITEST's intent is to give participants an updated grasp of the issues of the debate.

This symposium will be under the leadership of Fr. Kevin FitzGerald, SJ, PhD, a nationally known expert in this field from Georgetown University. Professor Donald Sparling of Southern Illinois University, dsparl@siu.edu is coordinating the structure of the program. Fr. Ronald Mercier, SJ, Theological Studies at SLU will represent St. Louis University. Presentations will include both invited papers and contributed papers. To have your paper considered, send ITEST an abstract (<250 words) by **July 1, 2012**. The location will be at the Busch Center on the campus of St Louis University.

The sub-committee has designed a web page at www.earlylifeissues2012.com. All updated information on the conference may be accessed at that web site. Information on speakers, topics/titles and registration will be posted as soon as it becomes available. Keep the URL handy. This will be a challenging and timely conference.

Creation Lens
Exploring the World, Discovering God

Exploring The World, Discovering God (EWDG)

Kudos to Evelyn Tucker, project manager, and the Advisory Council, for bringing to successful completion the second tier of EWDG, faith/science lessons for Grade 5–8. With the editing assistance of the ITEST staff those 84 modules (Catholic & Christian) are being readied for uploading to the Creationlens web site for teachers and students worldwide. As you know we have already tracked over 200,000 downloads of lessons from the first tier: Pre-K-Grade 4 level, and we are confident that the second tier will elicit as much response.

This project almost wholly supported by a three year grant totaling $225,000 from the Our Sunday Visitor Institute offers a program that is unique in its "side by side" integrated lessons in faith/religion and science, helping teachers and students to see the compatibility of the two paths to the same "Truth". As soon as the modules/lessons are uploaded the ITEST staff will e-blast the news to the contacts we have gathered since 2006 to notify them that the lessons for Grade 5- 8 are available free of charge. Since some of the teachers who created the lessons submitted material in other categories, for example, social studies and faith, literature and faith, music and faith, we have included them in a general category -- for want of a better word -- Other.

Take a look at the Pre-K through Grade 4 lessons on the web site at www.creationlens.org and invite your friends and colleagues to download them. Ask the teachers in your parish, school and home school venues to browse the web. There are riches in those lessons! You should mine them.

Cyberspace Safety for Teens in an Age of Face Book, Twitter And Texting

Workshop participants (above)
Dr. Wippold,II (right)

Our first collaborative effort with the Archdiocese of St Louis was very successful as we hosted almost 80 teachers, counselors and parents at our cyberspace safety workshop. See Tom Sheahen's summary of the workshop in this issue. We plan to work with the Archdiocese in the future since it is an effective way to reach people who need to hear about ITEST and who, at the same time, are interested in the advances of sci/tech and their impact on human living and believing.

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"Cyberspace Safety" conference addresses urgent concerns

by Tom Sheahen, Director, ITEST

A conference on "Cyberspace Safety for Teens" was held on October 1 at the Cardinal Rigali Center. It was jointly sponsored by ITEST (*Institute for Theological Encounter with Science & Technology*), the Apostolic Life Office, and Kenrick Seminary. Attendees learned about the need to pay attention to what children are doing on the internet, and how to keep them from harm.

The first presentation was by Dr. Travis Smith of *LifeSTAR of eastern Missouri*, who is a counselor dealing with sexual addictions. He began by noting that when setting requirements for teens' use of the internet, "the line in the sand" has become very blurry. From there he went on to describe how ubiquitous is access to *Face Book Twitter* and other social media sites, and stressed that it is essential that parents and children talk over the issues that arise. There are many invitations to easily access internet pornography, and it takes a commitment by the child to keep it away; parental rules are not enough. Cyber-bullying is another threat that parents need to be alert for. Dr. Smith cited statistics about the number of teens categorized as *"hypertexters"* (over 120 messages/day) and *hyper-networkers* (over 3 hours/day on the internet). His numbers for the percentage of teens involved in adverse behavior ("Sexting") would frighten any parent.

Second was Franz Joseph (Jay) Wippold MD of Washington University Medical School on the topic of "Addiction: Window into the Brain." Dr. Wippold explained how brain activity is detected via tracing blood flow through various parts of the brain, and compared medical images (MRI, PET, etc.) of the brains of normal and addicted patients. Pornography is just as addictive as drugs or alcohol, but cannot be treated by simply taking away a substance. It is difficult even to study sexual addictions, because researchers cannot run controlled experiments to establish causation. Descriptive and correlative studies indicate that the brain actually gets re-wired, so as to need more and more of the stimulus over time—changes indicative of addiction. There is a combination of both biological and behavioral factors, and therapy is necessarily long-lasting.

In the Q&A period, to a question about biological factors overcoming free will, Dr. Wippold emphasized that while there is a temptation toward biological reductionism as an explanation, the human being definitely has a spiritual component that transcends the molecules and chemicals—he imagined Michaelangelo painting the Sistine Chapel ceiling, which is far more than just a moving hand.

In the session after lunch, three speakers combined to address pertinent internet issues, with the title "*The Mind of the Predator and How to Block It*." Bart Niedner, Mike Schottenhaml and St. Louis county detective Jim Karase combined to give parents some guidance. Internet access points are everywhere now, and kids will always find a way to get onto the internet. Besides, in the modern world, everybody needs internet skills. So the only plausible pathway is to communicate with your children and teach them to protect themselves. The most trustworthy protection is "the filter you put between their ears." Parents need to start educating their children about all this at an early age.

All the speakers stressed the need for a strong parent-child bond, paying attention to communicating and maintaining a trusting and loving relationship with children.

A parent typically wonders "why do kids act this way?" In a concluding summary, Sr. Carla Mae Streeter, OP of Aquinas Institute explained that there is a tremendous longing or hunger for *relationship* as people rush to participate in social media sites – which of course is inferior to authentic human relationships. "The primary intimacy is that we are in the arms of a Good Shepherd. That intimacy is the basis for all our other intimacies…. Until we tap that wellspring, the children won't know who they are… we should ground our children in this perception."

The entire conference has been videotaped, and at a later date will be downloadable for viewing. Further information is available by calling ITEST.

Editor's note: All five presentations are now downloadable as PDF's from the ITEST web site at www.ITEST-faithscience.org Then, click on News and Events to find the documents.

Update And Synopsis — Embryonic Stem Cell Research

by Dr. Alois F. Kertz

Dr. Kertz, a scientist in animal nutrition, has studied closely the state of development in both embryonic stem cell and adult stem cell research. The following update and synopsis will, according to Dr. Kertz, give the reader "…a current understanding of where ESCR stands, the fast evolving science and use of adult stem cells in clinical usage, and why ESCR is really an ideology for many scientists."

The number of adult stem cell clinical trials continues to escalate: www.clinicaltrials.gov In August 2006 when I first began to track these trials, this National Institutes of Health website yielded about 600 trials. On September 17, 2011, the total number of trials was 3,701. The following website http://www.stemcellresearch.org/ provides current accounting of issues and results with adult stem cells. In July 2007, ES Cell International—which had begun in Singapore seven years prior with much fanfare—ceased embryonic stem cell research (ESCR) due to investors losing interest because "the likelihood of having products in the clinic in the short term was vanishingly small" (*Science* 20 July 2007). In November 2007, ordinary human cells were reprogrammed into embryonic-like stem cells. This finding was rated Number Two as the journal *Science*'s Breakthrough of the Year and *TIME* magazine's 1st among the 10 Best Scientific Discoveries of 2007. This also led Dr. Ian Wilmut, who cloned Dolly the sheep, to lean toward terminating his ESCR. He indicated that these researchers "…may have achieved what no politician could: An end to the embryonic stem-cell debate".

In September 2008, researchers at Harvard University overcame "a major obstacle to using a promising alternative to embryonic stem cells, bolstering the prospects of bypassing the ethical and political tempest that has embroiled hopes for new medical treatments." *TIME* rated this the Number One Medical Breakthrough of 2008 in that researchers at Harvard and Columbia "using a new method — one that doesn't require embryos at all — to generate the first motor neurons from stem cells in two elderly women with Lou Gehrig's disease, or ALS… involved reprogramming a patient's ordinary skin cells to behave like stem cells, then coaxing them into the desired tissue-specific cells." *Science* rated this reprogramming of cells their Breakthrough of the Year in 2008.

There were some limitations with reprogramming adult stem cells into pluripotent stem cells, those that can be converted to tissues other than of their origin, but these have been largely overcome with findings such as in "*ScienceDaily (July 8, 2009)* — Kinarm Ko and Hans Schöler's team at the Max Planck Institute for Molecular Biomedicine in Münster. These scientists have succeeded for the first time in culturing a clearly defined cell type from the testis of adult mice and converting these cells into pluripotent stem cells without introduced genes, viruses or reprogramming proteins. These stem cells have the capacity to generate all types of body tissue. The culture conditions alone were the crucial factor behind the success of the reprogramming process." http://www.sciencedaily.com/releases/2009/07/090707131824.htm

Further progress was announced on September 30, 2010 "**Reprogramming Adult Cells, Breakthrough By Harvard Stem Cell Institute."** Scientists have discovered a new way of creating stem cells from skin that has a much lower risk of cancer. In a report in the journal *Cell Stem Cell* the researchers say this is such a huge leap forward in reprogramming human adult cells that the Harvard Stem Cell Institute (HSCI) will start using their new method to make patient and disease-specific induced pluripotent stem cells (iPS cells) straightaway. Pluripotent stem cells can turn into any kind of human cell. Doug Melton, co-chair of Harvard's Department of Stem Cell and Regenerative Biology, said: ***"This work by Derrick Rossi and his colleagues solves one of the major challenges we face in trying to use a patient's own cells to treat their disease. I predict that this will immediately become the preferred method to make iPS cells from patients and, indeed, at the HSCI we are turning our entire iPS core to using this method."*** http://www.medicalnewstoday.com/articles/203128.php

Another astonishing finding by the same group at

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Harvard was released in August 2011:"A team of Harvard stem cell researchers has succeeded in reprogramming adult mouse skin cells directly into the type of motor neurons damaged in amyotrophic lateral sclerosis (ALS), best known as Lou Gehrig's disease, and spinal muscular atrophy (SMA). These new cells, which researchers are calling induced motor neurons (iMNs), can be used to study the development of the paralyzing diseases and to develop treatments for them. Producing motor neurons this way is much less labor intensive than having to go through the process of creating induced pluripotent stem cells (iPSC, iPS cells), and is so much faster than the iPS method that it potentially could reduce by a year the time it eventually takes to produce treatments for ALS and SMA, said Kevin Eggan, leader of the Harvard team." http://www.stem-cells-news.com/1/2011/08/stem-cells-from-skin-cells-to-motor-neurons/

Scientists' earlier interest in ESCR was to use them in several ways: study the growth and development of human embryos, use the embryo to evaluate pharmaceuticals, and for clinical treatment of diseases. Only the latter objective lends itself to marketing of hope through ESCR. There was also potential commercial value in being able to patent human embryonic stem cell lines. But that possibility was removed by a law enacted on September 16, 2011 as part of a bill called the "America Invents Act" (H.R. 1249). That bill makes numerous changes to the laws that govern the granting of patents in the United States.

When President Obama announced on March 9, 2009 that he was overturning the 8-yrear old ban enacted by President Bush on federal funding for ESCR, he hailed it as science over ideology. In fact, science has passed by and over the promises and hope of ESCR. That makes it even less likely that ESCR would be funded anywhere else than by state or federal governments. Such funding of ESCR really has become an example of ideology over science. http://usliberals.about.com/od/stemcellresearch/a/ObamaEmbyBan.htm

In Memoriam
Sr. Mary L.R. Volk, FSM

(Sister Mary Rita Leo, a long-time ITEST member and friend of Fr. Robert Brungs, SJ, had a fulfilling career in science. We are reprinting her obituary notice from the September 30, 2011 issue of the St Louis Review, St Louis, Missouri.)

"Known as "Sister Mary Chromosome, this Franciscan Sister of Mary, helped to develop chromosome study techniques that pin-pointed chromosome abnormalities and pioneered the field.

"Sister Leo Rita's groundbreaking work in cytogenetics earned her respect among her colleagues, and her techniques for growing and analyzing chromosomes set the standard for researchers on the Human Genome Project and other cytogenetic research. An exhibit of her order's history noted that through her research, chromosome abnormalities were discovered that predisposed a person for developing cancer. In some cases and with particular cancers, physicians were then able to intervene with medication.

"Sister Leo Rita, a sister for 80 years, died at the Sarah community in St Louis where she had lived since July. She was 97.

"Sister Leo Rita earned a bachelor's degree in 1944 and master's degree in 1950 in medical technology from St. Louis University. She served at St. Mary's Hospital in St. Louis as a medical technologist from 1935-50, then as supervisor for the laboratory there, 1950-52, 1955-68, and at a hospital in Madison, Wisconsin, 1952-55. She was assistant professor from 1963-74 and clinical professor from 1974-91 of medical technology at St. Louis University.

"Though she began studying chromosomes in the late 1950s, in the early 1970s she was given a research laboratory at St. Mary's Hospital where she could conduct her cytogenetic research. Her brilliant intellect, precise techniques and humble commitment won her the respect of scientific colleagues worldwide.

Poverty, Prosperity and Technology

by Thomas P. Sheahen

In 2011 I visited Nepal, a very poor nation in Asia where the people are mostly subsistence farmers. Nepal's population is 29.4 million people. The annual *per capita* GDP is $1200, equal to Haiti's, behind Uganda but ahead of Rwanda, and # 206 our of 227 countries. In the lowlands there are trucks and buses and machinery and multi-story buildings, but a lot of Nepal consists of small villages in the mountains that are reachable only by foot, resembling early colonial life in America.

No doubt other American tourists have seen worse poverty, especially in parts of Africa, and can shrug off the seeming hopelessness of a big fraction of the world's people. Many Americans are weary of hearing about the endless struggles among impoverished farmers, brutal dictators, mining interests and armies; and their charity-donation budgets are quite stressed.

Nepal is certainly the highest-entropy place I've ever seen. Every aspect of commerce proceeds at a very slow pace. Only once in two weeks (for about 2 minutes) did our van ever get up to 35 miles/hour. The very inferior infrastructure in Nepal causes low productivity, and reinforces the poverty. The tragedy is that Nepal doesn't have to be that way.

The very inferior infrastructure in Nepal causes low productivity, and reinforces the poverty.

Basic Economics

Economics textbooks identify *cooperation* as a key factor in improving productivity: via the *division of labor*, each person performs the activity they do best, with the result that the combined assembly (the society) produces more goods and services more efficiently. Thinking back to colonial days, when each farm stood alone, having the women take care of the household while the men were in the field was at least one form of division of labor. Modern civilization carries the concept much further. Still, this basic economic principle endures: each individual can convert his/her excess production into money, and then buy goods and services that were not accessible previously. That condition is termed "prosperity."

The role of capital equipment is another important component of improved productivity. The phrase "40 acres and a mule" says a lot about the importance of capital on the American prairie long ago. Used efficiently, capital increases productivity and conveys a competitive advantage. Only a few decades ago IBM promoted computers with the slogan "machines should work; people should think." Today, modern communications (notably the internet) further advance productivity.

Utilizing capital requires energy. Feeding oxen or a mule is a good primitive example; the energy to grow food comes from sunlight. Today there are many additional intermediate steps in producing food, but the underlying dependence upon sunlight as an energy source is still there. For the many other activities of modern society, energy (in one form or another) is required to get the job done.

Electricity is the most versatile form of energy, because it can be readily converted into just about any other form of energy. Electricity is also the most addictive substance on earth: anyone who gets a little wants more, and no one has ever successfully "kicked the habit."

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Electric Possibilities

There are many sources of statistics (see, for example, the CIA's "World Fact Book") that compare aspects of one country to another. One relationship that stands out strikingly is that the per capita use of electricity correlates very well with the *per capita* Gross Domestic Product of a country. The United States is somewhat extravagant in its use of electric power (about 1.5 kiloWatts [kW] *per capita*), while most developed countries use slightly under 1 kW *per capita*. At the other extreme, the very poor countries have *per capita* electricity use down below 0.1 kW. China is in transition, now up to about 0.3 kW.

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India is still very low [0.054 kW] despite having some prosperous cities.

Nepal's total electricity consumption in 2007 was 2.243 billion kWh, which (when divided by 8760 hours per year) is equal to 256 MW of continuous power for the entire nation. That works out to 0.0087 kW [8.7 Watts, ~ two American nite-lites] going to the average Nepalese. It's better now, about 0.01 kW, but still most people in rural Nepal have no electricity whatsoever. Whether looking at *per capita* GDP or electricity, Nepal is way down the list of "developing" countries.

Nepal is different from nearly all other developing countries in that is has an unmatched natural resource with enormous economic value. Nepal is downhill. All year long, melting snow from the Himalayas swells rivers that could provide hydropower, if some dams were built. (At present, what little electricity Nepal has comes from small hydropower plants.) Nepal's hydropower potential has been estimated at 83,000 MegaWatts (= 83 GigaWatts or 83 million kiloWatts). That power output is equivalent to 83 big nuclear power plants. Nepal's hydropower capacity is second only to Brazil, a country about 100 times larger.

There is definitely a market awaiting the product: India would gladly buy all the electricity Nepal could produce. Moreover, there is front-end capital for construction -- investors from China have expressed interest in building some major dams and generating stations.

The economics is nothing short of wonderful: Suppose a large dam were built, and Nepal got a royalty of one Nepalese Rupee for every kWh exported (one Rupee ~ 1.3 cents American). The Chinese investors could sell electricity to India for 10 cents/kWh, and keep nearly all the money, amortizing their capital investment and making a handsome profit besides. Even a *one* GW hydropower dam would thus hand a million Rupees *per hour* to the Nepalese government. Nepal could build a lot of roads and schools with that kind of money. And after a dozen such projects, Nepal would have enough capital to build the dams themselves, and then plow back the income into more infrastructure, and more hydropower production – it's a "virtuous cycle."

Having excess electricity that can be sold to others is a ticket to prosperity.

The Status Quo

But it's not happening, and therein lies a lesson in how poverty is readily perpetuated while prosperity is elusive.

For the term "squalid poverty," images come to mind of refugee camps in Haiti or Somalia – where there seems no hope of improvement. Nepal could be different, via hydropower derived from Nepal's unique geography and its abundant water flow.

The solution is technological, but the problem is one of organization. Nepal has over 100 ethnic groups and 30 political parties, and they can't agree on even the most basic elements of government. The elected parliament isn't crooked, just dysfunctional. They've been trying to write a constitution for >3 years. In the past decade, the government has changed 10 times. With regard to compromising, the attitude seems to be "you go first."

The elected parliament isn't crooked, just dysfunctional.

Nepal is at a standstill: any potential investor finds a "nobody home" situation when seeking a government agency that can make a commitment or sign a contract. So the money stays on the sidelines, the water rushes downhill, and the severe poverty of Nepal continues unchanged.

The human cost of this inertia is enormous. Children are being taught English in school, and hence young people are able to leave Nepal. Because life staying home on a subsistence farm is so bleak, the promises of visiting strangers are very attractive. Sadly, many young women are tricked by human-traffickers into lives of slavery; for example, one report indicates that 80% of the girls in Indian brothels are Nepalese. That's a totally unnecessary tragedy.

So far, the beckoning prosperity of hydropower hasn't been sufficient to motivate the multiplicity of Nepal's political leaders.

The Future?

Poverty is the "natural" state of things, while cooperation is the first prerequisite to start along the road toward

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prosperity. So far, the beckoning prosperity of hydropower hasn't been sufficient to motivate the multiplicity of Nepal's political leaders.

You would think they could discern how much better off the entire country would be by producing electricity. Why can't they come together in unity? What is missing in the Nepal equation? Is there some critical mental, spiritual or emotional factor absent in the people of Nepal? Is there some innate distrust of other tribal groups that obstructs cooperation? However obvious the problem may be, this American tourist can't identify the reason.

Returning to my "entropy" remark at the beginning: years ago in college, a sign was posted by a physics professor who was trying to get the students to keep the lab clean. He employed a very accurate phrase about solid-state physics, which read "The reduction of entropy is a cooperative phenomenon." Everyone got the message.

American observers pray that Nepal will figure out this message soon.

Energy Saving Tips

Save a dollar a day!
Put weather-stripping around your door frame

If you had a 4-inch hole in your wall, you'd patch it, right?

But consider a door frame which fits "fairly close," having only a 1/16" gap around the perimeter. Since the height of most doors is 78" and the width is about 33", the perimeter of the door adds up to 222". With a 1/16" gap, the area of the opening is about 14 square inches. That's equivalent to a round hole with a 2" radius or 4" diameter.

In a typical home, heat loss around leaky doors is the most common – and easily preventable – waste of energy. Whether owning or renting, weather stripping is the cheapest thing you can do to save money.

Carrying the Message of ITEST to your local church or community

by Thomas P. Sheahen

The strength of ITEST resides in its members, and from time to time we have urged members to reach out and talk to their local school or parish, explaining how faith and science fit together as complementary avenues toward a knowledge of God. In this article, I give one example of how it can be done. Not only is this a rewarding experience, it's also easy.

In November 2010, I conducted two such events: one at a Catholic boys' high school, and the other at my local parish. In the case of the church, the parish Director of Religious Education recognized that adult education has always comfortably occurred on Monday evenings, so my presentation was inserted into a blank spot between seasons. The event was advertised in the parish bulletin for a couple weeks in advance, and about 35 parishioners attended. At the high school, the faculty combined some classes, and in the course of a day I wound up talking with about 240 students.

The parish presentation was entitled "Looking at the Relationship between Faith and Science." I didn't want to convey the impression that I was going to officially settle any major questions, but my intent was to explain how to *approach* the subject, and I stressed the unity that I perceive. Hence the words "Looking at the Relationship " served to shift the emphasis towards *process* rather than answers to specific topics. Fortunately, our parish priest was alongside me, so that later on when participants brought up topics like Galileo, he knew the history well enough to handle some questions.

Based on a 75-minute time slot, I talked for about 45 minutes, and sure enough eager listeners easily consumed the remaining time with questions and dialog. The participants were definitely involved and attentive. In the high school setting, the time slots were 60 minutes, but I kept the percentages about the same. For the parish presentation, I had a total of a dozen power point slides, but those contained just major themes, and I talked about the subjects without reading the slides. At the high school, I skipped the slides entirely.

In all cases, I found the time to slip in a commercial for ITEST, explaining that we are an assembly of interested

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parties who find value in the overlap between science and religion. Plus I mentioned our successful program for primary grades, *Exploring the World, Discovering God.*

Creation Lens
Exploring the World, Discovering God

It always helps to start out with some levity, so I began by showing a Calvin & Hobbes cartoon where cowboy Calvin shouts "This town just ain't big enough fer the both of us!" and Hobbes calmly replies "Yep, I reckon we'll have to annex part o' the county." I said that to think about religion and science, you need to expand the range of your thinking – like "annexing the county."

My overall point was that science is ***not*** the enemy of religion. That may be what the media likes to say, but that view results from having too narrow vision. The presumed conflict vanishes when the two are examined at a higher level.

The Catholic Church and Science

The Catholic Church has blended faith and science over the centuries. In the Nicene Creed, which we recite every Sunday, we say we believe God is "... creator of heaven and earth, and of all things visible and invisible..." That affirms that God created *more* than what we can directly experience. The "visible" world is the world science can access, via microscopes and telescopes, electronics and atom-smashers. It is made out of particles, atoms and molecules, and occupies space and time. This is the domain of the sciences – physics, biology, medicine, etc.

But there is also an "invisible" part of creation, and it would be a mistake to think that science is sufficient to comprehend all of that creation. However, humans have access to a portion of it – but not all of it. In the Nicene Creed, we are humbly acknowledging that reality. Faith is not trying to put a limitation on science, but rather to take us beyond science toward a relationship with God. Those who want to claim that only scientific knowledge means anything, that science covers "all there is," are abandoning a big fraction of reality, and thereby are severely limiting themselves.

The early Christian philosopher St. Augustine (circa 400 A.D.) was a much better scientist than he gets credit for. On the basis of philosophy alone, St. Augustine concluded that God *created* space and time *together*, and that was "the beginning." He recognized that there could be no "before" or "after" in the absence of time. This perception that our coordinate system is not just there, but was created by God, that space and time are related to each other, is remarkable for someone who never heard of the theory of relativity. Sadly, Augustine's wisdom was forgotten over centuries, and the science of physics began (in Isaac Newton's days) with the presumption that *time* is absolute, that it's always been there, that it just *is*. Big mistake. It took Einstein to discover what Augustine had known long ago.

Augustine is noted especially for formulating this important relationship: "The book of nature and the book of Scripture were both written by the same Author, and they will not be in conflict when properly read and interpreted." Think about that for a minute. It really is a very strong "vote of confidence" in way that God interacts with the world and us. When Pope John Paul II said to scientists exploring new frontiers "be not afraid," it showed his complete confidence that the word of God is never threatened by a new development in science.

"The book of nature and the book of Scripture were both written by the same Author, and they will not be in conflict when properly read and interpreted."

Augustine also cautioned against being overly certain that you've already got the correct interpretation. Again being way ahead of his time, he wrote in *The Literal Meaning of Genesis*: "In matters that are so obscure and far beyond our vision, we find in Holy Scripture passages which can be interpreted in very different ways without prejudice to the faith we have received. In such cases, we should not rush in headlong and so firmly take our stand on one side that, if further progress in the search for truth justly undermines this position, we too fall with it. That would be to battle *not* for the teaching of Holy Scripture but for our own, wishing its teaching to conform to ours, whereas *we* ought to wish *ours* to conform to that of Sacred Scripture."

Among scientists, the most famous quote from Pope John Paul II is this: "Science can purify religion from error and

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superstition; religion can purify science from idolatry and false absolutes. Each can draw the other into a wider world, a world in which both can flourish." Scientists are quick to criticize superstitions, but they seldom detect the false absolutes they have imposed on their understanding. The notion that "if it can't be explained by science, it doesn't exist" is a typical example of how some scientists deliberately avoid being drawn into a wider world. They're not willing to "annex part of the county." By drawing a narrow boundary around their turf, and then insisting that everyone else conform to one set of rules about thinking, they don't even see the false absolute they have created.

Science can purify religion from error and superstition; religion can purify science from idolatry and false absolutes.

Time is the most insidious of the false absolutes. Isaac Newton started with the premise that time is absolute, and that endured for nearly 3 centuries until Einstein reasoned otherwise. Still to this day, most people don't really "believe in" relativity; they are unable to conceive of time in any other way than the one-dimensional linearity of Newton's equations. Plenty of scientists formulate their conception of God within that restricted framework, and wind up imagining a god that is subordinate to time – quite inferior to the God who is the *creator* of time. Then they find reasons to disbelieve in such a limited god. Having done so, they celebrate their atheism, never stopping to reflect on how they have built a wall to prevent the expansion of their own ability to think. That matches well with what Pope John Paul II talked about.

Still more recently, on 28 October 2010, Pope Benedict XVI addressed the *Pontifical Academy of Sciences* and emphasized several important points. First he pointed out two extreme views: that science has all the answers; and that science is evil and should be avoided. Instead, we must recognize man's spiritual dimension. There is a world existing independently from us. Scientists *learn about* the world; they don't create it. The Pope assured his listeners that there is an all-powerful Reason that sustains the world; which is *other than* man. He closed by stressing that science should be a place of dialog, including the human being and Creator.

Scientists learn about the world; they don't create it.

The connecting unity across all the centuries from Augustine to the present is that the Church repeatedly looks for compatibility between faith and reason, between our science and our religion. And furthermore, the Church expects to *find* that compatibility, because of its confidence that there is no ultimate conflict. Regrettably, there have been many occasions when Augustine's phrase "when properly read and interpreted" has been totally eclipsed; but that doesn't diminish the need to continue on the path toward knowledge.

Specific Examples

In each of my presentations, I chose examples that were matched to the specific audience. Another parameter affecting my choice was the specific books I'd read lately, and the insights I'd gained from them. This is the point where any other ITEST member doing a similar

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Energy Saving Tips

Save 60 cents a day!
Run your ceiling fan to circulate air

Many people who have a ceiling fan think it's to be turned on only when the room is very hot and humid, in the summertime.

Actually, a ceiling fan can help all year round by circulating air currents gently throughout much of a household. Without circulating air, the warm air in a room drifts up towards the ceiling and sits there, where it cannot warm the people standing on the floor. This is especially true in a room with a high ceiling.

When a fan goes on, the warm upper layer gets dispersed and air mixes throughout the room, making the temperature more uniform and the occupants more comfortable. The humidity becomes more uniform, too, as air currents travel up or down the walls. That air motion is barely detectable, but it's real.

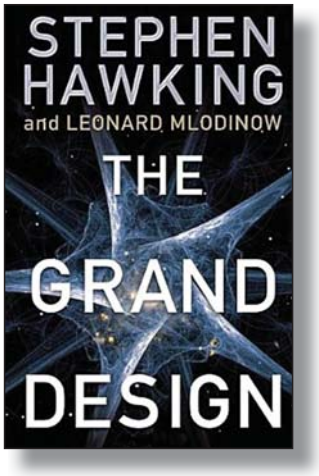
It costs very little money for the electricity necessary to keep a fan spinning 24/7. The savings comes in reduction of your heating or air conditioning bill: you stop paying to create a useless warm layer up near the ceiling. You can still leave your thermostat set the same. But the furnace or A/C will switch on less often.

presentation will diverge from my path, and present personal examples that relate to the given audience. It matters less what the examples are than that there *be* some examples, to provide a bridge for the listeners to appreciate how the above general principles are applied in the real world.

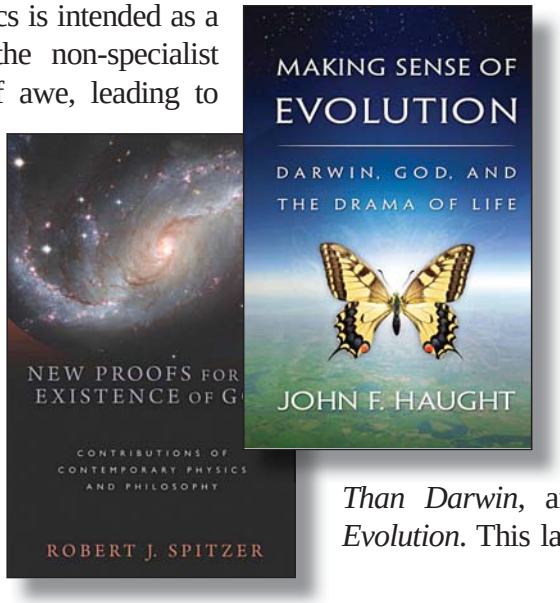
Here are three typical examples:

Creation: The TV media always like to sell a "fight," so they promote the notion of science and religion being enemies. You can more easily get your book published if it enhances the fight. Atheists get a lot of TV time because they boost the "fight" idea.

There is a new book by Stephen Hawking entitled *The Grand Design*, wherein he asserts that the universe created itself, with no involvement by God. Hawking has great prestige as a physicist, and his disabilty makes him a sympathetic figure. His book promotes the "fight" concept, so this is a formula for success. Among other things, Hawking and co-author Leonard Mlodinow say "philosophy is dead." By that is meant "I don't get anything out of reading philosophy." They ridicule the religious practices of some obscure primitive tribe, and then imply that all religion is similar and hence should be dismissed. Hawking's impressive and elaborate physics is intended as a "snow job," to overwhelm the non-specialist reader and convey a sense of awe, leading to calmly accepting his assertions about creation and theology. But those are totally speculative, not supported by any physics, including the "gee whiz" physics in this book.



Another book, written without any relationship to Hawking's, is *New Proofs for the Existence of God* by Fr. Robert J. Spitzer, S.J. Therein, Spitzer follows the rules of philosophy carefully. He points out some of the incredibly improbable hypotheses required in order to believe in a "multiverse." – and it is a ***belief*** !



It is the case that the universe is very finely-tuned to produce life, a fine-tuning which is traced to precise values of numerical constants in physics. The proponents of a multiverse essentially argue that an infinite number of other universes exist, and we have no possibility of any contact with them. It is assumed that their properties exhaust all the possible combinations of physical constants, so that our universe was the *one* that was lucky enough to have conditions just right so we could eventually be here. A belief of this type violates a basic principle of how science is done: the Canon of Parsimony, or "Occam's Razor," whereby you never festoon a theory with extraneous stuff that is unobservable in principle. Among other things, this notion doesn't pass the "giggle test": if there are an infinite number of universes, then in some of them, Elvis is still singing in Memphis.

Fr. Spitzer's book is much better than Hawking's, because it contains careful reasoning to get from one point to another; Spitzer is not trying to slide anything past the reader. He presents philosophical proofs to establish the basis for believing in God, and he shows that theism is the more reasonable and responsible conclusion.

Evolution: This is another area which the media call a battleground between science and religion. There has been a rash of atheistic books written in recent years, the most notorious of which is *The God Delusion* by Richard Dawkins.

One very basic error, made by creationists as well as atheists, is the presumption that God exists within time and hence is subordinate to time. That amounts to putting a false god before God.

Against such books, Prof. John F. Haught has written a series of books that support *theistic evolution* – the idea that God is in charge of evolution every step of the way. Haught's books include *God After Darwin*, *Deeper Than Darwin*, and most recently *Making Sense of Evolution*. This last book is only 150 pages long and is

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within the grasp of a sharp high school student. Haught brings out several key points very clearly:

a)There are different *levels* on which a question may be answered. You might ask about the reasons for the words on a page of a book. At one level the answer has to do with the printing of ink in certain shapes; at another level it is because the author intended to say something, and on a third level it is because the publisher wanted a book on this subject and asked the author to write it. None of these three answers is in conflict with the others; they simply respond to the question on different levels. In the same way, some questions lead to answers from science and answers from theology that are distinct and different, but not in conflict because they're responding on different levels.

The position of the atheists is incoherent.

b) The position of the atheists is *incoherent*. By that is meant that it conflicts with itself. They use the properties of the human mind to deny the existence of the human mind. As Bernard Lonergan explained in *Insight*, you do three things in order to know something: you *pay attention* to the source, you *understand* the meaning of what is being said, and you *evaluate* or judge whether it is correct. The mind does these things all the time. But *scientific materialism* overlooks that, and in so doing answers only at the level of brain function, synapses, etc—failing to see the mental process they're carrying out.

c) Haught suggests that God draws evolution toward Himself from the future. It's not a matter of a one-shot creation, then letting it run by itself. Rather, God is inducing, pulling on, inviting evolution to move toward Him. The development of complexity in natural processes is such a step. The synthesis put forth by Teilhard de Chardin is well-aligned with this outlook.

What Haught has accomplished is this: He has undercut the atheists' argument, which was based on a materialist viewpoint, a view that did not allow for more than one level of answer. (All they would see is the ink on the page.) He has shown that their line of thinking leads to a dead end (no human mind), and that conclusion is *incoherent* because it conflicts with itself. Finally, Haught has offered an alternative way of looking at evolution, which puts God at the focus and presents an explanatory reason for evolution's path of development.

Stem Cell Technology: There are cells that can change and develop into other kinds of cells within the body, and these are known as *stem cells*. Some diseases can be treated by introducing such cells. The most familiar application is transplanting bone marrow, where the stem cells in bone marrow are put to use by other organs of the body.

The most versatile type of stem cells are those that are *totipotent*, able to transform into *any* kind of cell in the body. A decade ago, it was believed necessary to get those from human embryos, but that process resulted in killing the embryo. The pursuit of this line of activity is known as *Embryonic Stem Cell Research* (ESCR).

However, scientific progress has been excellent in recent years, and it is now possible to reprogram ordinary (adult) stem cells. This line of research carries the letters ASCR. Such cells can be scraped off your skin (which, incidentally, has a perfect DNA match to your own body, so there won't be any immune-rejection response) and can be returned to the earliest stage of development, from whence they turn into any other type of cell that is needed. Consequently, the goal of stem cell therapy is accessible without disturbing any embryos.

The Catholic Church is strongly supportive of ASCR, but condemns ESCR because it ends the life of a very small human being. Unfortunately, the general public usually isn't even aware that there is a difference. The stem cells within the umbilical cord of a newborn baby are technically part of the *adult* classification, but too many people assume that because umbilical cords are associated with babies, they must contain *embryonic* stem cells. The media (always looking to promote a fight) incorrectly accuses the Church of opposing medical progress.

To date, ASCR has successfully treated over 70 diseases, while ESCR has had zero successes. We can hope that the avenue having real merit will eventually be selected by the medical profession.

Conclusion

A presentation of this type strives to convey to the listener a level of comfort that science and religion are *not* enemies. The phrase made famous by Pope John Paul II "Be Not

Afraid" is our bumper sticker slogan. As members of ITEST, the principle that unites us is our shared belief that faith and science are complimentary pathways toward God. We subscribe to St. Augustine's dictum that the two books will not be in conflict. We want to explore *both* the visible and invisible aspects of creation; and we emphatically reject those who ***believe*** that only the scientifically-accessible exists. It is the human yearning to know more that draws us toward God, and that yearning is what ultimately motivates scientific inquiry.

As members of ITEST, the principle that unites us is our shared belief that faith and science are complimentary pathways toward God.

As a physicist, the appreciation I have for the symmetry and beauty of the laws of physics points toward the magnificent power of God. Another ITEST member of a different discipline will have other preferred insights that lead in the same direction—unifying faith and science. Still, every one of us is capable of going out and sharing our perception with those around us. It really is easy to do so with a church audience, most of whom have never heard an encouraging word about the intersection of faith and science. ITEST is just about "the only game in town" for those seeking this compatibility.

If you're inclined to try this, we'll be happy to offer guidance, review and support for your endeavor.

A Caution about the Technical Revolution.

A Reflection on technology in our lives by Henri Nouwen

Freiburg is the city of Martin Heidegger (1889-1976). Shortly after I arrived here, a friend drove me past 47 Rötebuckweg, where Heidegger lived and wrote many of his philosophical works.

There are few philosophers who have had as much influence on my thinking as Martin Heidegger. Though I never studied Heidegger directly, many of the philosophers, psychologists, and theologians who formed my thinking were deeply influenced by him. Walgrave, Binswanger and Rahner cannot be fully understood apart from Heidegger's existentialism.

Today I read short address given in 1955 in Messkirch, his birthplace, in honor of the musician Conrad Kreutzer, who was also born there. The address is entitled "Gelassenheit." Heidegger states that the greatest danger of our time is that the calculating way of thinking, that is part of the technical revolution, will become the dominating and exclusive way of thinking. Why is this so dangerous?

Heidegger says, "Because then we would find, together with the highest and the most successful development of our thinking on the calculating level, an indifference towards reflection and a complete thoughtlessness. . . then humanity would have renounced and thrown away what is most its own, its ability to reflect. What is at stake is to save the essence of humanity. What is at stake is to keep alive our reflective thinking (*das nachdenken).*"

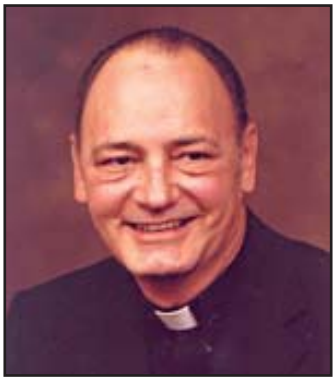
Heidegger calls for an attitude in which we say "yes" to the new techniques, insofar as they serve our daily lives, and "no" when they claim our whole being. He calls for a Gelassenheit zu Dingen (letting reality speak) and an openness to the mystery of things. This calmness and openness, Heidegger says, will give us a new rootedness, a new groundedness, a new sense of belonging. Thus we can remain reflective human beings and prevent ourselves from becoming victims of a "calculating" existence.

It is clear how important Heidegger's thoughts remain today. We need to safeguard our reflective minds more than ever. Indirectly, Heidegger also touches on the need for a new spirituality, a new way of being in the world, without being of it.

From *A Restless Soul: Mediations from the Road*
by Henri Nouwen 2007

"Technology, Faith and How We Die"

From Unpublished papers of Fr. Robert Brungs, SJ (circa 1990)



My younger sister loves birds and small animals like squirrels. When she and her husband moved to the country she lost no time in beginning to feed the little creatures. She loves to watch the antics of the birds and squirrels, both of whom seem to love sunflower seeds, suet and other goodies. She knew when she began to feed them that she was disrupting the natural rhythms of their lives and that they would become dependent on her. She was wise enough to realize that she was entering into a tacit agreement with them that as long as she was there she would provide the food. And, of course, if I may be anthropomorphic they rather explicitly agreed to show up to eat the food.

In our technological progress, especially in medicine, we have made gigantic strides. We need only mention diagnostic breakthroughs like CAT and PET scanners and nuclear magnetic resonance techniques and chemical tests of many kinds, new drugs and even new families of drugs, amazing new types of cardiac surgery or neurosurgery, new and better ways to provide food and liquids for those who cannot eat or drink by themselves, and so on. There is no denying that we all have profited immensely from these products of human genius. We can legitimately look with wonder at the accomplishments of all the scientists and technologists whose work and thought have made all this possible.

Yet, all is not perfect in Paradise. There are shadows lurking in the wake of this magnificent effort and success. We face the problem that we can now succeed technologically in keeping people alive long after they would have died in the natural rhythm of things. Sure, almost always we want to live longer and, if possible, better. Yet the problem is the same that my sister encountered when she began to feed the birds and the animals. The success of medical science and technology has altered the natural rhythm of living and dying and we have not paid enough attention to that fact. It sometimes seems to me that we, as a society assumed that we could easily and almost automatically incorporate this new understanding and these new techniques into our lives without any significant dislocation in our understanding of human living. Unfortunately it has not turned out this way, as growing worries begin to occupy our thoughts.

I think that when it comes to such distinctions and to such issues my sister's wisdom may have something to offer. Unquestionably the new technologies we have embraced and now hold close have altered very long established human rhythms. In so doing, have the medical scientists and medical practitioners, without adverting to it, entered into a tacit agreement with patients? That tacit agreement, in the context of prolonging life, might be stated in this way: "If you are willing to accept my help in, say, the insertion of this feeding tube, I hold myself responsible for your food and drink. I know that you will become dependent on my help and so I pledge myself to be responsible for you." Either we consciously accept this tacit agreement or we should make explicit the alternative: "I will help you out now in your present difficulty, but if it is prolonged to the point where either you or your relatives or I decide that enough is enough, then I am no longer responsible to help you." That would at least alert the patient to the fact that the tube may be removed when somebody, more often than not— someone other than the patient—thinks it is appropriate. That, at least, would be honest.

My personal belief is that this is not a matter for experts to decide, whether they be expert in law, medicine or ethics. This is a human issue and should be decided by those who will face it, namely, many of us. It should be a matter of consensus of some kind, not a question of law or philosophy. It may take our pluralistic society some time to arrive at such a consensus. I know that my ideas on the subject would not appeal to many. But it is something to be dealt with by us all, both intellectually and emotionally. I have little patience with those who disdain emotional debates as if the human should be some kind of dispassionate mind floating around in space. All the important issues of our time (racism, abortion, abuse and

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oppression of all kinds, sexism and so on) are emotional issues—as they should be.

How do I see the issues of the removal of food and drink from the mentally incapacitated, the comatose, the dying? I do not see the solution in arguing about whether or not "artificially" providing food and water is medicinal and therefore can be suspended when there is no hope of recovery or at the request of the patient. My only thought here is a simple one for a Christian and a Catholic priest: "Come ye blessed of my Father. . . . I was hungry and you gave me to eat. I was thirsty and you gave me to drink."

Whatever one's ideas are on this particular matter, the set of issues involved in medical science and technology will grow more neuralgic the longer we postpone realizing that we are responsible for altering the natural human rhythms. I find nothing wrong in principle in so altering these rhythms, but I see a great deal of wrong in not recognizing what we are doing.

I come back to my little sister's wisdom. When we intervene in nature, in these natural rhythms, we assume responsibility. I hope we are willing to study this in sympathy, with empathy and with love that goes beyond the financial bottom line.

"From `dotage' to `Anecdotage'."

(Opening message ITEST Bulletin Fall, 1992, Vol. 23, No. 4)

By Fr. Robert Brungs, SJ

"…I long for more spontaneity in the perception of life and, most especially, in its living. God did not give us a world where everything would fall into recognizable patterns if only we could find the correct theory. He did not set up a world where reason was the dominant end and means. I believe in my heart that he set up a world open to my (and everyone else's) spontaneity, passion and love. I see more clearly and yearn for more deeply a world where beauty is at least as important as reason—and vastly more important than logical planning.

"We talk about a world where we shall plan the direction of our future growth and, indeed, from time to time it seems as if we are working out ways of achieving that. Perhaps we should think about that and ask ourselves if we want to live in a neat planned world or one messy with surprises. I personally will opt for the surprising world over the planned one. I'd like a world where we make a spontaneous contribution to the growth of the Kingdom, even if it's no more than an unplanned moment of awe before the beauty of a flower or a sunset or a person. Or God.

Energy Saving Tips

Save 35 cents a day!
Change your furnace air filters regularly

"Out of sight, out of mind" is the best way to describe furnace filters. They sit in the return air duct at the entry to your furnace or air conditioner, and take out dust from the incoming air stream that has been flowing through your home. Over time they gather a lot of dust, become clogged, and then the total air flow diminishes. With lower efficiency, it takes more fuel or electricity to keep the house comfortable.

A furnace filter is a flat thing made of blue gauze and about a half inch thick. It's a good idea to replace the old ones about every 6 weeks, but many people forget. They slide out very easily; nothing to unscrew, no wiring involved – definitely a "Harry Homeowner" activity. Hardware stores sell a package of a dozen for about $5. Different furnaces require different sizes, so carry an old one into the hardware store to match it.

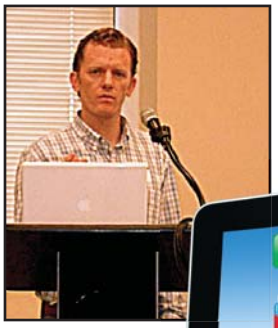
More advanced filters that capture finer dust are available for a higher price, and persons with medical/ breathing issues may judge that worthwhile. But everyone can save a little by having their heating/cooling system run more efficiently.

A workshop on Cyberspace Safety for Teens in an Age of Facebook, Twitter and Texting

Photo Wrap-up

Cheryl Harness and
Sr. Kathleen Coogan, ASCJ

John Ashby and
Sr. Marianne Postiglione, RSM



Travis Smith,
Speaker

Workshop attendees enjoy a break

Tom Sheahen, Director of ITEST
and Judge Thad Niemira

Carmen Serio,
Sr. Marianne Postiglione, RSM and
Sr. Thomas More Daily

Presenters: Bart Niedner *(standing)* Mike
Schottenhaml and Detective Jim Karase

Thanks to our workshop sponsors and attendees.

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