ELEPHANTS IN THE LIVING ROOM

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BR. GUY CONSOLMAGNO

SACRED SCRIPTURE, CREATION AND THE EVOLUTION OF THE UNIVERSE
ST. ROBERT BELLARMINE
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Introduction   Fr. Tom Lumpkin

We've been doing these programs, the Elephants have, for 12 or 13 years now. This is the first time we have had a planetary scientist as a speaker here. (Laughter) I think he will be interesting because he comes advertised as a very good speaker. He recently won an award named after Carl Sagan from the American Astronomical Society, who gave him an award for his ability to communicate scientific learning in a way that is accessible and understandable to the general public. And he is the first person of explicit religious faith, meaning he is a Jesuit Brother, to receive that award. And as an example of that that kind of accessibility there is a book out there that he co-authored, entitled: *Would You Baptize an Extraterrestrial?* (Laughter). And I am going to let him give an answer to that if he wants to. And this is another thing that makes it interesting is that he is assigned presently, a Jesuit brother, to the Vatican Observatory; and I bet you didn't even know that the Vatican had an observatory. Years ago they put Galileo in prison for saying that the earth revolved around the sun and now we have an Observatory. We have one in Castle Gandolfo and we have one in Tucson, Arizona; and Br. Guy is assigned there. So he has come to speak to us today on the topic, *Sacred Scripture, Creation and the Evolution of the Universe*. And we ask you to welcome Brother Guy Consolmagno. (Applause)

Sacred Scripture, Creation and the Evolution of the Universe   Br. Guy Consolmagno

It's a pleasure to be back in Detroit. I know I was here when they still referred to Orion as Orion, as in Lake Orion. (Laughter) I as you know, went to U of D High. I was actually a proud student at Our Lady Queen of Martyrs; so I am very happy to have had the privilege of the education I got at both of those places. A lot of people are surprised about the Observatory; so, rather than talking about the talk I am going to give, before I give that talk, I do want to show a short film which will explain a little bit about the Observatory - and if we are lucky the microphone will be able to pick it up and you will be able to hear it.

The Vatican Observatory [1]
"Both science and religion are conversations about the universe. They are ways in how we interact with the universe. It's not simply a question of, is there a God, but there is a God. Now what do we do? It's not just a question of there are a bunch of stars, but whether, why are there stars? How do they work? How does that tell us how things work on earth? The interaction that I see in my own life is that religion gives one the reason to do the science." [Br. Guy Consolmagno, S.J., President, Vatican Observatory Foundation]

"Back in the papacy before Francis was Benedict. And one his lines in a final elocution to the Fathers of the General Congregation was, 'Go to the frontiers.' Well, there isn't much more frontiers than 3.17 billion years away." [Fr. Albert Diulio, S.J., President-emeritus, Vatican Observatory Foundation]

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"In the interests of the Church, astronomy started in 1582 with the reform of the calendar. Then, in 1891, Pope Leo XIII wanted to have an observatory to show that the Church is not against science, but the Church promotes good science." [Fr. Jose Gabriel, S.J., Director of the Vatican Observatory Foundation]

"They started out by having telescopes on the Tower of the Wind, and then around the walls of the Vatican, as the city lights grow and as the Italian government gives back the territory at Castelgondolfo. In the 1930s they build new telescopes on the roof of the papal palace in Castelgondolfo, the best telescopes of that era in the 1930s. In the 1980s pollution makes those telescopes unusable; so we build a new telescope in the dark skies of Arizona." [Br. Guy Consolmagno]

"I am Fr. Jean-Baptiste Kikwaya. I am working on three projects. The first one is NEOS - near earth objects. So what I am doing with NEOS is observe them using our modern VAT telescopes. The second project is MISIOS. I work on MIDIOS, on what we call shooting stars. And the third project is a set eyeball network, those working under us here and in Tucson, so that we can monitor any fireballs getting into the earth's atmosphere." [Fr. Jean-Baptiste Kikwaya, S.J., Vatican Observatory]

"This telescope – Vatican Advanced Technology Telescope – was the first of the new technology telescopes that has been pretty much considered the norm now in developing telescopes. With the advanced of computer technology, we have the capability of bringing that advanced technology directly into our telescope. So it's an expandable. It's almost like a living machine; so it can grow as technology grows." [Ben Dalby, Board Member, Vatican Observatory Foundation]

"It is still very important to maintain scientific research at the Vatican, simply because there is still a lot of confusion about the relationship between science and faith. We're not here trying to prove the existence of God by looking through a telescope. That's not what we're doing. But we can say that if we want to obtain any reasonable results looking through that telescope, we need to do ig embracing a certain work ethic that is in fact the same work ethics that the Bible itself tells us through the commandments and through the Gospels to embrace." [Fr. Paul Gabon, S.J., Vice-Director, Vatican Observatory]

"Human beings look at the stars and wonder. They want to know, what is that? What is that about? How do I fit in? They hear about the moon landing; and they want to know, what was that like? If we're part of the human race, we're part of the race that went to the moon. We're part of the species that looked at the stars and wondered, 'What the heck are those things?' Looking at the stars reminds you, there's more to the universe than what's for lunch. What's more¸ if you believe in the universe, that god so loved that he sent his son, that not only are you want to study the universe, because it's kind of cool, it's an act of worship; it's an act of getting closer to the Creator. And getting closer to the universe, as St. Athanasius said 1500 years ago, was cleansed and quickened by the Incarnation. Then, doing science is an act of worship." [Br. Consolmagno]

Now, the difficulty in a number of books; some of them do talk about the beauty of nature - I'm not here to sell books, because this book is out of print, you can't get it anymore, but it does tell that - and this is the book commissioned by Cardinal Viola, who is essentially a native of Vatican City - the guy who pays our bills - to remind the world of the Vatican's interest in the beauty of nature, studying nature, becoming aware of nature. And the reason we have an Observatory is to remind Catholics that science is a way of understanding the Creator.

This one is still in print: *Would You Baptize an Extraterrestrial;* and the subtitle: *And Other Questions from the Astronomers.* And they are good questions; they are not stupid questions; they are good questions: about the Church and its relationship to science; how we understand the *star of Bethlehem*; how we understand the beginning of the universe , the end of the universe; and, more importantly, why we think those things are important. Also, there is a really long chapter about Galileo. I just want to mention that Galileo was never sent to prison. Everything you know about Galileo is wrong. The truth doesn't make the Church look any better. (Laughter) So it goes. But the real story I want to talk to you people today about is a slightly different shift on this; because, I think you already know the beauty of nature; and you already know the beauty of science, and how science can bring us closer to nature. But where I want to go is to talk about the people who are a connection.

Now this was an article (pointing to a slide on the screen) that appeared in the U. S. Catholic a couple of months ago. It reminds me that my root to science was really science fiction. And it was at a Science Fiction Convention about ten years ago that a friend of mine from my MIT days showed up with her husband. And the two of them asked me about, you know, "How do you make this religion thing work in your life?" They're engineers, very sharp engineers. But they're asking this question not to ask, "How do you reconcile this kind of religion," because they don't need to reconcile, they don't need me. What they wanted to know was, "How do you make it happen? How do you make it work?" Because they were raising two sons, they wanted to figure out how to make it work in their family. And that question of how does it work is the key question to being a *techie*. Now what do I mean by a techie? A techie is someone who makes their living in science fiction; sure, but it is more than that. It is somebody whose orientation to the world is based on the *how does it work* question. I mean if I were a philosopher; the philosopher wants to know: what is truth? You find the artist; the artist wants to know: what is being. But you find the techie; and the techie wants to know: how does it work? It is a completely different way of viewing the universe. And a lot of people forget that, you hear on cable TV about the eternal war between science and religion, let me remind you that if you hear it on cable TV it's not true. (Laughter) Every parish here in Detroit, every parish in America is filled with people who work in high tech industries. We live the life of science and religion. How do we do it?

A few years ago I was invited to go to Houston - you know, I am from Detroit; Houston's kind of scary - I was invited to do a bible study. You know, I am a Catholic; Catholics don't do bible study. I was invited to go to Houston to do a bible study with a bunch of astronauts. Oh astronauts I can do that, yeah. Turns out half the astronauts there were Catholics but among the astronauts was one fellow who was a good Protestant; and he said, "You know, as a brother I just wanted to make you understand that I am different from you. I believe that the world was created, like it says in Bible, in six days, the order of creation." And I asked if he actually read the Bible, where it said the world was flat, and there was a dome separating the water above from the water below. You know, how come the shuttle doesn't get wet? (Laughter)

But then I realized, talking to him some more, that his job before he was an astronaut he was a test pilot. And you do not want a test pilot who is in the habit of creatively reinterpreting his written instructions. (Laughter) There are certain things in the job description that make it likely to be very liberal.   Have any of you here ever attended a Mass said by a priest who use to be an engineer. They handle things as if I drop a semicolon the Mass will not compile. (Laughter) They tend to be sticklers for the rubrics because that is the mindset. And it is a lovely mindset to have to do certain jobs; but just don't ask them to go down to the Art Museum and understand modern art. For a lot of occupations that kind of mindset is necessary to do the job. But more than that, that kind of mindset has infiltrated our modern society where we immediately tend to take a piece of paper and read it as though it was the owner's manual. But more than that remember, a hundred years ago most of the Catholics in America, people with vowels at the end of their names like Lewandowski or Consolmagno, most of us came here and were workers in factories; and we had a Church who knew how to talk to the workers in the factories, because we had people who came out of the same milieu. Well, guess what? All of our grandparents had us; and most of us had a college education; and most of us are living and doing different types of jobs. And most of us are hoping to have a Church who can continue to talk to us where we are now.

And so I challenge you who work at the parishes, I challenge you who are in the parishes to ask yourself how you are doing dealing with the people who are reaching out to understand the physical universe. There is a cartoon, and it is a group meditating, and the leader of the meditation says, "In your mind's browser, clear your cache, delete your history, navigate to a blank web page." (Laughter) I have a friend of mine who is going through RCIA at the university, and he's an engineer. And in the RCIA program it is getting people to come closer to God, understand how God loves you, and he kept saying, "Yeah, but when are they going to tell me the rules? You know, I need to know about the rules." Everything that the RCIA instructor was telling him was meaningless, because he didn't have a way of understanding the words that she was talking about. I had another colleague who was describing about going to a retreat and the retreat director said, "Image yourself as a photo camera: what settings are required, what F-stop to be used, etc."   The language we use to describe God by necessity is poetic language because obviously God can't be contained in an owner's manual. But poetry only works if it refers to things that people can understand.

About 10 years ago I did a program with the Jesuits. This is a program where they pull you out of whatever you were doing and have you live someplace new, do something different, challenge your way of life, do a whole lot of other studies. So, for me, they pulled me out of my scientific work and said, "You're a problem; you're useless in a parish; what else could you possibly do?" (Laughter) I went to the Jesuit University in Santa Clara, which is the heart of Silicon Valley; and I said I am going to do six weeks

of spiritual conversation with techies. I am going to ask my friends, and then friends of friends, and then friends of those friends, talk to scientist and engineers who are at universities or with NASA, or at high tech companies, and ask them about their religion. What do they believe? How do they believe it? What are the issues that they come up with? How do they deal with the big questions among them? I thought of it initially as just an exercise, but of course if it came in the middle of, this lovely book, (*God's Mechanics*), which is also out of print. And in the book I basically took twenty six of the conversations and gave people names of the alphabet from A to Z. And I talk about a few, not all twenty six, but a few of the things that I heard talking to the techies. Some of them were believers, some of them were not believers, and awful lot were kind of in between, which is an interesting place to be.

- The first couple I talked with were Allen and Beth. He's an astronomer she's a medical assistant. I'm in their home. It's full of toys, only some of which belong to the kids; and they are church shopping. She was raised a Catholic, left it behind years ago. He was raised a Unitarian, and left that behind years ago. He's a fallen away Unitarian. (Laugher) But they are shopping for a church now because their kids are getting to be of the age where they want to give them something to believe in. And so I asked them outright, "What are the features that you look for when you are shopping. What worries them?" And Beth says she wants something that has great liturgy, bells and smells, that sort of thing. And Allen says he wants intellectual content. And he says, "You know, all of the major religions are pretty much the same; after all they all have intellectual content. I can't possibly know which one is true. I just wouldn't want a religion that was obviously false." "Okay. What religions are obviously false?" "Well there are Catholics, Lutherans, Jewish; it's all the same." He named two religions that he certainly would not belong to because they were obviously false.

  Let's get to the sense of the mindset of a techie. Can you guess what the two religions were? Remember, this was California. (One person in the audience says, "Scientology.") Scientology! Number one! Everybody I have asked has immediately said, "Scientology." Can you guess what the other one was? (Audience: "Moonies, Christian Science, the Mormons") The Mormons - which is ironic, because my MIT professor and thesis advisor was a Mormon - there are plenty of Mormons who are techies. But it is curious that the sense of what is true is not nearly as important as the sense of what will work. You know, so you want a religion that is full featured, but you want a religion that is fair, that won't lead you wrong. It's a completely different way of looking at religion. "Why do you believe in God?" To a techie that question has a completely different meaning than it has to the non-techie. It's not to ask, "Where did I have the religious experience that showed me that God is real," but rather, "What good is it to believe in God? What function does that have in my life? And it does have functions? There are those questions you have at three in the morning. Why is there something instead of nothing? Maybe that doesn't have an answer, but believing in God gives me a way that I can come to grips with those creative questions. There are questions about what is the meaning of my life? But if I hypothesize about God, then I have a framework, a coordinate system against which I can compare myself in where I am going and what I want to do." It's a very different way of looking at religion that a techie has. But it something I've been coming up against; and I keep hearing about over and over again.

- Carol and David: classic examples of this; both of them scientists. Carol says - she is a Methodist - she says she believes in God, because believing in God makes her a better person. A very functional sort of reason. You don't ask how you judge better or worse; she thinks she already knows how to do that. But, she believes going to a church makes her a better person; so it's useful. David has a different twist. He says, "You know, when I was young, I was Presbyterian; and there was a great youth group I belonged to; and one day the youth minister brought in a rabbi and a priest. And the rabbi gave us a talk; and he was really good. And then, the priest gave us a talk; and he was really good. And then, a leader of our Presbyterian group gave a talk; and he was really good. But I stood there thinking, 'You know, they can't all be right. Therefore, they must all be wrong'." (Laughter) And he stopped believing. Now I'll tell you what: when you study religion you discover a lot of fallacies are glaring; but to a scientist, if changing the variable doesn't change anything, that variable can't be important. Mind you, he didn't realize that changing the variable to Scientology or to Mormonism obviously does change things; so the variable does matter. It's more to the point that he wasn't able to see any gradation of difference.

I was talking to a math professor who taught math to engineers, and he said, "You know, the difference of religions is like different functions that describe the same phenomena. Some functions converge on the truth faster than others." This is the language that we hear. But you discover that this is also the question of how do you deal with this universe that seems to have more than one religion. It's the universe that

really bothers techies. And it bothers them in odd ways, because they then come to unusual ways of dealing with the question. I have a contact with a guy who is an artist, but he lived in northern California, kind of a leftover hippie, a Cal Tech graduate, who then went on to become a professional photographer of nature. And he's got this wide, wide shirt and a gray beard and a wide collar; and, like me, a Jesuit and a brother, he is both an artist and a nerd. And he is able to talk to both sides; and you get talking together about how do different techies deal with the question of whether or not there's religion?

- So one answer we got before, "They can't all be right; therefore, they must all be wrong." We've seen that before.
- "They're all right," some people say; "They are just different descriptions of the same thing."
- A third group: "Different religions are like different computer operating systems. The one that's right for you depends on how you are wired." (Laughter) You know, I can't use my app system on his PC.
- "Different religions are different approximations of the truth and some approximations are closer to the truth than others." Or, at least, they converge on the truth faster than others.
- Or, finally, you could argue: "Different religions are like different kinds of physics." I mean, Aristotle had a way of describing the universe 2000 years ago. It was wonderful common sense, but ultimately, it wasn't true. Isaac Newton came up with a much better version of the universe that allowed you to build airplanes and construct bridges; and that was especially an improvement; and everybody thought we've finally got it solved, until one quantum physicist came along and said, "You know, it works for a while, and then eventually fails." What's curious is that some of these are scientists' answers. To my mind, the scientists, we're the ones who are worried about which religion is true; the engineers would worry about which religion works best, which religion fits my operating system best?

You know, I'm a Catholic; I'm also a scientist. I like to think that my Protestant friends are good people and they've got systems that work most of the time. But at the edges, at the ultimate places where they are afraid to be complicated: "Any system that I can understand, any religion that I can understand. can't possibly be true." And I think, having grown up in a world of Catholic theology, made me ready for quantum physics. If you understand quantum physics, you've got a problem. (Laughter) At MIT the dorm I lived in was right next to the chapel; and I went to a lot of universities; and I talked to young people; I talked to older people. One thing I find is that the younger people, the students raised in the Church, they come to college, they put all that aside; and, of course they say, "That can't possibly be true;" but they keep asking the deep questions; they keep asking the real questions. They get older; they get married; they start a family; they join their wife's church, almost always. (Laughter) And so you've got this wonderful contradiction. One of the guys says, "Yeah, I left the Catholic Church when I was 18, 'cause it have too many rules than I do now." "What are you now?" "Seventh Day Adventist." (Laughter) But what happens is even though they say they are leaving the Church at age 18, they are still asking the deep questions. They really have of God. Even though they say they are members of a church when they are 40, they still have the same doubts and the same worries.

One of the weird things that I discovered, being at the Vatican and having my techie friends come visit me, is that an awful lot of the things that we in our own Catholic faith tend to put aside or are embarrassed by turn out to have an incredible power to techies. I remember going through St. Peter's with one friend of mine; and he is looking at this magnificent building: kind of gaudy, kind of big, kind of over the top. And he's going, " Wow! The people who built this place, they believed this stuff." Oh, yeah?" But he's having a religious experience by recognizing that the people who could do that, were doing that for God: there must be something to this. He went back and joined the Church. Another friend saw one of those posters who has all the popes going back to the year 366 or how many there are now; and he goes, "You can do that?" "Well, yeah! "You know, this Church wasn't invented yesterday." "Wow!" You see, if you are a techie, if you are an engineer, your self-identity is based on your authority, the fact that "I know how to make religion work and you don't, that's why you listen to me."

Like the centurion in the Gospel, they get what authority is; and they are looking for authority. And if the only authority they see is the guy in the pulpit who can't make the microphone work, they are going to ask, "Why should I listen to him?" And if the pastor giving the homily is going to say, "Hey, I'm one of you guys; we are all in this together; we are all searching together," they are going to ask, "Why should I listen to you, I'm smarter than you after all." Every engineer is convinced that he's the smartest guy in the world by the way; which leads to the fact that every engineer in the world is open to the fallacy of being the smartest guy in the world. "I'm the smartest guy in the world everybody else in this room knows that UFOs are bunk. Well, for that very reason, I am going to believe in UFOs, because what's the point of agreeing with everybody else if I'm smarter than everyone else in the room." This is the way they think.

You've got to give them a reason to show that you have authority. You'd certainly better know more than the guy they saw on the internet, the guy they saw on cable TV. Part of that authority is to recognize our own mystery.

The picture up here (a slide on the screen) is Robert Millikan. Now, only the scientists here know who he is. He is the fellow who showed that electrons are individual objects and measured the mass and the charge of the electron; and this leads to our fundamental understanding of quantum physics and everything in electronics. We wouldn't be able to do electronics without his discovery.   The guy on the right (another slide) with the wild hair – Einstein - you know who he was. The guy in the middle with the Roman collar, Georges Lemaitre, was a Belgian mathematician who took the equations of Einstein's theory of relativity, scratched his head and said, "You realize this means the universe is expanding. And if the universe is expanding, it must have been much smaller, and much more dense in the past. And it must have been a tiny zero when the universe was infinitely dense." He called it the *cosmic sea*. The other astronomers in his day thought that he was trying to resurrect the Bible into creation; and so they responded by calling it the *big bang theory*. The next time somebody tries to tell you that the big bang theory shows that we don't need a creator God - fifty years ago they were saying that the big bang theory couldn't be real because it showed we did need a creator God. Both statements are wrong, by the way.

Pius XII wanted to reference the big bang saying, "It was interesting for science to say. Genesis was right." And the creationist were saying, 'Oh, No! No! No! That's not what creation out of nothing means. Creation out of nothing is not God set things off four billion years ago, or fourteen billions years ago, and then walked away. That's not what creation is. Creation is something that occurs outside of time continually every second of every moment.

Most recently Stephen Hawking came out with a book a few years ago that said that, "Ahah! I can cause the big bang by fluctuation of the priority gravitational field; therefore, there is no need for God." Now wait a minute. Now wait a minute. If your definition of God is that which set off the big bang - which is not my definition of God by the way - but if that is your definition of God, that is, what set off the big bang; and then you say the gravity field is what set off the big bang, you're not saying, "There is no God," you are saying, "God is gravity," which is kind of silly, though it does explain why Catholics celebrate Mass. (Laughter) But we have to recognize that even the scientists, who claim to be atheists, have to have a clear idea of the God it is they don't believe in' and pretty often, it's also the God we don't believe in; because I only believe in one more God than the atheists. I don't believe in all the nature Gods that the Romans and Greeks have.

Back to my days at Silicon Valley! This is the headquarters of Apple Computer; and I'm visiting a friend of mine who is an engineer there at Apple. "It's kind of weird: the kids who are looking for truth are afraid they are not going to find it in the Church; but they keep reading the books the Church has passed on from generation to generation. I wonder where they think those books came from. But the people who do belong to a church, are raising their families, are doing it mostly because it is useful," and he said, "Of course, everybody in the computer industry understands this. When we have computer software, we give it away. Likewise, you're giving away the truth of the Bible. How do you make a living at it?" he says, "You're not selling truth; you're selling tech support. And that's what religion is. What's the weekly schedule of maintenance? Tech support." Anyway, that is very strange.

I ran into a fellow while I was at Julian who wrote a book. He's the fellow who looks into the sociology and anthropology of the business world. Xerox Computer asked him to talk to them about the sociology of office work - how do we manage machines and fit in there. And so being a good sociologist and anthropologist, he disguised himself as the Xerox copier repairman, went to Xerox copier repair school, come out; and they are sitting around waiting for their beepers to go off. And then, wrote a thesis - honest to God - on the culture of a Xerox copier repairman. And the truth is this: Xerox, in its infinite wisdom, assumes that most repairman can't understand how the copiers they repair actually work. So, they give them a big manual: "If you see error code 101 do this; if you see error code 102 do that," and so on, all the way down. But they don't have anything in the manual about what you do when someone left a baloney sandwich in the paper feeder. So, what they really do is, sit around actually waiting for their beepers to go off; and they have created this oral culture. They passed on the stories about what do you do when this happens; what do you do when that happens; and they take the manuals; and they back engineer. What they say is: "This must be what the machine is doing." And they wind up doing repairs that are never really understandable; but they work. And that's how an awful lot of techies deal with religion.

You know, the suits in the high up, they ignore them. The guys giving the homilies, they say, "Oh yes, that's pipe dreams." All the work you guys put into homilies, remember that. (Laughter) But if they're

good, they pick out what are the goals of being a good religious person; and then they invent their own rules for how to achieve those goals - which is sometimes very different from the rules that come out afterwards. In the rules, like they tell you in physics, probably work a lot of the time until you get to these cases, which, if they are lucky, they never will.

After all these conversations I went back to try to figure out: are techies religious or not, even though they go to church? Are they religious or not? What is going on here? The first thing that struck me was that most of them love fantasy and science fiction, as I did, because this is the literature that causes them to confront good and evil, right and wrong, the nature of the universe. A good story is written about somebody with a moral compass. It may not be my moral compass, but if they don't have a moral compass, this story won't work as a story. And this is where they contemplate these things.

So is the case that for them that one religion or another is like getting your coffee at Starbucks is just a choice? Not really. That is not the impression I got from the techies who did belong to a church. But the more I talked to the techies who did belong to a church, I realized that what I had taken as a glib answer, "It makes me a better person," a very functional reason? No. She's saying, "The Church works; it does make me a better person. Therefore, I have reason to trust it." Therefore I have reason to believe what we sell. And that's a gracefulness of faith. And even the techies who didn't belong to a church, when I asked them what do you believe in? And why do you believe? How do you answer those three morning questions? They all knew what I was talking about. There was nobody who gave me a blank stare. Even though some of us are techies, even though some of us are nerds, all of us are human. All of us have that same desire to understand. We live in a wiser universe, a wide eyed universe. "What am I suppose to be doing? How do I keep tract if I am going in the right direction?" Sometimes they are afraid to talk about it; because these are the kind of questions you won't get an honest answer to from just anybody. I had a MIT ring. They trusted me enough to talk to me, but they also are the kinds of questions that you sometimes are even afraid to give yourself an honest answer to. And one of the things that a church can do, especially if you're a nerd who is not use to community, is that it can provide a community.

There's another wrinkle I want to throw into this. In today's world technology is a social justice issue. Technology is geared to economic improvement. Sure! The techie way of looking at the universe in terms of cause and effect is also a thing lacking in a lot of people who are disadvantaged in their society, who don't know how to understand and analyze problems and say, "This is what I can fix; and this is what I can't fix. So yeah, social structure is already changing. I'm not going to change the social structure this afternoon. What can I do for myself right now? What are the causes and effects that I can deal with?" The belief that everything that happens does have a cause, and that some of these causes are under my control, is an incredibly powerful blessing that I think those of us who are privileged just take for granite: that belief that things can get better.

There's something else going on. Jesus himself was a techie. Yeah, I know, the single nail; and try to tell everybody how to improve themselves. Yeah, but beyond the stereotype of the tech, he was a carpenter. He was someone who was not of the *high falutin'* caste of philosophers. You can see when he started preaching in the synagogue. It would be like the plumber, the cable TV guy, getting up and telling you how to lead your life.   When they say in the Gospel, "Who is this guy? He's the carpenter's son." They are saying, "Who is this nerd. Where is he getting this from? The word techie comes from the Greek *technik:* to manipulate nature.

Growing up in Detroit I was used to the *blue collar* of my father's friends, and the respect they had for the skilled tradesmen. It blows my mind when I go back East; it's not that way at all. And that's the way it has been for most of life in most of the cultures. That kind of split means that the techies in our own pews discriminated. What do we do in the parishes? If you are a pastor, do you encourage the scientists and the engineers to talk to your youth groups? Do you encourage them? If half of your parish is convinced that evolution is evil they must be watching cable TV too long. The best way to convince somebody that science is not your enemy is for them to know a scientist. There are scientists in your parish. Have you given them a platform to talk about what they do and why I love it? If you are a scientist, have you volunteered to do that, to set-up an astronomy club with the youth group? To talk to the minister, or whoever you are, about a life of science that you learned, to be visible, to come out of the closet?

A weird thing happened when I became a Jesuit - I have been a scientist for 20 years - and suddenly I have come out of the closet wearing a religious collar to all my astronomy friends? More often than not, what they did was, they come up to me and said, "Do you go to church?" And I said, "Let me tell you about the church I go to," because we gave ourselves permission to talk about religion to each other, and to support each other. And my reaction has been that the number of scientists and engineers who were

church goers pretty much mirrors the general public: in the U.S. 50%, in England 10%, but that's just a cross section of people going to church in those countries anyway. I mean, if you go to a college campus, and you want to find an atheist, go to the English literature department.

More than 10 years have passed since the conversations I had at that science fiction convention. My friends wanted to join the local Episcopal church; the kids sang in the choir. The older wound up going to Rensselaer Polytechnic; and he doesn't believe in that religion stuff; but, you know, he's goin' to get married; he's goin' to start a family. The whole system will start over again. We have to be there to be ready to give them a place to be and a place to go, because without these people, we would never be able to appreciate the heavens, or all the other glories of God's creation that are expressed to us in the science field. Thank you very much. (Applause)

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Transcribed by

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1/ This film clip may be viewed on the Elephants' website.