

## Science and Theology

by Jim Gunshinan

Science began when ancient people started naming things. Within the Western tradition, the Greek philosophers took the names of things, divided them into categories, and began systematizing their observations. This tradition developed logical thought, mathematics, philosophy, and metaphysics, which were applied to architecture, medicine, navigation, metallurgy, and warfare. Later came the experimental method, which allowed scientists to delve more methodically into nature to learn its secrets. There were advances in physics, genetic theory, and biology. There was the Copernican Revolution, and the introduction of Newtonian physics. More recently in the history of science, Quantum Theory, and Einstein's relativity theory have revolutionized our understanding of reality. Discoveries in genetics have revolutionized the way we practice medicine. The computer allows scientists to do everything faster.

Theology, in the Judeo-Christian tradition, began when human beings tried to describe and come to terms with the human experience. People looked to myth and story to explain origins, and death, and why things were the way they were. Out of the Jewish tradition came the belief in a covenantal relationship between human beings, and a transcendent and personal God. Then came Jesus, the God-parson, a bridge between the transcendent deity and the human existential experience. Christian theology became to a great extent a synthesis of Greek philosophical and metaphysical thought and language on the one hand, and the Jewish tradition of the covenant relationship between God and humanity on the other. Jesus became the "hesed" of God, the embodiment of the steadfast covenantal love between God and God's people. Christian theology has grappled with that reality since Jesus, the reality of the God-human relationship. This has been done systematically and not so systematically.

Theologians need scientists to give them knowledge of the world. In the scientific community, with developments in our understanding of the universe and its origins, with Einstein's theories on relativity, and with the breakthroughs in physics at the subatomic level, we are realizing that the world is not what we thought it was. Matter becomes energy, and time becomes relative. We stand at the edge of mystery as scientists. The ongoing scientific revolution needs direction and guidance. Technology is expanding, influencing the world in powerful and threatening ways, and it seemingly has a life of its own. It is common among some scientists to separate science, technology, and values, to see them as mutually exclusive. If we are to survive as a planet of living beings, this can no longer be true. Scientists need theologians to help them see the value of their pursuits, in a larger context.

This brief and impressionistic look at the history of science and theology brings me to the point of why I am writing this paper. I need to integrate the scientist and the theologian in me. I've crossed a border, from the scientific perspective into the theological one, and I need to understand the difference better, and to see what I've brought with me. I need to connect six years of math, chemistry, physics, mechanical engineering, materials science, fluid mechanics, physiology, and research, to sixteen years of philosophy, theology, and ministry. I need to connect the left side of my brain to the right side.

This paper is a dialogue, since, in my experience writing it that is what it has been, a dialogue between the scientist and the theologian within me. I've done some stereotyping here. I haven't represented every scientist, or all of science. I have relied on my experience, which has been mostly on the empirical end of science. I haven't represented every theologian, or all of theology either. My experience has been on the

systematic side of theology, and in pastoral theology. But I have tried to be fair and represent well both sides.

This dialogue has a context. I have provided some categories, to focus upon, and a facilitator to ask pertinent questions, and to help compare. I'll let the scientist and the theologian do the talking, beginning with what is basic to both fields: perception, use of language, goals and processes, and problem solving. Then I'll let them discuss creation and creativity, followed by ministry and technology. The conclusion to this paper will be about the attitudes of both the scientist and the theologian, and how these attitudes, in the end, make all the difference.

### **Basic Comparisons**

Q.= Questioner S.= Scientist T.= Theologian

Q. How do you perceive reality?

S. Sense experience is very important. As a scientist I look for what is verifiable, and repeatable in the laboratory. How I perceive reality is conditioned by my physical perspective, in relationship to the object or process I perceive. Often an experimenter will affect the outcome of an experiment merely by his or her being in relationship to the objects involved in the experiment, either directly or indirectly. How and what I perceive is also conditioned by my prior attitudes, education, and even my socioeconomic background. To a certain extent, we are all preconditioned to see things in a certain way. Scientists are no different. For example, it has been noted that ancient mariners were able to navigate at sea using the planet Venus to guide them, during the daytime! Today we are not preconditioned to see that well. I also experience insight. That is a

process by which a new perception of some reality is made unconsciously, and then comes to consciousness.

T. Sense experience is also important to me. So also, are emotional experiences, and what I call inner experiences, which are dreams, visions, insight, and intuition. As human beings our experiences also include that which is unverifiable, phenomenon such as joy and suffering, faith, hope and love. These spiritual qualities are all part of the data I perceive. I, too, am conditioned by my physical perspectives, by my attitudes, education, and socio-economic background. For example, in Latin America, Liberation Theology is an approach to theology different from that in North America, and in Europe. Liberation Theology emerges from the unique faith experience of the people there. The same can be said for Feminist Theology and Black Theology. These arise out of a particular faith experience.

Q. Then sense experience and insight are important to both of you. And you both admit that you are conditioned by your perspectives and attitudes, which are shaped by your education and socioeconomic backgrounds. The scientist is interested in what is verifiable, and so is the theologian, but the theologian is more concerned with the rest of the human existential experience, which isn't always verifiable.

How about the language that you both use to describe reality?

S. I use highly symbolic language, numbers, and symbols. I use names or labels for things. I also use images and metaphors. My language is suited to precision and to analysis, to logical thought processes. It is best used to describe objects and the relationship of objects.

T. I also use names and symbols, only I use symbols in a different way. In liturgy and in ritual action, the quality of the symbol is important, because the symbol participates in the reality it expresses. I also make use of images and metaphors. I use stories, myth, and parable. My language is suited to an integrative or holistic understanding of life experiences. Stories and myth situate us as individuals and as communities in time.

Q. You both make use of language to convey experiences and understanding. You both use images and metaphors to describe reality. It seems you have common ground there, even if you use images and metaphors to describe different levels of reality. As you have mentioned however, scientific language involves highly symbolic numbers and symbols, which remove one somewhat from reality, to objectify it. Theological language can be descriptive of experience, and relational, although it too is often abstract and objectifying.

What are your goals and the processes you use to get there?

S. I seek to understand nature. I look for general laws or rules governing processes. I look for underlying structures in nature. I solve problems generally by breaking them down into parts, by objectifying. I extrapolate from experience using rational thought processes. I seek to predict the future using general rules or equations. I look for origins in nature. In science the new builds upon the old, even though there have been major shifts in consciousness. For example, Einstein's theories on relativity changed our consciousness of matter and the universe, but this has not negated Newtonian physics without a particular context.

I use tools to aid and enhance perception. For example, I make use of microscopes, telescopes, infrared detectors, and computerized axial tomography.

T. In my work I seek to enlighten life and the human condition by reflecting on experience. I find that images, metaphors, myth, and story all arise out of human experience. These in turn help me to reflect on experience, both personal and communal, and to gain insight into life. As a theologian I try to situate the person in his or her own life story and to relate that person within a faith community. I seek to relate the human person and faith communities to the world at large, and to relate all that to God. By relating the person, the community, and the world to each other, and to transcendent reality, I try to articulate meaning in life.

Theologians draw on tradition, on knowledge passed on from one generation to the next, through scripture and through systematic theology. Theology is at its best when scripture and tradition are constantly being interpreted in the present.

Q. You are both, then, about the task of enlightening human experience. You look for underlying order in nature. The scientist looks for this in matter; the theologian looks for this in life in time. You are both based in your traditions. An historical consciousness is crucial for both of you for new growth and understanding in your fields.

Science tries to analyze and separate things into parts, to look for structures, rules, or laws. On the other hand, theology gives meaning to experience by situating the individual in his or her life, by relating the individual within the community, in the world, and in relationship to God. Two very different pursuits!

How do you go about solving problems in your respective fields?

S. Well, there is the dogmatic approach. I call this the "brute force" method. It's also called "plug and chug". It involves applying existing formulas to a current situation. For

example, if I wanted to know how much sand was at the seashore, I could count each grain one by one. This is an extreme example! Sometimes this approach fits, sometimes it doesn't. It doesn't take a lot of imagination! I can also apply a systematic approach. I lay out the elements of a problem and see what connections I can make. This often leads me to an insight, which is the result of an unconscious process. I like to use the metaphor of a light bulb suddenly going on in my head to describe this unconscious process coming to consciousness.

Also, invention is all about creating systems. An invention puts things in relationship for a particular purpose, usually in a brand-new way. This system can be an end, for example an energy efficient car engine, or it can be a tool for study, such as a microscope, or it can be a new process. Sometimes scientists try to directly mimic a system of nature, for example, the artificial heart.

T. Theologians also use the "dogmatic approach" and apply traditional dogmas or formulas to present situations, as an aid to understanding and decision making. For example, this is sometimes used in the field of ethics. It is the "storehouse of knowledge" approach. It doesn't require a lot of imagination either. There is also the systematic approach. I let me first define "system" here as anything consisting of interrelated elements, arranged for a particular purpose. You can think of the elements as being opposed to one another, or in dialogue with one another, in tension, or other ways of describing a relationship. In theology the systematic approach means laying out a conceptual framework. This puts things in relationship to one another. Some new understanding arises, connections are made, insight happens.

Q. To sum up then, you both apply a dogmatic and a systematic approach to solving problems, for seeking understanding and guidance in your respective areas. The

systematic approach seems to be the most fruitful and requires some imagination. You both recognize an unconscious process, which we will call insight. It is about making connections. You both use systems, but in different ways. We will get more into that in the next section on "Creation and Creativity".

### **Creation and Creativity**

Q. Let's get beyond the fundamentals now and discuss creation and creativity. These are important topics, which will lead to an understanding of applied science and applied theology, which are technology and ministry.

T. Creation for me is the material universe, which is of God, but does not limit God. I find God within creation, most particularly in the human situation. God is in the limit situations having to do with the human existential experience, such as death and suffering, which mark our limits and our creatureliness. I find God in the mystery of birth, and creativity, the newness of life. All of this is what theologian Carl Rahner calls the "categorical" or created reality. At the horizon of created reality God resides as mystery, as both the source and the ultimate end of all creation.

S. Creation for me means the material universe, past, present and future. My interest, as I have said, is in what is verifiable. Transcendent realities, such as God, are not my concern as a scientist. These things I cannot verify. I am interested in matter and energy.

I experience mystery, the unknown or transcendent in limit situations also. One that comes to mind is the origin of the universe, the beginning, before the "Big Bang". Another is in relativity, at the limit marked by the speed of light, where matter becomes

energy, and where light bends. A third is at the subatomic level. As I get closer and closer to the base of all matter, I approach mystery. I also experience my own consciousness and desire to know, as mysterious facts of creation.

Q. Your differences here are obvious. The scientist sees creation as matter and energy. The theologian sees creation as matter, energy, and spirit, which is God in the world. You both recognize mystery and find it at the limits of human experience and knowledge.

Tell us about creativity.

T. Creativity happens within some system, loosely conceived as "elements in relationship". Sometimes it happens when relationships are broken, and new ones begin. The most creative relationship is the relationship between two people. This generates a lot of energy at many levels. There is also a way in which I relate to experience that is creative. Memory meets experience and something new is born. Relating myself, my past and present experiences to scripture is creative.

The creative process is best described using metaphors. A seed that is planted in soil and watered will produce wheat, or corn. Or a seed will grow into a tree and produce fruit in due season. I am the soil, and the seed is the Word of scripture, the experience of another person, or my own memory and experience. The water is any nurturing that I can provide for the seed. The grain and the fruit are something new arising out of the relationship. Another metaphor is childbirth. Again, a seed is planted in me. There is a gestation period in which I nourish the seed growing inside. My body and blood go into the process. When the baby is born, I experience physical pain. I bleed, and experience pain in letting go.

One other metaphor is the encounter with the unknown, the wrestling with God. This represents the most profound kind of creativity, which makes little sense without faith. The encounter is an encounter with death or other limit situations. Through this encounter a person is himself or herself transformed. Wrestling with the mystery, with the unknown causes us mysteriously to die, and to be born again. This is the story of Jacob wrestling with God at the Jaboc Ford. Jacob came from the encounter a changed man, with a new name, and a limp. In my tradition this is also called an experience of the cross.

S. I am creative when I invent things, when I create new systems, or mimic nature's systems. This creativity happens when I put myself in relationship to some object or objects and imagine new possibilities. I am creative when I gain new understanding into a reality in the form of an insight. And I am creative when I create images and metaphors to convey my understanding of reality.

Q. Creativity for both of you is about bringing something new into the world. For the scientist it is a new system, or a new insight into reality that can be passed on. For the theologian creativity involves the whole person. The metaphors that the theologian uses are organic. They describe a process which involves receptivity and nurturing, and which involves dialogue at many levels, a dialogue between people, between persons and experience, and between persons and God.

## **Ministry and Technology**

Now we are finally ready to talk about application. We have discussed fundamentals, language, perception, goals and processes, problem solving and creation and creativity.

How do we apply all this, in ministry for the theologian and in technology for the scientist?

S. I invent systems that aid our material existence. These are used for transportation of people and material goods such as food, and for other forms of communication between individuals, and between communities and nations. In today's ever changing and increasingly volatile international environment, reliable and swift forms of communication are essential for our peaceful coexistence and mutual survival. I help develop agricultural products and methods of production. Unfortunately, I also do weapons research and development.

I do medical research and invent diagnostic equipment. I study the human body and apply that knowledge to assist in the healing of the sick and the broken. I study the human mind and human behavior to heal people who are psychologically or emotionally hurt or diseased. I study society and try to develop healthy social systems.

I extend the boundaries of human understanding in pure research, in studying outer space, the stars and other planets. I invent satellites and other space vehicles that extend our knowledge of space and of our own planet Earth. I search for knowledge about the origin of our planet, and the origins of human development, through the systematic disciplines of physics, geophysics, genetics, and anthropology.

T. Three general areas of ministry are pastoral counseling and spiritual direction, preaching, and liturgical leadership. In these areas we see various ways in which theology is applied. Spiritual direction or other forms of pastoral counseling involve a system of two people. Out of this relationship arise increased awareness and understanding, insight and new life. The director or counselor is himself or herself a tool

of perception. That person is also a human sanctuary, where another can come and live-in trust. I gift people with both my presence and with my perceptions. This requires of me as minister openness in relating to people on many levels. It requires of me an awareness of my own physical, emotional, and spiritual life. I would be remiss if I did not point out what is basic to this process. There is no creativity in this relationship without love and compassion.

Preaching involves a creative process in which I relate to scripture in a systematic way. In the dialogue between scripture, my experience and myself is born something new, connections are made, and imagination is kindled. The Word of scripture is transformed into other words, metaphors and images that will speak to the mind and heart of the hearer. I apply systematic thought and reasoning ability to shape what is born in my imagination into something coherent that others will be able to receive and benefit from. Just as the homily is a product of the Word nurtured in me, the word can be a seed growing in others. With it I may help people enlighten their lives within a faith context. That word must be at times prophetic and challenging.

In liturgical preparation and leadership, I help provide an atmosphere in which a person can encounter the transcendent in Word and in symbolic and ritual action. This includes preparing a suitable physical environment for worship. Here the spirit is nurtured, and through ritual action and the spoken word a person's mind and heart are educated in the truth of the believing community, which is its faith.

### **Attitude Is All**

Immanuel Kant wrote in *The Critique of Pure Reason*, that human reason has gone from the position towards nature as that of a pupil before the teacher, to that of a judge

before a witness (1). Scientists and theologians need to move once again to the attitude of the pupil now that we have matured in our methods. If we have the attitude of a judge interrogating a witness, we will only get the answer we ask for. If we have the attitude of a student before a teacher, we are open to receive much more.

The study of science and theology has given me the ability to make systematic connections between things. This paper is an example of that. Much of this goes on in me unconsciously, leading me to new insights. It is good to be able to discern similarities and differences, to seek common ground on an intellectual or ideological level. Science has also given me the eyes I see with, the eyes of my mind. These are the eyes that analyze and scrutinize, that see things in parts. These eyes have undergone some tempering. The kind of analysis and scrutiny that is suited to objects is not always helpful in dealing with human beings. I've learned this from striving for my own self-understanding. These eyes sometimes "miss the forest for the trees". But they serve me well when I can share my perceptions with another, and in my own self-understanding. I think I have an ability to concentrate and focus that I would not have had accept for my scientific training.

My theological training and ministry experience has been about opening my heart wide enough to let people in, people who are suffering, or who are angry, people who are joyful. It has also been about opening my mind to understand what is going on at different levels of my being. My consciousness has been expanded, through reflecting on my own inner experiences, my own wrestling match with God. Theology has provided me with a language, and a context for dealing with experience.

Through my theological training and ministry experience, I have learned to respect the inner processes of creativity and growth in myself and in others. I have a feeling, like

Claude Levi-Strauss, that what I create is what I am first gifted with, and then pass on. "I have the feeling that my books get written through me and that once they have got across me, I feel empty, and nothing is left" (2). Jesus said, "What you have received freely, freely give" (Matt 10:8). Wherever I find myself in life, in whatever job I hold, I offer my presence, my experiences and my skills. I offer the language of theology, with its stories, images, and metaphor. I offer my knowledge of the material world. I offer my creativity, which has been formed and nourished by my study of both science and theology.

#### ENDNOTES

1. Immanuel Kant, *Critique of Pure Reason*, translation by J.M.D. Meiklejohn, J.M. Dent and Sons, London, 1959 pp.9-10.
2. Claude Levi-Strauss, *Myth and Meaning*, Schocken Books, N.Y., 1979 p.3.