God, Science, and Humility
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In our day, the acceleration of learning through science has become breathtaking. More than half the discoveries in the natural sciences have been made during the twentieth century, and it is estimated that at present the amount of new information is doubling every two and one-half years. Not only is the rate of our learning accelerating, but along with it has come a new awareness of just how big and complex the universe is. Most scientists are now willing to admit that they will never reach the end of learning, and some are even talking about other sources of truth—philosophy and especially theology—as crucial components in the search for reality. A new kind of humility has begun to express itself as we recognize the vastness of God's creation and our very small place in the cosmic scheme of things.

Every person's concept of God is too small. Through humility we can begin to arrive at a true perspective of the infinite mind of God. It is also in humility that we learn from one another, for it makes us open to one another and ready to study things from the other's point of view and share ours with him or her freely. It is by humility that we avoid the sins of pride and intolerance and avoid religious strife. Humility opens the door to the realms of the spirit, and to research and progress in religion.

I have called this new kind of humility, this new awareness of the unlimited, all-pervasive, all-encompassing creative spirit, humility theology. Perhaps this guiding principle will help as we begin a new phase of evolution, a spiritual exploration using the tools of science that have been so productive in the study of the physical universe.

It might be helpful to view humility theology in terms of particular emphases.
Human Limitations

Humility theology recognizes that there are multiplying mysteries, that we may never comprehend more than a small part of reality, and that maybe we are not the only spiritual beings in the visible and invisible cosmos.

Questions we might ask ourselves in pondering this aspect include:

1. If we do not understand why matter or light or gravity exists, could that mean that reality is vastly more complex than humans yet comprehend, just as our ancestors did not comprehend television, germs, atoms, or galaxies?
2. Is the visible only a tiny temporary manifestation of reality?
3. Is it egotistical to think that humans can ever comprehend all of reality or of God or of his nature or of his methods or purposes?
4. Could the comprehension of God and his accelerating creativity and purposes by any species on one little planet be as limited as the comprehension of the ocean and its creativity by a clam or by a little ocean wave?

Progress in Obtaining New Spiritual Information Is Possible

Humility theology says that many wonderful concepts of God in various civilizations are yet only a tiny beginning of humankind’s comprehension of God. Such comprehension may increase more than one hundredfold through the research of enthusiastic scientists.

Questions to ponder:

1. Can human concepts of God expand even more rapidly than our scientific knowledge of the universe?
2. Are there multiplying evidences of purpose and creativity in the universe?
3. How is the search for increasing comprehension of God helped by the New Testament statements “God is love and he who dwells in love dwells in God and God in him” and “With God were all things made and without him was not anything made that was made”?
4. If human information has multiplied more than one hundredfold in only two centuries, will that progress continue to accelerate, so that in the year 2000 information can be more than ten thousand times as great as in 1800?
A New Spirit of Inquiry

Humility theology means enthusiasm for new spiritual information and additional concepts. It signifies an eagerness to learn and a freedom of inquiry.

Questions to ponder:
1. Have human concepts of God always been too small? Too anthropomorphic?
2. Should we listen carefully, thoughtfully, and gratefully to everyone’s concepts of God and God’s purposes for humanity?
3. Were many major religions held back by an unconscious concept that God is somehow separate from reality, a sort of wise old king as in the ancient story of Adam and Eve?
4. What is the evidence that free and loving competition may be part of God’s method for progress, productivity, and prosperity for his children?

The Value of Scientific Research

Humility theology applauds the opportunities for new spiritual information through scientific studies of both the physical and the spiritual spheres. It anticipates a great influx of new ideas and concepts to supplement the wonderful ancient scriptures. It also seeks through research of spiritual laws evidence concerning the benefits of thankfulness, forgiveness, love, etc.

Questions to ponder:
1. Can I be an expression or agent of God in love and creativity?
2. Are there some laws from the great religions that help produce a happy and fruitful life that can be tested by some scientific methods?
3. How can we learn to be helpers in achieving God’s purpose?
4. Is it possible that research in genetics or other sciences can accelerate progress in human intelligence?

Worship

Humility theology is concerned with humility toward God. Past discoveries about the universe and about its Creator can lead to a sense of awe and an overwhelming feeling of thankfulness.
Questions to ponder:
1. Is trying to help God’s creative processes a way to express our thankfulness?
2. What is the evidence that enthusiasm for worship can increase as we learn more of the timeless, limitless, omnipresent God?
3. Can prayer, worship, and service to others help each of us to discover more of the nature of God?
4. What evidence indicates that heaven can be the result of prayer, worship, service and giving, forgiving, thanksgiving, and unlimited love?

This has been an exciting time for the John Templeton Foundation. To aid in this new search for spiritual truth, we have expanded in scope with the formation of a research center dedicated to the acquisition of new spiritual information. The new center has been named the Humility Theology Information Center and has as two of its major goals the sponsoring of various research programs and the formation of an advisory board of respected scientists and theologians interested in progress in obtaining new spiritual information. The chapters that follow are contributions from ten of these advisers.
Introduction

This is a collection of the impressions of ten working scientists, leaders in their fields who have published extensively about their scientific work. Their uniqueness lies, however, in the fact that they have made time to think about the relevance of their science to theological questions.

It has been especially helpful to Sir John Templeton that they have agreed to advise him in his goal of a major expansion in knowledge about divinity, a goal he sees as attainable, as he says in the Foreword to this book, through humility theology, a humble approach to our truth seeking about God. The scientists contributing to this book come from a variety of scientific disciplines and bring a variety of religious experiences to the consideration of humility theology. Probably none of these scientists sees the world and understands God in just the way John Templeton does. But all have been impressed with his humble spirit and his eagerness to know, and we hope these chapters will not only honor the concept of humility theology but also demonstrate the power of a humble approach in the expansion of humanity’s vision of God.

In chapter 1, physicist F. Russell Stannard provides an excellent overview of humility theology. In “Theology as a Science,” he calls for a new conception of theology in which truth is approached in an experimental, hypothetical mode, as is done in the sciences. In fact, he demonstrates that the difference between this experimental approach in theology and scientific methodologies is not great. The hard-core sciences are also faced with much data of a historical, non-repeatable kind. And in the social sciences, we are faced with additional limitations in manipulating social groups or individual patients.

Stannard’s agenda for humility theology would include experimental studies of God’s involvement in creation, the significance of the anthropic principle, the reflection of God in nature, human beings’ religious experience, and the spiritual laws of life.
In chapter 2, physicist and theologian Robert John Russell takes as his primary focus the interaction between cosmology and theology, pointing out that a great opportunity lies before us through the humble approach for mutual learning. Scientists are becoming aware of the limitations of scientific explanations—specifically in the formulation of and choice between cosmological theories—and are beginning to recognize that there are important clues coming from theological and philosophical arguments. On the other hand, theologians are reconsidering what Russell calls “a more nuanced view of creation” and “a robust theological framework” that can meet the rigorous demands of the discoveries and theorizing of the natural sciences.

In chapter 3, Charles L. Harper, Jr., writes with great enthusiasm of the opportunity for a flowering of planetary science through a joint partnership between science and religion. These two disciplines, he argues, need each other. Planetary science holds the potential of revealing many worlds, and religious faith plays an important role in guiding scientific development in directions that are noble and wise. Harper issues a cogent call for fairness in the way science and theology evaluate each other's contributions to the welfare of humanity.

Owen Gingerich, as a historian of science, looks at the other side of humility theology: the possibility that we may be so concerned with being egalitarian that we actually arrive at unreasonable expectations in this case, about the existence and nature of extraterrestrial intelligence. The uniqueness of *Homo sapiens* and our very special environment could mean that, as Gingerich says, “the evolution of intelligent, self-conscious life elsewhere is by no means assured or even probable.”

In chapter 5, “The Limits of Knowledge and the Hope for Progress,” Francisco J. Ayala begins with the surprising contrast between the very brief period of human evolution and its remarkable and utterly unique end product, *Homo sapiens*. Research in the biology of this human species has taken a strong turn in the direction of genetics, but Ayala feels the program for sequencing the entire human genome is receiving far too much emphasis and that it will provide only limited success in achieving the lofty goals set for it. In contrast, he believes that real hope of progress lies with research in two critical areas: ontogenetic decoding (the egg-to-adult transformation) and the mind-brain problem. Cancer and aging are both ontogenetic decoding problems. And understanding how the brain works and how the mind emerges from the brain will be true progress with the real prospect of understanding ourselves.
Psychologist David G. Myers points out in chapter 6 that intuition—immediately knowing something without reasoning or analysis—can be a powerful faculty, but that there are many limitations to this “inner knowing.” Recent research demonstrates that our self-explanation of our behaviors and our reconstructions of past memories and attitudes are often untrustworthy. We should be humble about what we think we know. On the other hand, if some of us suffer from excessive humility (low self-esteem), the majority of us have a “good reputation of ourselves,” a kind of “illusory optimism.” At base is a self-serving bias, the cure for which is, in theology’s words, “in humility count others better than yourselves.”

In “The Case of Chemistry,” Giuseppe Del Re gives us an interesting view of the history of the development of chemistry as a discipline. One salient aim of chemistry has been the transformation of matter, a process of great practical value and one that led to the ancients’ interest in the mysticism of alchemy. Its emphasis on the total personal involvement of the practitioner remains relevant to the science of our day.

The chapter by Herbert Benson and Patricia Myers, “Mind/Body Medicine and Spirituality,” describes an exciting area of research pioneered by Benson and his coworkers in the early 1970s and given national attention through his best-selling book *The Relaxation Response*. More recently, he has analyzed the components of mind/body medicine that relate to the rubric of self-care, which includes relaxation techniques, nutrition, exercise, stress management, and beliefs or faith. Benson and Myers go on to analyze the well-known placebo effect. Based on current knowledge of brain mechanisms, they are able to define the placebo effect in a surprising new way as “remembered wellness.” When combined with the relaxation response, especially when religious faith is also involved, remembered wellness has been shown to improve health outcomes dramatically.

In chapter 9, David B. Larson and Susan S. Larson introduce readers to a new field of medical science that focuses on the impact of spiritual values on patients’ health. The authors describe a new method for analysis of the medical literature called systematic review, which they have used to achieve a less biased evaluation of the medical literature. What they have discovered is a distinct resistance on the part of researchers and clinicians to consider religious values, and they call for a new humility on the part of the medical profession in light of the significant healing associated with such values.
In the concluding chapter, experimental psychologist Fraser Watts gives us a fascinating look at artificial intelligence (AI) research and a balanced view of its theological implications. AI’s scientific value includes helping us to understand how human intelligence works, especially in light of the important technical advance, “parallel distributed processing,” which appears to emulate to some extent a network of neurons in the human brain. The rather grandiose claims sometimes made for AI bring it into conflict with religion, but if, as Watts says, it is “pursued in a more humble spirit the sense of conflict disappears.”

In the epilogue we consider some possible experimental approaches that might hold promise in contributing to Sir John Templeton’s goal of a one hundredfold increase in spiritual information. Examples have been chosen from astronomy, the neurosciences, genetics, medicine, and the social sciences.
Contributors

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Herbert Benson is the Chief of the Division of Behavioral Medicine at Deaconess Beth Israel Medical Center, founding President of the Mind/Body Medical Institute and the Mind/Body Medical Institute Associate Professor of Medicine at the Harvard Medical School. Dr. Benson is the author of *The Relaxation Response, Beyond the Relaxation Response*, and with Marg Stark, *Timeless Healing: The Power and Biology of Belief*.

Giuseppe Del Re is Professor of Theoretical Chemistry at the University of Naples and a member of the International Academy for the Philosophy of Science and the European Academy for Environmental Problems. He has published more than 180 papers in scientific journals and has edited a book on the brain-mind problem. Papers in his honor are being published in the journal *Advances in Quantum Chemistry*.

Owen Gingerich is Professor of Astronomy and the History of Science at Harvard University and a Senior Astronomer at the Smithsonian Astrophysical Observatory. In 1992–93, he chaired Harvard’s
History of Science Department. Professor Gingerich’s research interests have ranged from the recomputation of an ancient Babylonian mathematical table to the interpretation of stellar spectra. He is a leading authority on Johannes Kepler and Nicholas Copernicus. Professor Gingerich has given the George Darwin Lecture and an Advent sermon at the National Cathedral in Washington, D.C. He has also witnessed eight solar eclipses.

Charles L. Harper Jr. is Executive Director and Senior Vice President of the John Templeton Foundation. He is trained as both a planetary scientist and as a theologian, having received his bachelor’s degree in civil engineering at Princeton, a doctorate of philosophy in cosmology and planetary science at Oxford University (Balliol College), and a diploma of theology, also from Oxford. Before coming to the Foundation, he was a research scientist at Harvard University and a research fellow with the National Aeronautics and Space Administration in Houston. Dr. Harper has published extensively in scientific journals. He also holds a Certificate in Management and Administration from Harvard.

Robert L. Herrmann taught biochemistry to medical school students for twenty-two years. During that time, he developed a keen interest in interrelating science and religion. In 1981, he left medical education to become executive director of the American Scientific Affiliation, an organization of Christians in Science. There he met fellow member John Templeton, and they have since cooperated in writing several books, including The God Who Would Be Known and Is God the Only Reality? Dr. Herrmann is currently on the staff at Gordon College in Wenham, Massachusetts, where he directs several projects for the Templeton Foundation.

David B. Larson is a psychiatrist and former Senior Fellow at the National Institute for Mental Health (NIMH). He is currently President of the National Institute for Health Research. He has published numerous journal articles and a psychiatric training manual that demonstrates that spirituality and religious practice can benefit physical and mental health and healing.

Susan S. Larson is an independent science journalist and former newspaper staff writer. Her work has appeared in medical textbooks, professional journals, and magazines.
David G. Myers, social psychologist, is John Werkman Professor of Psychology at Hope College, Holland, Michigan. He is an award winning researcher and the author of psychology’s most widely studied textbook. His research and digests of research have appeared in some fifty periodicals, from *Science* to *Scientific American*, and in twelve books. His latest book is *The American Paradox: Spiritual Hunger in an Age of Plenty* (Yale University Press, 2000).

Patricia Myers is Research Associate at the Mind/Body Medical Institute.

Robert John Russell is founder and Director of the Center for Technology and the Natural Sciences and Professor of Theology and Science in residence at the Graduate Theological Union in Berkeley, California. In 1968, he graduated from Stanford University with a major in physics and minors in music and religion. He then began concurrent studies in physics and theology, receiving an M.A. in theology from the Pacific School of Religion in Berkeley in 1972. He received his Ph.D. in experimental solid state physics from the University of California, Santa Cruz in 1978, on the same day that he was ordained in the United Church of Christ (Congregational). Dr. Russell has co-edited *Physics, Philosophy and Theology: A Common Quest for Understanding; Quantum Cosmology and the Laws of Nature: Scientific Perspective on Divine Action; and Chaos and Complexity: Scientific Perspectives on Divine Action*.

F. Russell Stannard is the former Vice President of the Institute of Physics and currently Emeritus Professor of Physics of the Open University in Milton Keynes, United Kingdom. He was educated at the University College, London, where he received his Ph.D. in cosmic ray physics in 1956. In 1983, he began studies of the relationship between science, religion, psychology, and philosophy. Dr. Stannard’s recent books in science and religion include *The God Experiment*, based upon his 1998 Gifford lectures, and the best-selling *Uncle Albert Trilogy*, introducing young people to physics. In 1998, he was awarded the Order of the British Empire by Queen Elizabeth for services to science.

Sir John Marks Templeton is Chairman of the Templeton Foundations and President of the First Trust Bank, Nassau Bank, Nassau, Bahamas. Widely recognized as one of the world’s most successful financial investors, he has devoted his time since 1990 to philanthropy and
research in spiritual progress through the John Templeton Foundation. For twenty-five years he has funded the Templeton Prize for Progress in Religion, which recognizes individuals who have made contributions to the world’s understanding of God.

Fraser Watts is Starbridge Lecturer in Theology and Natural Science at The University of Cambridge. An experimental psychologist, his latest books are an edited volume, *Science Meets Faith* (SPCK) and a chapter entitled “Towards a Theology of Consciousness,” in J. Cornwell (ed.), *Consciousness and Human Identity* (Oxford University Press).
God, Science, and Humility
Can theology be regarded as a science?

Most would undoubtedly say no. In doing so, they might point out that science is fundamentally based on experiment and observation. Although the formulation of a theoretical hypothesis might be made in response to some guiding principle derived from notions of simplicity, economy, or symmetry, in the end the arbiter is not aesthetics but experiment. If the data are not in conformity with the theory, then the hypothesis has to be abandoned, or at least modified. Essentially, it is a humble approach. One’s powers of philosophical reasoning concerning how the world “ought” to be—one’s preference or “pet theory”—must always give way to the practical evidence.

This down-to-earth, pragmatic approach appears to stand in sharp contrast to that adopted toward religious questions. Where theology is concerned, the final arbiter is held to be the Bible (or some other set of holy writings). Holy scripture, as the very word of God, is to be venerated as the unchanging, ultimate authority on all matters.

If that is one’s view of theology, then clearly it has little in common with science. Science recognizes no such authority rooted in the past. But it is not the only approach. There is another, one that resonates much more closely with the modern scientific outlook. It has come to be known as humility theology. It takes as its starting point not the Bible but our experiences of the world and of life—the same basis as that adopted by science. It asks whether these show evidence for the existence of God, and if so, what type of God. It asks: Does the totality of our experience make better sense in the light of the God hypothe-
sis, or not? Like the pursuit of science, this type of theology is humble in the sense that it is prepared to adapt its understanding of God to whatever the evidence indicates. As the total fund of knowledge and experience grows, so one’s conception of God is expected to develop and become ever more refined. Like science, humility theology is progressive.

Because there is no faster-expanding area of knowledge today than that afforded by the sciences, it is further to be expected that humility theology will forge especially close links to the sciences, examining each new finding with a view to seeing whether it has something to offer regarding an improved understanding of God in relation to his created world.

What I hope to do in this essay is draw parallels between humility theology, as I understand it, and science. In doing so, we shall examine the different types of evidence that could be thought of as coming within the scope of humility theology.

**An Experiment into Prayer**

When thinking of a scientific investigation, it is natural to have in mind a study conducted under carefully controlled laboratory conditions. A situation is devised in which, as far as possible, the particular effect under investigation is isolated and all other extraneous background effects are reduced to a minimum. That is indeed the aim of many scientific studies.

The best attempt to apply such a methodology to a religious question is to be found in a project often referred to as the prayer experiment. Belief in the power of prayer is widespread. If miraculous healings could be demonstrated, then this would seem on the face of it to be evidence for God—God directly intervening and having an effect in the world. In 1997, the John Templeton Foundation agreed to finance this study into the effectiveness of intercessory prayer. The project’s chief investigator is Herbert Benson of the Mind/Body Medical Institute at Deaconess Beth Israel Medical Center in Boston, Massachusetts.

The main idea is that patients about to undergo coronary artery bypass graft surgery at five major U.S. hospitals are divided into groups. One group of six hundred is being prayed for by special teams of intercessors drawn from a variety of religious denominations. Each team is assigned a particular batch of patients drawn from the six hun-
dred. In addition to these patients, another group of six hundred is not being prayed for. The latter acts as a control group. As patients present themselves to the hospitals, they are randomly assigned to these groups. They are told that they might, or they might not, be prayed for. But none of them knows to which group he or she has been assigned.

Over a period of two to three years, the patients’ case histories are followed to see if there are any differences between the two groups. Indicators of recovery include measurements of the physical functioning of the heart, the frequency of death from all causes, length of stay in hospital, and whether patients discharged from the hospital return to their homes or enter a nursing home.

The medical staff tending the patients over this period have no access to information concerning which patients are being prayed for. Those doing the praying know only the first names of the people assigned to them, together with some details of their condition—nothing sufficient to reveal the identity of the individual. Only at the very end of the experiment will all the data be collated. The project has been designed as a rigorously controlled scientific experiment.

There is, however, a third group of six hundred patients. Like those in the first group, these are prayed for, but unlike the first, they are informed that they are to be the subject of prayer. The intention here is to examine whether there is any additional benefit to be gained (of a psychosomatic or placebo nature) from knowing that one is the subject of prayer. This part of the study will test hypotheses to do with “patient expectation.”

What of the results? It is too early to say, but no matter. The reason for mentioning the experiment here is that it is instructive to consider the implications of the various possibilities for the outcome of this and of any other experiment of the scientifically controlled type.

As regards the first two groups of patients—those that are unsure whether they are being prayed for—should the project eventually yield a statistically significant positive correlation between prayer and good recovery from the operation, that would of course be fascinating. Doubtless such a discovery would trigger a series of follow-up experiments. In the first place, one would want to establish, beyond all reasonable doubt, that the positive correlation was no mere statistical freak. Different prayer techniques would be tried to see whether some were more effective than others. One would want to investigate whether other medical conditions yielded to this form of treatment—cancer, perhaps. Clearly, an important field of study would be opened up.