

## THEOLOGY, PHILOSOPHY, AND THE NATURAL SCIENCES

JOHN H. WRIGHT, S.J.

*Jesuit School of Theology at Berkeley*

**I**N THE September 5, 1988 issue of *The Scientist*, William Provine, a biologist and historian of science at Cornell University, published an article entitled "Scientists, Face It! Science and Religion Are Incompatible." He wrote: "Show me a person who says that science and religion are compatible, and I will show you a person who (1) is an effective atheist [a deist], or (2) believes things demonstrably unscientific, or (3) asserts the existence of entities or processes for which no shred of evidence exists."

No doubt the position of Professor Provine is a distinctly minority position, but it highlights an ongoing tension between science and religion. It points to the need for an honest and reasonable way to resolve this tension, or, better, to make it fruitful. Of course, a deeply held and unrecognized prejudice can make a successful exchange of ideas impossible, because prejudice can simply close a person to any evidence that may tell against it.

What follows is, to a large degree, the outline of a thesis on how to relate science and religion.<sup>1</sup> At nearly every point fuller development is possible and desirable; but it seems worthwhile to propose this preliminary sketch for reflection and criticism. I begin with a statement of the problem and then propose as the key to a solution four stages in the self-transcendence of human knowing: (1) initial transcendence, (2) scientific

<sup>1</sup> Titles dealing with this subject in recent years (which have influenced my thinking) include important works by Ian Barbour: *Issues in Science and Religion* (New York: Prentice-Hall, 1966; repr., New York: Harper & Row, 1971); and *Myths, Models, and Paradigms: A Comparative Study in Science and Religion* (New York: Harper & Row, 1974). He also edited a fine collection of essays in *Science and Religion: New Perspectives on the Dialogue* (New York: Harper & Row, 1968). Another excellent collection of essays is found in *The Sciences and Theology in the Twentieth Century*, ed. Arthur R. Peacocke (Notre Dame: Univ. of Notre Dame, 1981). Rustom Roy, of Pennsylvania State University, in the Hibbert Lectures for 1979 proposed a "radically new integration" of science and religion, published as *Experimenting with Truth: The Fusion of Religion with Technology, Needed for Humanity's Survival* (Oxford: Pergamon, 1981). An extraordinarily complete basic treatment is given in *Science and Religion: A Critical Survey*, by Holmes Rolston III (Philadelphia: Temple Univ., 1987).

transcendence, (3) philosophical transcendence, and (4) theological transcendence.<sup>2</sup>

#### THE PROBLEM

It belongs to the fundamental task of theology to mediate the faith to our contemporary culture, imbued as it is with scientific modes of thought. The good news of our salvation through Jesus Christ must be shown somehow to make sense to the world in which it is proclaimed. There is no question of doing away with the folly of the Cross, or of reducing the mystery of God's unfathomable power and love to some easily understood slogan. But the gospel should not appear as basically absurd and in contradiction to all that we otherwise know and appreciate. The gospel challenges the selfishness of our desires, the self-sufficiency of our projects, the narrowness of our outlook, the distortion of our standards of value, but not our desire to know and embrace the truth, our appreciation of human worth, our joy in the beautiful—the truly human aspects of our culture.

The scientific revolution that began in the early years of the seventeenth century with the work of Francis Bacon (1561–1626), Galileo Galilei (1564–1642), and René Descartes (1596–1650) has changed Western culture, and thereby world culture, almost beyond recognition. While these early fathers of the scientific age were themselves religious believers, they set in motion a way of thinking from which religious faith found itself more and more alienated.

We must then ask ourselves how the Good News of Jesus Christ can make sense in our contemporary scientific culture? This involves two questions: (1) How are theology and the natural sciences related to each other? (2) How can the gospel be proclaimed in this culture?

#### *The Basis of a Solution: Transcendence*

The answers proposed here to these questions rest upon the key insight of *transcendence*. Frequently "transcendence" refers directly to the divine, reaching beyond the created world toward the creator. Here, however, transcendence means any going beyond earlier limits and boundaries of knowledge, thereby entering into a larger world of clearer knowledge and deeper meaning. Transcendence implies no denial of the

<sup>2</sup> The self-transcendence of human knowing is a basic theme of transcendental Thomism. See, e.g., Karl Rahner, "Man as Transcendent Being," in *Foundations of Christian Faith* (New York: Seabury, 1978) 31–35. It is also fundamental for Bernard J. F. Lonergan: "Only the critical realist can acknowledge the facts of human knowing and pronounce the world mediated by meaning to be the real world; and he can do so only inasmuch as he shows that the process of experiencing, understanding, and judging is a process of self-transcendence" (*Method in Theology* [New York: Herder and Herder, 1972] 239).

enduring value and importance of what we have transcended, but recognizes that there is more to know and understand, that there is a context of fuller and clearer meaning, a richer and deeper and more comprehensive view of things.

In approaching an answer to the question of the relationship of theology and science we may note four stages of transcendence, each of which goes beyond the stage before it. First, our earliest forms of knowledge transcend an initial ignorance and isolation. Second, natural science is a way of transcending these earlier and confused forms of knowing. Third, critical philosophical reflection upon the nature and limitation of science continues the movement of transcendence beyond natural science. Fourth and finally, we transcend philosophy through a recognition of the legitimacy and value of faith in God revealing Himself and thus opening a totally new dimension of knowing. He does this in many ways but especially in the life and work of Jesus Christ. From these considerations of transcendence, then, we will indicate how science and theology are related and how the gospel may be proclaimed in a scientific age.

Not everyone goes through these four stages. Even in our scientific culture, not everyone grasps the stage of science before going to philosophy. And not everyone goes through philosophy in arriving at faith. These distinctions belong not so much to individual journeys of transcendence as to the way in which different disciplines relate to one another on a scale of transcendence.

### *Knowing and Transcendence: General Remarks*

Aristotle (384–322 B.C.) begins his metaphysics with the unforgettable sentence: “All human beings by nature desire to know.”<sup>3</sup> There is a basic human thrust toward knowing. We seek knowledge not only as a means to some further end, but often simply because we instinctively recognize that knowing is good. A friend of mine sometimes teaches astronomy to undergraduates. He begins the course by telling them that astronomy is completely useless. You cannot use your knowledge of the stars to accomplish anything else; it is simply good to know about them. Our probes of the planets Venus and Mars or the construction of the Hubble telescope may someday have some practical benefit, but for now these ventures into our solar system and this tool for exploring the universe aim at nothing more than increasing our knowledge. By nature we all desire to know. Astronomy and similar studies are peculiarly human pursuits; there is no evidence that any other beings on earth are con-

<sup>3</sup> *Metaphysics*, vol. 8 of *The Works of Aristotle in English*, 2d ed. (Oxford: Clarendon, 1980) 980a23.

cerned about such things, simply because with all their curiosity no other being is simply concerned to know.

Human development, both individual and social, can be described in terms of the unfolding of this desire to know. It is not that knowledge is the whole of human life, but rather that knowledge is an inescapable component of all that is truly human. Human development involves a progressive transcendence of our initial isolation and ignorance into a deeper and profounder awareness of an unimaginably vast world of reality within which we find ourselves living and active.

We may note here some common features of the process of transcendence. It begins with our native inquisitiveness or curiosity, manifested in the human activity of asking questions, a phenomenon especially obvious in young children when their minds begin to function and to open out on the world. Asking a question is articulating the human desire to know. It is a desire to transcend my present lack of knowledge. Questioning gives rise to searching, to looking for evidence, to trying to discover how what I am looking for manifests itself. When this searching is rewarded to some degree, I formulate an answer from which further questions arise, and the mind continues its searching, its transcending movement. The movement of transcendence thus involves three steps which continuously repeat themselves: questioning, searching for evidence, and arriving at an answer of some kind; thence arise new questions, further searches and answers.

#### INITIAL TRANSCENDENCE: BEYOND IGNORANCE

##### *Primitive Understanding*

In our earliest and most primitive ways of knowing we transcend our psychic isolation and our primordial ignorance. There is, of course, no way for us to capture accurately the world of the individual infant, nor of the human race in its beginnings. But we recognize that an initial stage of complete ignorance, in which we begin life, gradually yields more and more to an awareness of our surroundings, a recognition of other things and people. As our awareness develops we recognize that we are not simply isolated in ourselves, but by knowing transcend the limitations of our own individual selves and find ourselves in touch with a world that surrounds and includes us. But knowing awareness at this stage is very confused. We do not always distinguish what belongs to ourselves and to something else. We do not always distinguish one thing from another. As life goes on, through learning language and communicating with others we begin to transcend this initial confusion and to discover our own distinct identity and some kind of order in the world.

The natural curiosity of the human mind seeks to understand this

primitive world, to give an account of it. It asks questions about it and tries to provide answers. What emerges over time in every primitive human culture that we know of is a kind of symbolic narrative, a myth of origins and of hopes, a combination of history, religion, philosophy, and science all mingled together.<sup>4</sup> At this stage it has not yet occurred to the human mind to distinguish these from one another. After all, they are all found together in human life—why separate them in the telling?

The description that follows is not a “brief history of human thought,” but an indication of some major turning points in the development of thought and culture.

### *Natural Science and Philosophy: A Preamble*

Natural science, in the general sense of an ordered enquiry into the way things we experience relate to one another, actually began as soon as human curiosity first looked at the world and started to organize observations and anticipate results. The use of fire for cooking, of herbs for healing, and of geometry for measuring—all belong to the roots of scientific investigation. These very early beginnings were enough to spark the special questions that started people thinking philosophically. For once concern about the relationship of parts gave rise to a conscious awareness of the whole, philosophy could, even had to, begin.

The human mind in its distinctive way of understanding always begins with totalities, obscurely grasped and dimly perceived. It proceeds in two ways to clarify this totality: (1) by distinguishing and interrelating the parts—and this belongs to natural science, and (2) by noting what characterizes the totality itself and everything within it, “being,” for example, or “nature,” or “motion,” or “knowable”—and this is the beginning of philosophy. The mind tends naturally to try to deduce as much as possible about the parts from principles deemed to govern the whole. One effect of this tendency was to keep natural science as a subordinate, though usually distinct, part of philosophy. Even into the nineteenth century, when science had become an independent discipline, books on scientific physics were sometimes called “Natural Philosophy.”

### *The Greeks; The Bible*

People telling the original myth gradually began to emphasize certain aspects, to concentrate on different areas, and so to differentiate various strands. There emerged different kinds of literature. This is readily seen in the writings of ancient Greece. The epic poetry of Homer still had it all combined: history, religion, and a primitive philosophy and science.

<sup>4</sup> Cf. Langdon Gilkey, *Religion and the Scientific Future: Reflections on Myth, Science, and Theology* (New York: Harper and Row, 1970).

But then people like Socrates and Plato drew attention to strictly philosophical questions. They asked about the world as a whole, and about other things in the light of this whole. Aristotle in his logical works analyzed carefully the processes of human reasoning, and he also collected specimens to study the parts of animals. In his metaphysics or first philosophy he explored the world of being as being, a fundamental affirmation of the ground of the unity of all things. Herodotus and Thucydides attempted a more factual and sober account of the human past, though not without an ideological concern. Religion or theology did not have the same importance as a distinct discipline in these early Greek works, though Plato and Aristotle made some impressive contributions, and Greek tragedy was often profoundly religious, as in the *Antigone* of Sophocles.

In the Bible, which was the literature of the Hebrews and early Christians, we see all these aspects of history, theology, science, and philosophy still mixed together, but with theology or religion or faith in God as the guiding force. Scientific questions are really touched only tangentially, with an eye more toward relating all things to God than relating them to one another. The Bible does not articulate a detailed philosophy, either, but rather presupposes the comprehensive unity of things which it views as dependent on God.

#### *Early Christian Culture*

Classical Christian culture as it developed from the fourth to the sixth centuries around the Mediterranean basin showed enormous curiosity about all these areas: the world around us, the past, the process of reasoning, the great philosophical questions, and the answers they accepted by faith as gift from God concerning our nature and our destiny. But it did not yet occur to these early Christian thinkers to distinguish carefully questions of history, science, philosophy, and theology. A man like St. Augustine (354–430) touches freely upon all of them, even if his central interest is theological.

In the Middle Ages education recognized the distinct disciplines of the seven liberal arts. First there was the trivium, the three liberal arts dealing principally with language: grammar, logic, and rhetoric. This was followed by the quadrivium, the other four liberal arts dealing principally with number: arithmetic, geometry, astronomy, and music. In the 13th century Thomas Aquinas (1225–74) endeavored in a special way to distinguish and relate philosophy and theology.

Natural science, the enquiry into how things in the world relate to one another, continued to develop under people like Albert the Great (ca. 1200–1280) and Roger Bacon (ca. 1215–1292). But it was still largely part

of philosophy. Sometimes it found an outlet for its special curiosity in alchemy, where people sought to change base metals into gold, to discover a universal cure for all illnesses, and to produce the elixir of life. But it continued to be fundamentally a part of philosophy until the 17th century. And since philosophy was regarded as the handmaid of theology, the queen of the sciences, philosophy and therefore natural science were in some way governed by theology at this point.

#### SCIENTIFIC TRANSCENDENCE: BEYOND CONFUSION

The early 17th century, as we have noted, distinguished natural science from philosophy and theology, with the work of men like Galileo Galilei, Francis Bacon, and René Descartes. And during that century natural science became a genuine discipline in its own right with giants like Johannes Kepler (1571–1630) and Isaac Newton (1642–1727).

#### *Beyond Confusion with Philosophy: Falling Bodies*

In the development of natural science there was question not only of transcending the confusion of science and philosophy, but also of correcting the errors and misunderstandings generated by that confusion. When science was considered simply a subordinate part of philosophy, then a method suited to philosophy but not to science might be used in an attempt to answer strictly scientific questions.

The problem of falling bodies was a critical example of this confusion. Philosophy is, first of all, concerned with understanding the unity of everything, the wholeness of the universe. It looks at particular questions against this background. Hence, philosophical method often proceeds by subsuming common sense observations under great general principles and abstractions, like "the natures of things." These natures are regarded as each thing's inner source of activity, of motion, and of rest. In the case of falling bodies several things seemed apparent to common sense: some things (like stones and leaves) by nature move downward and some things (like fire and smoke) naturally move upward. And among the things that move downward by nature, some move faster than others: rocks move downward faster than leaves. When all this is coordinated from the philosophical principle of natures, we may say that some things are endowed by nature with heaviness or gravity, and other things are endowed with lightness or levity. Heavy things fall; light things rise. Furthermore the heavier a thing is the faster it will fall. Rocks naturally fall faster than leaves.

This all seemed very reasonable, but, unfortunately, it was all wrong, and only when the error was discovered and corrected could a genuine science of falling bodies begin, a science which gradually led to Newton's law of universal gravitation, his three laws of motion, and the whole

development of celestial mechanics and astronomy. And, we might add, this led then to further transcendence in Einstein's general theory of relativity.

*Beyond Confusion with Theology: Galileo*

Natural science also had to be distinguished from theology. It was easy to suppose that the Word of God in Scripture, as it describes the world and God's action within it, was giving us not just an insight into the universal dependence of all things on God, but also how things are precisely related to one another. People thought that the sacred writer intended to teach not only his faith in God's power and love, but also his primitive view of the world, which he simply took for granted. For example, expressions of common observation about the movement of the sun were understood to mean that the earth is the center of the universe. People failed to recognize the truth of the statement of Cardinal Baronius which Galileo cited in his famous "Letter to the Grand Duchess Christine of Lorraine": "The intention of the Holy Spirit is to teach us how to go to heaven, not how the heavens go."<sup>5</sup>

The emancipation of natural science as a discipline distinct from theology and philosophy was accompanied by some stress and tension. The Galileo controversy illustrates this exactly. And lest anyone suppose that this was merely a parochial fight between one scientist and the Roman Inquisition, it is well to remember that Galileo was generally viewed quite negatively by nearly all Christian thinkers of the time, Protestant and Catholic. His main adversaries were the entrenched interpreters of Aristotle in the universities. In all these early controversies involving natural science on the one hand and philosophy and theology on the other, it was science that emerged victorious. Philosophy and theology were shown to have exceeded their proper limits and were forced to retreat.

The victories of science tended to induce an attitude of omniscience in the scientific mind. Whatever could not be known by science was either unknowable or not worth knowing. The pitiful showings of both philosophy and theology in their controversies with science immediately discounted them as sources of any worthwhile truth.

PHILOSOPHICAL TRANSCENDENCE: BEYOND SCIENCE

But the fact is that science and the method of science provide an inadequate guide to human knowing and to human life. It is necessary to transcend the limitations of science if the drive of the human mind to the fulness of knowledge is not to be stunted and thwarted.

<sup>5</sup> See *Edizione Nazionale delle Opere di Galileo Galilei*, 2d ed. (Florence, 1920-1939) 5.319.



### Three Questions

There are at least three questions posed by the activity of scientific endeavor which stimulate the process of transcendence beyond natural science. If science tries to deal with them by its own methods it can only distort them: (1) What is knowing? (2) In what ways is the world knowable? (3) What is the purpose of knowing in general and of science in particular? Let us look briefly at each of these questions.

1) Science itself is a special and very powerful kind of knowing. *But what does it mean to know?* What is human consciousness, wherein this knowing takes place? At one time some dismissed the question by saying that the brain secretes thoughts the way the kidneys secrete urine. This approach simply supposes the question itself is not worth asking, and hence that the essential nature of science as a form of human knowing does not deserve investigation.

2) Science as a special and powerful way of knowing has the world around us for its object. *In what ways is the world knowable?* In what ways does it present itself to the human mind as intelligible? Science explores the intelligibility of the world by relating observable phenomena to one another. Einstein remarked, "It is the aim of science to establish general rules which determine the reciprocal connection of objects and events in time and space."<sup>6</sup> At a fundamental level these rules are expressed in terms of mass and energy operating in a space/time continuum. At levels of higher complexity scientific rules deal with atomic and molecular structure, with the nature and activity of cells, and, at the level of the human sciences, with discernible patterns of sensible, emotional, rational, and social activity. It is in terms of these inter-phenomenal relations that science tries to provide an explanation of the world. But is this all the explanation that we can discover? Can we assume without argument that whatever is is mass/energy in space/time, built up into atomic, molecular, biological, psychological, and social relationships? Or does the world have other ways of being known and explained that are neglected by this approach?<sup>7</sup> Does it tell us, for example, why there is a world rather than nothing at all—a question which Stephen Hawking recently raised in his brilliant work, *A Brief History of Time*.<sup>8</sup>

3) Finally, science itself, like the rest of knowing, is a human activity to be used within the total context of human living. *What purpose does knowledge serve?* What goals should it pursue? How should the knowledge

<sup>6</sup> Albert Einstein, "Science and Religion, II," in *Out of My Later Years* (New York: Philosophical Library, 1950) 27.

<sup>7</sup> Bernard Lonergan deals with knowledge as common sense, science, philosophy, and theology in *Method in Theology* 258–59.

<sup>8</sup> (New York: Bantam, 1988) esp. 171–75.

that science provides be used in technology? Science tells us how to develop nuclear energy; it doesn't tell us how an acceptable technology should use it.

To say that these are not scientific questions is not to say that scientists are less capable than others in dealing with them. But whoever deals with them, scientist or not, does not answer them by employing the scientific method. They are not questions to be answered simply by an effort to "establish general rules which determine the reciprocal connection of objects and events in time and space." Those who would wish to contend that they are such questions may not merely assume this to be true but must show that this is the case, and this takes them into philosophy, the disciplined study of reality as a whole. These three questions are philosophical, belonging respectively to the philosophy of knowledge or epistemology, to the philosophy of nature and metaphysics, and to the philosophy of human conduct or ethics.

### *Limitations of Science*

Why are these philosophical and not scientific questions?

First of all, natural science is a particular kind of knowing, but natural science as such does not consider either what knowing itself is, nor how scientific knowing in particular is finally justified in any but a purely pragmatic sense. Knowing is an aspect of our relation to the whole. It is a comprehensive form of human activity, which in its reach seeks to encompass everything, however impossible this may be. For this reason, knowing becomes an object of philosophical enquiry.

Next, for natural science the universe around us is simply a given. And even when science for its own purposes takes the universe to mean precisely what can be known by the procedures science employs, there is often an unvoiced supposition that there is no other way to gain any worthwhile knowledge about it. Natural science as such does not ask why there is a universe nor why and in what ways it is intelligible, but simply limits itself to its own intelligible content of mass and energy in space/time ordered ideally through mathematics, and of other internal reciprocal connections. It deals with what Aristotle called the efficient and the material causes. And though it may deal with formal causes in terms of patterns and structures, it does not consider formal causes as internal principles of unity, diversity, identity, and development. Nor does it consider final causes<sup>9</sup> and "levels of reality" as such. It may legitimately choose to overlook them in developing its own concerns, but simply as natural science it cannot deny them. If it chooses to deny them, it must

<sup>9</sup> See Étienne Gilson, *From Aristotle to Darwin and Back Again: A Journey in Final Causality, Species, and Evolution* (Notre Dame: Univ. of Notre Dame, 1984) 22-23.

engage in a philosophical discussion.

Finally, natural science raises the question of its own goals or purposes. Although it may choose methodologically to ignore purpose or final cause in the development of its own body of knowledge, it cannot ignore the purpose of science itself as an aspect of human life. Science may be used for good or for evil; but what is good, and what is evil, and why? Not all science is the simple pursuit of truth for its own sake. At every stage it raises ethical questions for which it cannot as natural science provide any answers. Once again we should note that natural scientists are no less capable than others at wrestling with these issues, but their status as natural scientists does not directly qualify them to produce better answers.

### *Philosophical Answers: The Horizon*

It is not possible to pursue here the many ways in which different philosophers have dealt with these three questions of knowledge, the intelligibility of the world, and ethical human conduct. But let us simply say that in each case they have engaged in a consideration of the totality of things that leaves us face to face with mystery. It brings us to the affirmation of a horizon or a depth which leaves us with our aspirations of transcendence encouraged but still unfulfilled.

The question about knowing leads us to recognize the profound *relationality* of the human being to the whole world around us. It makes us realize that every affirmation is made in some sort of context. Whatever we assert to be the case is asserted within certain conditions which are simultaneously and implicitly being affirmed to be the case also. There is no such thing as an absolutely isolated fact or principle; everything is contextualized in some way. For example, if I say that today is Thursday, this statement is contextualized by a method of measuring time, which itself is contextualized by history, by the age of the world, by the rotation of the earth, and so much more. What then is the ultimate context of affirmation? What is the final horizon against which every affirmation is being made? How are we to understand the whole of which this is a part? Here is the mystery of the ultimate horizon of knowing.

The question about the knowability of the universe raises questions about the very nature of things: Why are they the way they are? Why is there something rather than nothing at all? As the universe moves into the future, toward what is it tending? What is the absolute past from which it has come? Where is the whole universe of space and time? If space and time are only within the universe, must we say that the universe itself is nowhere and at no time? What then are the ultimate conditions for its existence? Philosophy points then to an ultimate

horizon of nature and being, within which our universe is unfolding. Once again we are confronted with mystery, the ultimate horizon of being.

The natural sciences raise the question of their own purpose. Within human life and human existence, purpose is a primary source of intelligibility. It is our most fundamental way of making sense of what human beings do. What purposes should govern the use of science? What purposes should govern human life as a whole? In this connection we should observe that human life and human existence are part of the universe, not outside and beyond it. Within this part of the universe we discover purpose, we do not simply create it. If purpose is found in this human part of the universe, does it also pervade the nonhuman parts of the universe as a whole?

Are there purposes which govern the universe? Philosophy reasons that some purposes are only intermediate and point to goals beyond themselves, as when a person wills to get an education so as to lead a useful and happy life. This leads to the consideration and affirmation of a final and supreme goal, one that points to nothing beyond itself, but is intended simply in and for itself as the goal of all that is. This is the Good which Plato affirmed as the supreme reality. Once again then we are confronted with mystery, the ultimate horizon of purpose and value, the supremely good and beautiful.

#### THEOLOGICAL TRANSCENDENCE: BEYOND THE PHILOSOPHICAL HORIZON

The human drive toward transcendence brings us at length to the multiple mystery of the ultimate: the horizon of truth, of being, and of good. Philosophy raises questions about this horizon, but cannot penetrate beyond it to reach in itself the nature of being, of truth, of the good. Karl Rahner (1904–1984) described the natural condition of a human being before this horizon as that of a hearer: one who listens for a word, a communication coming from this ultimate horizon.<sup>10</sup> We reach out toward a reality that we cannot grasp or lay hold of, toward the absolutely transcendent, the unfathomable mystery.<sup>11</sup>

#### *Faith and Religious Experience*

It is at this point in the human quest for transcendence that we need to advert to a further quite distinctive experience.<sup>12</sup> Some may wish to

<sup>10</sup> *Hearers of the Word* (New York: Herder and Herder, 1969).

<sup>11</sup> Bernard Lonergan has written: "...the question of God is implicit in all our questioning..." (*Method in Theology* 105).

<sup>12</sup> For an extended discussion of this experience see my article "The Distinctive Quality of Religious Experience, *Logos* 2 (1981) 85–97.

deny all meaning to this experience, but they cannot deny either its existence or its importance for human life and history. People in every part of the world and throughout history have affirmed in different ways that they have heard a "word," a "call" coming from the ultimate mystery which upholds the whole universe.<sup>13</sup> This is the heart of religious experience and of faith. For religious faith hears and accepts a word as coming from the ultimate horizon. It responds to a call which it perceives as coming from unfathomable mystery. Theology explores that faith and the word that it has received. In this way theology transcends philosophy, in part by raising further questions, but mostly by accepting answers and a way of knowing coming from God, the transcendent source of all that is.<sup>14</sup>

### *Five Avenues of the "Word"*

Those who describe this experience speak of it as coming to us through a number of avenues, marking out five distinct but interrelated areas of divine disclosure. We need to take all these together in their convergence upon one reality. First of all, *the world around us* and the things it contains can be bearers of a word to us from beyond themselves. St. Augustine describes this experience when he writes:

Ask the world, the beauty of the heavens, the splendor and arrangement of the stars; the sun that suffices for the day; the moon, the comfort of the night; ask the earth, fruitful in herbs and trees, full of animals, adorned with human beings; ask the sea, filled with so many swimming creatures of every kind; ask the air replete with so many flying creatures. Ask them all, and see if they do not, as if in a language of their own, answer you: 'God made us' (*Sermon 141.1*).

This word coming from the world around us should, however, be heard

<sup>13</sup> To speak of the universe as upheld by ultimate mystery is, indeed, to use language in a way that is different from the way science uses it. But the scientific use of language is limited by the intelligibility that science focuses upon. To maintain that reality has no other intelligibility than this is to open a philosophical discussion that the scientific method itself is unable to resolve. For if one maintains the principle that that alone can be known with certainty which can be scientifically demonstrated, then this principle destroys itself, since the principle itself cannot be scientifically demonstrated. It is simply the expression of agnostic faith. The section on philosophical transcendence attempted to treat this; see above pp. 658–62.

<sup>14</sup> The question of the relation of this kind of knowing to scientific knowing is addressed in many recent studies. It is a central concern of Rustum Roy in *Experimenting with Truth* and of Ian Barbour in *Myths, Models, and Paradigms*. Holmes Roltston III treats it in the opening chapter of *Science and Religion*, "Methods in Scientific and Religious Inquiry." Three essays in part 3, "Epistemological Issues," of *The Sciences and Theology in the Twentieth Century*, ed. Arthur Peacocke, treat aspects of it. Thirty years ago William G. Pollard dealt with the matter in *Physicist and Christian* (New York: Seabury, 1961) chap. 5.

in connection with other words coming from more human channels and mutually confirming one another.

For there are four human avenues by which a word reaches us from the ultimate horizon of reality: oneself, other individual human beings, history, and society. First of all, as I explore the mystery of my consciousness and knowing, and penetrate more and more deeply into the center of *my own mind and being*, I can hear in the experience of my radical and absolute dependence a word which sustains, nourishes, and calls me into the future. There is a summons from beyond myself to move forward in trust. In the mystery of my own dependent being and activity I hear a word continuously creating and guiding me.

Still more significant are the avenues that associate me with *other human beings*: other individuals, history, and society. In coming to know another human being well, we are first of all confronted by the mystery of personality of that other person. We are in touch with an unrepeatable center of consciousness, love, and freedom, a center that we cannot adequately conceptualize or classify. But in the very disclosure of that mystery we are aware of Someone beyond, of Another, whose word and love is being mediated to us by the person we know. Sometimes in this wonder at what another person is, we discover more clearly than in the experience of our selves, the disclosure of God's word addressing us.

There is also the avenue of *history*. Karl Rahner points out how as we await a word from the ultimate mystery, we must especially listen in history.<sup>15</sup> We are historical beings, whose existence and development take place not merely in time, but in the unfolding of unrepeatable events, which come from the exercise of human freedom. We are what we are today both as a race and as individual human beings because of occurrences in the past which came from free human decisions. History in this way is the profoundest determinant of life's meaning and destiny.

People listening in history have heard and continue to hear many extraordinary words spoken. Religious traditions throughout the world hearken back to key figures and key events which mediate to them a word from God, and have shaped their own view of the world and their hope for the future. The words we hear in this way define or describe more accurately not only our search for the transcendent, but more importantly the search of the transcendent for us. People are here aware of a word that is not created by the human mind, but is made known to it.

<sup>15</sup> "Man is that existent thing who must listen for an historical revelation of God, given in his history and possibly in human speech" (*Hearers of the Word* [New York: Herder and Herder, 1969] 161). See also: *Foundations of Christian Faith: An Introduction to the Idea of Christianity* (New York: Seabury, 1978) 138-75.

Of all the words spoken in history there is none more extraordinary or more compelling than the event of Jesus Christ, who lived, taught, healed, forgave sins, suffered, died, was buried, and rose again. It is this word accepted in faith which enables us to make sense of the whole of history and the whole of human life.

The word of Jesus Christ reaches us first of all through the entire tradition of the Christian community, especially as concretized in the sacred writings of the New Testament. Even as simple documents of history they bear witness to an extraordinary human life. But as documents expressing the faith of the community they manifest a word spoken to and heard by a group of men and women whose lives were transformed by the power and love coming from Jesus Christ.

Finally, the word of Jesus Christ reaches us not just from the past, mediated by the historical forces that he set in motion, but in the present, in the experience of *the society of believers*. The Christian community is not perfect, and many events of its past are mean and shameful. But it has always provided the real possibility of something better. It has brought forth the fruit of the Holy Spirit in countless believers: love, joy, peace, patience, kindness, goodness, faithfulness, gentleness, and self-control (cf. Galatians 5:22-23).

People discover here in the presence of the Holy Spirit a personal relationship to Jesus Christ, whom they come to know and love as truly as any other human being, and who is the unsurpassable revelation of God. People continue to experience here the transformation of their lives, and to discover in one another a power which is beyond all of them, a power that makes for unity and justice, for truth and concern, for hope and serenity, for freedom and unselfish service. We may, indeed, resist this power, but we cannot extinguish it.

One must be open and willing to hear the revealing word reaching us from the horizon of our lives, and then respond to it in faith by acceptance and commitment. This acceptance by faith of a knowledge of God<sup>16</sup> that is beyond us does not undo or weaken or call into question any of the certitudes that have arisen at earlier stages of transcendence. Common sense, natural science, and philosophy all maintain their own special validity and importance. Faith and theology, through the knowledge and insight they bring, provide a context for these other ways of knowing, but not their content.

<sup>16</sup> For a fuller discussion of how faith is, among other things, a kind of knowing that affirms the truth of reality, in particular the reality of God, please see my article, "The Meaning and Structure of Catholic Faith," *Theological Studies* 39 (1978) 701-18.

## CONCLUSION: THEOLOGY AND THE NATURAL SCIENCES

With this background we can attempt to answer our initial questions on the relationship of theology and science and the way in which the faith may be proclaimed to our contemporary scientific culture.

*Relationship of Theology to Natural Sciences*

Theology, by endeavoring to understand the word that God speaks to us, draws upon a source of knowledge beyond the world given in sense experience, and provides the ultimate context for the natural sciences and for every other human pursuit and achievement. By exploring the reality of a "faithful Creator" (1 Peter 4:19), of a God whose power, love, and wisdom sustain the universe,<sup>17</sup> of a Savior who frees us and offers us eternal life, and of an indwelling Spirit who forms us into a people and guides us into the future, theology gives final meaning and importance to natural science, to history, to the human sciences and the arts. It does not, however, provide their content. Theology can no more tell biology what is the structure of a living cell, or astronomy what is the age and extent of the material universe, than it can tell a musician how to compose a symphony or an engineer how to build a bridge. In all these cases it provides the context which makes these activities ultimately worthwhile and meaningful.

This relationship of ultimate context to a content provided by various human activities and accomplishments may seem very elusive, especially in the case of the natural sciences. Let us see if we can illustrate it. The Psalms tell us that the heavens declare the glory of God, that they manifest his greatness and wisdom.<sup>18</sup> The world revealed by modern astronomy and cosmology is still more awe-inspiring than the starry skies the psalmist looked at. Without the context of theology, this could only appear as a display of mindless power. But theology, by recognizing here the work of the Creator, gives this world an enduring meaning, and enables us to discern within it a manifestation of love and wise purpose.<sup>19</sup>

<sup>17</sup> For an explicit discussion on this point see *Science and Providence: God's Interaction with the World* by John Polkinghorne (Boston: New Science Library, 1989). See also my book, *A Theology of Christian Prayer*, 2d ed. (New York: Pueblo, 1988) 30–51.

<sup>18</sup> See e.g. Psalms 8, 10, 93.

<sup>19</sup> The atheist philosopher Bertrand Russell (1872–1970) once described the world apart from the context of God in these words: "Such in outline, but even more purposeless, more void of meaning, is the world which Science presents for our belief. Amid such a world, if anywhere, our ideals henceforward must find a home. That man is the product of causes which had no prevision of the end they were achieving; that his origin, his growth, his hopes and fears, his loves and beliefs are but the outcome of accidental collocations of atoms; that no fire, no heroism, no intensity of thought and feeling, can preserve an individual life beyond the grave; that all the labours of the ages, all the devotion, all the



Or again, the fossil record tells us of “the immense journey of evolution,” to use the expression of Loren Eisely.<sup>20</sup> Theology tells us that this immense journey is going somewhere, that it is finally a journey home. Theology does not postulate some kind of special inner guidance in the evolutionary process distinct from what is going on throughout the world; it rather sees that the world in its total structure is so put together that by the sometimes random activity and operation of what is within it brings forth order, life, sentience, and intelligence.<sup>21</sup> It brings forth beings who can hear and respond to the word that comes from God, can know Him personally and enter into enduring relationships with Him. These are some ways in which theology provides a context for science, without in any way trying to prescribe its content.

### *Proclaiming the Good News in a Scientific Culture*

How then can the good news of faith be proclaimed to a world culture shaped by science? We should note first of all that this proclamation is not made to an abstract scientific mind, but to a human being who may also be a scientist. We speak to one who puzzles and wonders, who loves and is grieved, who confronts mystery in death and in beauty. The one proclaiming the Good News must both appreciate the humanity of scientists and show a real knowledge and appreciation for what they are doing. The proclaimer cannot be wholly ignorant of this work, suspicious about its methods, and mistaken about its accomplishments. While this does not require that everyone who proclaims the gospel be truly expert in the field of science, still this consideration points to the importance of having some who proclaim the faith be at the same time scientific experts, men and women whose accomplishments in this area are undeniable and who do not find in religious faith an obstacle, but an ally.

Secondly, one makes clear that faith in God does not wish to prescribe

---

inspirations, all the noonday brightness of human genius, are destined to extinction in the vast death of the solar system, and the whole temple of Man's achievement must inevitably be buried beneath the debris of a universe in ruins—all these things, if not quite beyond dispute, are yet so nearly certain, that no philosophy which rejects them can hope to stand. Only within the scaffolding of these truths, only on the firm foundation of unyielding despair, can the soul's habitation henceforth be safely built” (*A Free Man's Worship* [*Mysticism and Logic*] [New York: 1918] 46; cited in Edwin Arthur Burtt, *The Metaphysical Foundations of Modern Physical Sciences* [Garden City, N.Y.: Doubleday, 1954] 23).

<sup>20</sup> Loren Eisely, *The Immense Journey*, (New York: Random House, 1961). This volume has gone through many editions and printings.

<sup>21</sup> See “The Anthropic Principle and the Fine-tuned Universe,” in Rolston, *Science and Religion* 67–70; and my article “Cosmic and Human Evolution in Theological Perspective,” in *Beyond Mechanism*, ed. David Schindler (Lanham: Univ. Press of America, 1986) 65–77.

in any way whatever what the content of science may be. In the past, theology and religion sometimes alienated scientists by unwarranted intrusions into purely scientific questions. The context which theology provides does not change or establish any scientific facts, but it gives them a meaning for human life that they would otherwise lack.

Finally, against this background of a nonintrusive familiarity and acceptance of science, one invites those imbued with a scientific culture to continue the journey of transcendence which has brought them to this stage of knowing achievement. The movement of transcendence is continuous, even though it has stages of development. One must continue to ask questions, even questions that science as such cannot answer, and also to listen for answers that the human spirit does not provide for itself but accepts as gift from the unfathomable mystery of God, made known to us in Jesus Christ. Scientists, it is true, must relinquish any persuasion they may have that their method can give an adequate account of everything that falls within human experience, that all knowing is "scientific knowing." But this in no way diminishes the validity and importance of what they do achieve through the scientific method.

Theology and science need each other, not for giving each other answers to questions that arise in the other's field, but for giving meaning to each other. For a context is made meaningful by the content it illuminates, and a content is made meaningful by the context which situates it. For this reason, science, like all other human pursuits, enriches theology by providing some of the content for theology's comprehensive context. And theology enriches science by giving its content a meaning that is significant for all of human life and beyond.