Tradition & Discovery

The Polanyi Society Periodical

Incorporating

Convivium

The United Kingdom Review of Post-critical Thought

Volume XX Number 3 1993-94

In This Issue

ISSN 1057-1027

Preface

The articles in this issue are good evidence that those who carefully examine the thought of Michael Polanyi are amply supplied with resources that prove valuable for contributing to contemporary discussion in philosophy and religious studies. Edward St. Clair's article questions the conventional wisdom that suggests scientific explanations treat the how of creation while religious explanations treat the why of creation ; he offers interesting mythic analysis of discussions in contemporary scientific cosmology. Araminta Stone Johnston returns to the literature on the Azande tribe, treated by Polanyi and others, to look again at issues concerned with rationality and relativism; she offers criticism of the ways in which Charles Taylor and Peter Winch have wrestled with these issues. John C. Puddefoot's article is an imaginative effort to set forth the peculiar kind of realist position which Polanyi's thought suggests.

Plans are still being worked out for the upcoming 1994 annual meeting of The Polanyi Society to be held this November in conjunction with the annual meeting of the American Academy of Religion in Chicago. The next issue of *TAD* should include all of the details. With luck, it may be possible to work out some arrangements for those coming to Chicago to visit the Polanyi Archives in the Regenstein Library at the University of Chicago.

As several Polanyi Society members know, work on a couple of special issues of *TAD* (one on William Poteat and one on Polanyi and Paul Tillich) is proceeding. This work does not imply that *TAD* will be any less interested in other sorts of Polanyi-related articles; please continue to send in essays -- regardless of their area of focus -- for consideration. Note that, with this issue, *TAD* begins a policy of printing selected letters to the editor (see page 4). You may also, in future issues, find some brief reader responses to articles with an attached reply from the original author. Feel free to contact me if you are considering formulating a response.

Phil Mullins

Tradition and Discovery is indexed selectively in *The Philosopher's Index* and *Religion One: Periodicals.* Book reviews are indexed in *Index to Book Reviews in Religion*.

NEWS AND NOTES

William Scott, after a serious illness this winter, has completed a draft of the biography of Michael Polanyi. A committee composed of Richard Gelwick, Charles McCoy, Phil Mullins and Walter Gulick is working with him to see the draft move quickly toward publication. One of the great achievements of Professor Scott is the gathering of an enormous amount of background information about Polanyi before the Gifford Lectures. This background will contribute to a wider understanding of Polanyi's work in science and in economics as well as his work in philosophy.

John C. Polanyi sometimes too modestly hides his light under a bushel but we are pleased to discover two generally relevant and interesting articles by or about him:
"Collective Will or Law of the Jungle: Reflection On the New World Order," Bulletin of the Atomic Scientists 47:5 (June, 1991) 28.
James Krieger, "Nobel Laureates Reflect on Science, Economics (John C. Polanyi, Gerald M. Edelman, Robert Solow, and Herbert C. Brown) at the New York Chemical Congress Symposium," Chemical and Engineering News 69: 37 (September 16, 1991) 30-31.

Searching electronic data bases continues to yield recent publications on or making us of Polanyi's thought including the following:

R. G. Dean, "Ways of Knowing in Clinical Practice," *The Clinical Social Work Journal* 17: 2 (Summer, 1989) 116-27. Dean argues that the concept of personal knowledge changes our use of theories and points to the imprecision in our use of language. This view leads to a relativistic view of knowledge through which the client's story is seen as a constructed narrative rather than a set of facts to be objectively recorded. Therapeutic neutrality is considered a myth, and difficult ethical questions about value differences and the clinicians's influence over clients are brought to the fore.

Nancy Pine, "Three Personal Theories That Suggest Models for Teacher Research," *Teachers College Record* 93:4 (Summer, 1992) 656-72. Pine discusses three theoretical structures (those of Michael Polanyi, Maxine Grene, and Ann Berthoff) which consider the role of personal interpretation central to ultimate meaning-making. Pine proposes them as useful frameworks for teachers who are beginning deliberate classroom research.

For a review of Eugene Webb' s *Philosophers of Consciousness: Polanyi, Lonergan, Voegelin, Ricoeur, Girard, Kierkegaard* (Seattle: University of WA Press, 1988) see *The International Journal for Philosophy and Religion* 32:2 (October, 1992) 123 .

The final program of The Polanyi Society meeting at the Fall 1994 annual meeting of the American Academy of Religion is still being arranged. Besides the usual Saturday morning session with two papers, we are trying to arrange two other events that take advantage of the meeting location (Chicago). One is a Friday evening conversation with persons who were with Polanyi during his Chicago years. Second is an introductory tour of the Polanyi Archives at the Regenstein Library of the University of Chicago. Details about these events will be announced later.

Richard Gelwick, General Coordinator

On April 15, 1994, **Richard Gelwick** had heart surgery (a quadruple bypass) at Maine Medical Center. He expects to return to work at the University of New England in June. Mail to Gelwick can be sent to RFD #5 Box 2440, Cundyss Harbor, Brunswick, ME 04011.

NEWS AND NOTES

Letter to the Editor

Sir,

It is usually unprofitable for authors to reply to reviews of their books, but I would like to crave your indulgence for two comments upon the reviews in *TAD* Vol. XX No.2, by Drs Sanders and Wetherick of my *Polanyi* in the series *Thinkers Of Our Time*.

Thinkers Of Our Time is a uniform series of books intended by the editor and publisher (Prof. R. Scruton) to be a counterweight to Fontana's *Modern Masters* (to which I had previously offered a volume on Polanyi, which was rejected) and to show that the great names of this century have not been hostile to tradition and our cultural inheritance. In writing my volume on Polanyi I was therefore constrained by the strict limit of 25,000 words set by the publisher, and consequently had to omit much that I would have liked to have included, especially the social and political aspects, and to condense much of what I was able to include. I decided to focus on the Polanyi's epistemology and ontology of tacit integration. (Since then I have done the same in 1,500 words (!) for the new *Routledge Encyclopaedia of Philosophy*.) For, contrary to what Dr Wetherick suspects, it is my impression that, in Britain, Polanyi has become somewhat confined within the context of "science and theology," and even there too often only as a means of combatting Positivism, so that his distinctive contribution to philosophy generally has been rather neglected.

An elaboration of my theological assessment of Polanyi, plus a constructive use of his philosophy within, and not just clearing the way for, theology will be found in my *Transcendence and Immanence in the Philosophy of Michael Polanyi and Christian Theism* (Edwin Mellon/ Rutherford House, 1992) (yes, it is a revised version of a Ph. D. thesis!). I have also constructively employed his philosophy in my *Structure of Value* (Ashgate, 1993), a study in fundamental axiology. Likewise, I have developed my appreciative assessment of his political philosophy in my *Beyond Liberalism* which I have just completed for the MPLPA's project on "The Liberal Tradition of Central European Philosophy" for the Central European University, to which I would like to express my gratitude, respectively, for being asked to join that project and for the grant awarded to me.

Dr Sanders rightly notes the incongruity of the remark on the cover about "sceptical conservatism" in relation to Polanyi and Hayek. But that was written by Prof. Scruton and I would have vigorously repudiated it had I known about it. Indeed, my argument in *Beyond Liberalism* is that, as we move from von Mises and Popper to Hayek and Polanyi, we see a sceptical, rationalist and therefore self-destructive Liberalism giving way to one based on faith and tradition (and therefore fundamentally Christian and Conservative, and explicity so in Kolnai).

Not included in the last chapter of my Polanyi, for I have only just heard of it and have yet to read it, is what I believe to be a development of Polanyi's philosophy within economics, P.C. Roberts' *Alienation and the Soviet Economy* (U. of New Mexico P., 1971). Had I written something on Polanyi's economics, I would have criticised his espousal of Keynes, for I am a convinced Hayekian monetarist.

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Correction: Walter Mead's article "John Hallowell: A Political Philosopher's Critique of His Profession's Paradign " was in *The Political Science Reviewer*, 1994 (annual) rather than, as listed in *TAD* 20:2, *The Political Science Review*.

The Why of Science and the How of Religion

Edward B. St. Clair

ABSTRACT Key words: explanation, big bang, science and religion, anthropic principle, symmetry, narrative.

Though it is commonplace in discussions of science and religion to make the distinction between scientific explanations of how and religious explanations of why, the distinction does not hold up under close examination. In recent discussions of big bang cosmology, scientists are more and more addressing of the questions of why, particularly in discussions of the role of symmetry in contemporary physics and in debates about the relevance of the anthropic principle.

As a part of an introductory course on Western Religious Thought, I normally include a discussion of Genesis 1-2. As students work to make sense of these stories in light of their own common sense and scientific understandings, they quite frequently hit on the distinction between how and why. In some form or other their responses take up the familiar stance that Genesis tells the story of why God created the world, and science tells how God did it. When the discussion goes in this direction, it is becoming more common for students who are up on their scientific cosmology to bring in the big bang. Then the distinction takes this specific form: The story of Genesis tells us why God created the universe and the big bang theory tells us how.

Even though this how/why distinction is commonplace in academic discussions of science and religion, I am ambivalent when students get such high explanatory mileage from this simple distinction. I suppress my ambivalence in the class discussion, however, because I always want to encourage students who make an attempt to understand any text, but especially a biblical text, with any complexity beyond a one-dimensional literal reading. Another reason for my ambivalence is that Genesis 1-2 does not make any direct attempt to say why God created the world.

In its academic use, the distinction of how and why is only slightly more sophisticated than the common sense one used by students in an introductory course. Science and religion are totally separate. Science can explain only how things work in terms of causal relationships described by the application of natural laws but it cannot explain any events in terms of their purpose or why they happen. On the other hand, religion gives an understanding of why things are as they are, especially in terms of the origins, nature, and destiny of human beings.

It is not surprising that these arguments are so common when we remember that the distinction is in many ways built into the origins of the way modern science saw itself from its beginnings in the seventeenth century. One of the goals of the new experimental natural philosophy was to understand nature strictly in term of efficient causes and to eliminate any appeal to Aristotle's teleological causes that would explain nature in terms of purpose.

This early commitment of natural science was quickly put to political use in the famous compromise between the Catholic church and Galileo. The first examination of Galileo ended with the compromise that Galileo would be able to continue his work as long as he never claimed any more than that his theories were "a convenient mathematical device for describing the phenomena" of the apparent motions of the heavenly bodies. The elimination from Galileo's descriptions of any notion of why things are as they are was all that was needed to remove any claim to truth that could challenge the truth of the Church. In spite of the political charade, there were no abstract intellectual difficulties in the compromise that Galileo had to make, given how he saw the nature of his scientific enterprise. As he put it in his "Letter to the Grand Duchess Christina," he did not see a necessary conflict between science and the deeper truths of the Bible. He argued that "the Bible taught how to go to heaven, not how the heavens go".[1] The problems leading up to the second examination of Galileo and his subsequent conviction came about more from political changes in the Vatican than from a failure of the abstract division between descriptive calculation and truth.

This basic split between how and why continues with Isaac Newton later in the same century. For him science could not address issues of purpose because the laws of nature he discovered, and the existing universe to which he applied these laws, were separate fundamental givens. The laws could not be derived from objects and the objects could not be derived from the laws. He could only use these laws to explain how objects fell to the surface of the earth and how the objects of the solar system moved around the sun. The very use of the metaphor of law implied a grounding in a law-giver whose laws must be obeyed. For Newton there was no conflict between his scientific views and his appeal to God as the giver of these universal laws. He could not explain why there was gravity with the property of universal attraction; he could only accept it as a law-governed force that allowed him to explain how it affected the motions of all material bodies.

This same distinction lies at the heart of the positivistic view of science that developed in the late nineteenth and early 20th centuries. Science can describe how the world works according to verifiable observations, and this account is the only one that gives true knowledge. It is not that verified scientific knowledge was in conflict with religious beliefs, but that religious beliefs not being susceptible to universal generalization and empirical verification were not even qualified to count as knowledge. (If the positivist didn't know it, it wasn't knowledge.) Of course the distinction of how/why is not the only split involved in a positivistic understanding of science. Associated with it are others such as fact and value, objective and subjective, cognitive and emotive, logical and psychological, all with the attending belief that only the first terms of these distinctions are really of importance to science or to anyone interested in genuine knowledge.

In this positivistic interpretation there is no assumed need for scientific laws as laws from a law giver. The universal regularities of nature are but generalized descriptions of how nature always works. A claim to any other status would be an unverifiable claim of metaphysics. In this view it is not a case of merely making a distinction between how and why. Rather, the question of why is excommunicated from the legitimate realm of knowledge, and we are left only with a utilitarian view of how things work.

In theological treatments of the relationship of science and religion, this simple distinction reached its high point in the various forms of Protestant Neo-orthodoxy. Such figures as Karl Barth, Rudolph Bultmann, Paul Tillich, and Langdon Gilkey, for all their differences, all had a common commitment. All of them distinguish scientific knowledge from religious knowledge by accepting an understanding of science and a view of Christianity that stresses the primacy

of revealed knowledge as purely separate from science or any form of knowledge achieved by human beings. Again science has the power to figure out with reason how the natural world works, but only a theology of the word can give knowledge of the true purposes of God in his creation. In using this abstract distinction to keep science and religion separate, theologians were not simply imposing a theological invention on science but were capitalizing on a distinction that stems from one to the assumed tenants of science's understanding of itself. This may have worked well for the apologetic task of making a place for religious knowledge, but it did so by appealing to an understanding of science that is not only antithetical to religion, but has in recent years been shown to be a totally inadequate interpretation of the scientific enterprise.

Like most simple distinctions, this one proves to be more effective in simple abstract situations than in the complicated interactions of people going about the tasks of making sense of themselves in the world—whether these tasks are seen as scientific or religious. Many forms of religion clearly do not forfeit the right to draw upon religious commitments to understand how the world works, with the most obvious being religious fundamentalism and literalism. And scientists have never been timid about moving beyond the technical limitations of their scientific enterprises to bring their thought to bear on understanding everything, including human behavior, ethics, politics, art, and religion. More and more, scientists are breaking the accords of the how/why truce and are speaking to issues ranging from the purpose of human life to the purpose of the cosmos. Or in the terms being developed here, people doing science make a claim on why, just as people who think about religion make a claim on how things are described.

In the seventies, discussions of science and religion were conducted more and more against the backdrop of twentieth century physics and the theories of general relativity and quantum mechanics. I think particularly of Fritjof Capra's 1975 work, *The Tao of Physics*, in which he relates science and religion by showing parallels between Eastern mysticism and the scientific theories of high energy physics in terms of more holistic, non-causal approaches to science. Not only did he think this cast light on the relationships between science and religion, he felt that the application of nonreductive, and holistic systems to physics would also help clear up the disarray that the field of particle physics found itself in during the seventies. The last ten years have been marked by the discussion of non-mechanistic views of science. This has ranged from emerging postmodern understandings of science to the popular views of cosmology presented by Carl Sagan (*Cosmos*) and Stephen Hawking (*A Brief History of Time*).

I now want to explore some of the ways that science is more and more blurring the distinction between explaining how and explaining why by focusing on some issues associated with the big bang theory. Last year I was walking through an airport terminal when I noticed a *Time* magazine on the rack with a cover showing a star-filled cosmic background with this question written in the foreground: "What Does Science Tell Us About God?" I must admit that my first reaction was to mutter "nothing," and keep on walking, but I bought a copy to see why *Time* was picking up on the topic. Their lead-in centered on the discussions that have been generated by the recent discovery of small fluctuations in the cosmic background radiation. These fluctuations are seen as further support for understanding this cosmic radiation as the residue of the big bang that took place some 15 billion years ago. Last spring when announcing the finding of these fluctuations in the cosmic radiation, a physicist with the project, George Smoot, added the comment: "If you're religious, this is like looking at God."[2]

The cosmic background radiation predicted by big bang theory was originally discovered in 1965 by Arno Penzias and Robert Wilson while they were trying to tune a large microwave antennae at the Bell labs. They found a slight but puzzling background static that they could not eliminate and which seemed to be the same intensity no

matter in which direction in the sky they pointed the antennae. The signal seemed to be coming from everywhere in the universe. Later, when they became aware that there were plans to conduct an experiment to try to detect the theoretically predicted residue of radiation released by the big bang, Penzias and Wilson realized that they had already discovered it. From that point on, the big bang theory came to the forefront as the only serious model for investigating the origins of the universe.

There were, and still are, difficulties with the model. One of them was that the cosmic background radiation Penzias and Wilson discovered was too uniform. This uniformity created problems because it could not account for the fact that the universe is not uniform but lumpy with its myriad of galaxies and other complicated celestial bodies. But the recent experiment that measured the very slight fluctuations in the radiation level helped overcome that problem, and this became further evidence for the accuracy of the big bang model.

Beyond Smoot's ironic or perhaps facetious remark that seeing these fluctuations of background radiation was like looking at the fingerprints of God, this latest round of discussions about God and the big bang has led to a wide range of reactions. On one side George Lindbeck of the Yale Divinity School expressed disappointment on hearing the new discovery for fear that Christian theologians would use this as a way of confirming the Christian doctrine of creation. At the other end of the spectrum, theologians like Ted Peters saw this as further evidence for his theory of a consonance or harmony between science and theology.[3]

I now want to focus on three areas in which uses of the big bang theory blurs how/why. They are (1) the commitment that physicists have to symmetry as a part of their methodological approaches, (2) the speculative appeals to what has been labeled the anthropic principle, and (3) the implied narrative generated by the big bang theory.

The Role of Symmetry.

One of the most interesting aspects of the big bang is that it is one of the places where the two theories of general relativity and quantum mechanics come together. We normally think of these two major revolutions of twentieth century physics as theories with two separate applications. Relativity applies to the realm of the very large and the very fast, involving speeds at or near the speed of light. Quantum theory applies to the realm of the very small in the non-deterministic domain of subatomic particle physics. The big bang model involves general relativity because the big bang depends on the four dimensional world of a space-time continuum, and it depends on quantum mechanics because in the earliest moments after the big bang the entire universe was so infinitesimally small that it had the same dimensions that are today associated with the sub-atomic realm of quantum mechanics.

In this early universe where explanations must be both relativistic and quantum, the classical laws of Newton no longer apply. But the relation of these twentieth century approaches to the mechanical world of Newton is even more complex than this. The Newtonian world has three main components—the objects of mass, the forces that act on these masses, and the universal laws that provide the rules for how these forces and objects behave. For Newton, these three have to remain independent of each other to guarantee the universality of his system. Forces could not be derived from objects because the uniqueness of each object could not produce forces that were uniform enough to be subject to invariable laws. And certainly the laws could not be derived from either the objects or the forces without a similar threat to their universality. And Newton argued that it was absurd to believe that gravity could be inherent

in matter.[4] This brings us back to the split of how and why. Newton could show how the solar system worked, but he could not explain why there were forces or objects or laws that governed the objects. No one of the three could be derived from the other, so all three remained separate irreducible givens, perhaps given by God, but nevertheless they could only be described.

In describing the earliest moments of the universe of the big bang, all of this breaks down. All the basic theories of general relativity and quantum mechanics and the associated theories of particle physics depend on a fundamental concept of symmetry which is more basic than particles or forces or universal laws applied to particles and forces.

In physics, a symmetry is the concept of an invariance in a system that is maintained even when there has been a transformation of the system. Symmetries are seen as underlying fundamental invariances that, like Platonic ideals, remain unchanged even though changes have taken place on the surface.

A simple example of symmetry that can be visualized and that also keeps some of the ordinary meaning of the word is the symmetry of a cylinder rotating around its vertical axis. Even when you change the cylinder by rotating it, the underlying symmetry always remains, and in this case the symmetry always remains visible. That is, the cylinder that has been rotated any number of degrees remains indistinguishable from the original state of the cylinder. Or in two dimensions, we can apply this to a hexagon. If you rotate a hexagon 60 degrees around its center, the symmetry of the hexagon is preserved. That is, the symmetry of the hexagon is such that its appearance is invariant in transformations of multiples of 60 degrees.

Symmetries are so important in contemporary physics because, in the sub-atomic quantum realm, all particles of the same type are all identical to each other within that type. All protons are identical, as are all neutrons, or to put it more colloquially, “if you’ve seen one electron you have seen them all.” Also, each of the identical particles exists only in a finite number of quantum states that can be thought of as rotations, leading to a universal application of underlying symmetries even in transformed states of the particles. This applies equally to those particles we associate with matter and to those particles associated with forces.[5]

The understanding of symmetry in the four elementary forces of gravity, the strong nuclear force, the weak force of radioactive decay, and the electromagnetic force is, of course, much more complex and more difficult to visualize than the symmetry of shapes transformed through rotation in space. Physicists talk about the underlying symmetry behind the seemingly two different forces of electromagnetism and the weak force of radioactive decay. The underlying symmetry behind the two is understood through the development of the theory of the electroweak force—a force whose symmetry existed in reality in the earliest moments after the big bang. Today one of the major efforts of theoretical physics is to develop a Grand Unified Theory that will explain the even deeper symmetry of the electroweak with the strong nuclear force, leaving only the two fundamental forces: the force of gravity and the force of the Grand Unified Theory. The ultimate goal of this theoretical pursuit is the construction of a theory of everything that reveals the beautifully simple supersymmetry of all forces and particles underlying the broken symmetries of the complex physical world we live in—a single symmetry that existed in the first 10 to the minus 43 second after the big bang.

The role of symmetry in particle physics has no simple analogy with the classical triad of objects, forces, and laws in the Newtonian world that has become the intellectual common sense world we have come to see ourselves inhabiting. Rather the symmetry or invariance underlying the most fundamental structures of the physical world leads

to a blurring of these distinctions. Forces are not Newtonian forces working on objects but are interactions of subatomic particles acting on particles in ways that must maintain underlying symmetries. These underlying symmetries account for the particles, the force carrying particles, and the rules that are to be observed.

As pointed out by the British astronomer John Barrow, this also blurs the traditional distinction between how and why that traces back to Galileo and Newton. As Barrow puts it: "Curiously, modern particle physicists are quite different. Gauge theories show that physicists need not be content to possess theories that are perfectly accurate in the description of *how* particles move and interact. They can know something of *why* those particles exist and *why* they interact in the manner seen." These symmetries "dictate what forces of Nature exist and the properties of the elementary particles which they govern."[6] For readers who like to take note of metaphors, Barrow's metaphor suggests that instead of God as a lawgiver we now have symmetry as a dictator.

At the most fundamental level of the cosmology informed by the big bang theory, some physicists are not content to restrict their questions to theoretical descriptions of how the cosmos works, but venture into why the cosmos is as it is and why everything in the cosmos is related in the way that it is. But this is more than boldness; it is also related to the basic methods they use to construct theories. These theories are constructed in ways that do not conform to the classical Newtonian divisions of explaining how and explaining why.

The Anthropic Principle

In discussions of the big bang theory, physicists frequently raise the question of purpose in terms of what they call the anthropic cosmological principle, which, among other things, reopens the general issues of teleological processes and explanations as well as the design argument. In fact, most physicists who write accounts of the big bang theory for a general audience include issues related to this principle that was first discussed in the seventies by the physicist Brandon Carter, who was a colleague of Stephen Hawking.

In brief, the principle takes two major forms known as the weak anthropic principle and the strong anthropic principle. The weak form simply claims that any account of the origins and evolution of the universe must assume initial values that are in a range that are consistent with a universe that contains an intelligent, carbon-based life form capable of observing the universe. The principle is expressed many ways, but one of Carter's briefest formulations was "What we can expect to observe must be restricted by the conditions necessary for our presence as observers."[7]

Carter also developed a second form of the principle called the strong anthropic principle that suggests that the initial conditions of the universe and the workings of elementary particle physics require a universe that *must* have those conditions that give rise to an intelligent observer. In addition to the claim of the weak form, the strong form adds the assertion that the we live in a universe that *must necessarily* produce intelligent observers. The strong principle is based in part on the many exact coincidences that must be assumed in the initial conditions of the big bang to be able to account for intelligent observers. For example, if during the very first second of the universe after the big bang the rate of expansion had been less by one part in a million million, the universe would have collapsed before it cooled down enough for life to form. Or if the expansion had been more by one part in a million, the universe would have expanded too fast for stars to form. Without stars no carbon or other heavy elements could have formed, and again no life would be possible. In that first second after the big bang, if the strong nuclear force had been the least bit stronger,

the bond of the helium nucleus would have been so strong that the universe would consist entirely of helium. The full list of these exact values and ratios is quite long, but the point of their importance remains the same.

One of the questions raised by the anthropic principle is how to explain the exact fine tuning of these initial values, ratios, and universal constants whose precise values are absolutely necessary for life as we know it to exist?

Another question is why is the universe 15 billion years old? The answer from the anthropic principle is that we should expect the universe to be that old because it takes five billion years after the big bang for hydrogen to form as stars, and another five billion years after that for carbon to be created in these first stars before they blow up and reform as heavy element stellar systems, and yet another five billion years for our solar system to develop from this and for the earth to cool enough for biological life to evolve into an intelligent observer. All this adds up to 15 or so billion years before the universe has a carbon-based life form that can ask the question of why is the universe 15 billion years old.

The role of the weak anthropic principle is obvious enough, so obvious in fact that it is frequently dismissed as true but trivial. Of course astrophysicists must understand their scientific observations of the universe from the point of view of a universe that includes astrophysicists as a part of that universe. So what!

The strong version of this principle has generated more complicated discussions. Just what is the strong anthropic principle? Even John Wheeler, the distinguished theoretical physicist who is a strong supporter of the anthropic principle, admits that he is not sure. In response to the question of the status of this principle he replies, "Is it a theorem? No. Is it a mere tautology, equivalent to the trivial statement, 'The universe has to be such as to admit life, somewhere, at some point in its history, because *we* are here?' No. Is it a proposition testable by predictions? Perhaps."[8] But he concludes that he does not know.

To Wheeler's list we can add, "Is the strong version simply a reformulation of the argument from design for the existence of a designer?" If the answer is yes, then we expect Darwin to rise up and strike it down. But here is where the complications begin. A Darwinian attack on the design argument depends on a countless multitude of similar organisms undergoing random mutations. From these many possibilities, the contingencies of the environment determine which of these changes will survive and which will not. In a Darwinian critique, for example, the fact that we are oxygen breathing creatures in a world whose atmosphere contains exactly the right percentage of oxygen—any less and we suffocate and any more and we burn up—is not seen as evidence of design for our sake, but only that the multitude of mutations that could not breath oxygen died out and those that could had a chance to live.

But what about the fundamental processes involved in the formation of the universe? Here the critique of natural selection does not work. As far as we know there is only one universe and this universe includes intelligent life. Unless we imagine many or even an infinite number of universes,[9] the dynamics of a process that selects from many possibilities cannot be applied to a situation where there is only a singular example. And as far as we know there is only one universe.

The strong anthropic principle can be taken up in the apologetic task of religion to assert a purpose that unfolds in the universe. A good example of this is Rupert Sheldrake's treatment in his recent book, *The Rebirth of Nature: The Greening of Science and God*. In a discussion of cosmic evolution Sheldrake appeals to the anthropic principle as a

part of his overall attempt to find a sense of purpose in the scientific understandings of nature. After uncritically stating the anthropic principle, Sheldrake quickly speculates that

> Again, God could provide one kind of answer: He designed this universe, skillfully selecting the values of the numerical constants of nature, and he then maintained them by remembering them. Alternatively, the 'constants' could be remembered within nature herself rather than by a mind transcending nature. ... Perhaps the numerical constants of physics and the properties of the known physical fields are in fact long-established habits. They could have been different, but only a universe that developed these particular habits could hang together as ours does and allow the evolution of habits of chemical,biological,cultural, and mental organization within it.[10]

My point is a more modest one than Sheldrake's. The fact that the debates about the anthropic principle are even taking place and that at least some scientists are having conversations about the big bang theory in terms of human purpose is another indication that the old classical distinction of how and why is being further eroded. There are enough important issues to be pursued in the first or weak form of the anthropic principle without quickly jumping to the strong version as a springboard for grand religious visions.

When the weak form of the anthropic principle is looked at in relation to the powers of human knowing, it is neither a trivial statement of the obvious nor is it some puzzling cosmological principle whose origins are out there, or back there, at the big bang. I think it is revealing that almost all of the discussions of the weak anthropic principle use the expression "intelligent observer" to describe the entity for which the principle is trying to account. But scientists are more than intelligent observers. They are human beings who rely on much more than their powers of intelligent observation. Among other things, they rely on a sense of the history and purpose of the scientific enterprise in which they are actively engaged. I think physicists use a more instructive metaphor to describe their work as constructions. When they talk about theories, they almost always do it in terms of the construction of theories, and the act of constructing is certainly more than intelligent observation. If physicists want to construct theoretical models that account for physicists, they are attempting something that cannot be accomplished by developing an anthropic principle in terms of intelligent observers.[11]

When physicists, or any inquirers in any discipline, take seriously the question of their own role in the knowledge they are relying on to advance the knowledge they are creating, then the possibility arises that even simple, abstract distinctions that seem to have such an objective status can be seen for what they are, distinctions made by the inquirers as a part of the inquiry. And that introduces something more puzzling than an anthropic principle, namely, human beings who have the power to know and who have the power to describe their world because they are already rooted in a sense of the world as a world of purpose. But simultaneously, they are able to articulate their sense of purpose only by relying on their understanding of how they think the world works.

The Implied Narrative of the Big Bang Theory

Beyond such specific points as the role of symmetry or the anthropic principle, the most important way that the big bang theory makes claims on our understandings of purpose is the way that this theory is being transformed into the apparent form of a narrative structure, allowing it to be taken up by our culture as a means of fundamental

understanding. When you listen to popular lectures by physicists or read their works written for the well-educated public, you realize that these scientists assume a grand coherent scheme of things running from the singularity of an infinitely dense point when space and time were infinitely curved, to the big bang, all the way to themselves as physicists constructing these understandings.

The basic assumption they start from is that there is a single evolutionary process that in reality runs in an unbroken line from the big bang to the present. Starting with singularity, they move from the big bang to an expanding universe to the broken symmetry of four fundamental forces and to protons and neutrons. This leads to the formations of atoms and the elements of hydrogen and helium. As the space of the universe expands, it cools down and the hydrogen gives birth to stars and galaxies are formed. These stars in turn produce heavy elements like carbon through the process of thermonuclear reaction, and then these stars die as supernova, releasing these heavy elements that in turn become a part of the birth of new stars and solar systems, parts of which cool to the right temperature for carbon based molecular structures to form organic compounds which become the building blocks of life. Finally, these organisms evolve through natural selection until the process evolves into homo sapiens who give rise to the world we inhabit.

The vision is total even though scientists are quick to point out that there are major gaps that need to be filled in to clean up what is being assumed. For example, the gap between an early universe of hydrogen and the formation of galaxies is not well understood, and the process cannot be predicted *a priori* from the big bang theory. But the ever present assumption of scientific inquiry is the conviction that the gaps will one day be thoroughly accounted for in scientific terms that are completely consistent with the grand coherent scheme.

Or I can put the specific contents of the theories into even more of a story form that is only slightly more stylized than the version Carl Sagan tells us on PBS. My version begins like this:

> Long, long ago before there was time, even before time was collapsed as a dimension of space, there was singularity. Not the singularity that can be spoken, not even the singularity that can be mathematically expressed, but the singularity that erupted into an incredibly tiny universe whose density during that first part of the first second cannot even be imagined. Supersymmetry reigned and everything was all the same in beautiful simplicity. But supersymmetry spontaneously broke into gravity and the unified symmetry; and the unified symmetry spontaneously broke into the symmetries of the strong, the weak, and the electromagnetic forces, and there were protons and there were neutrons. Then there was one second. For a 100,000 years the universe was so dense that everything was optically opaque, but, as space expanded, room was created and photons began to move freely. The universe became optically light, and there was light. Millions of years passed and atoms formed and hydrogen prevailed over helium, and hydrogen gave birth to stars. . . .

Even without the help of this stylized rhetoric, it is clear that a story something like this is sinking deeper into the contemporary mythic consciousness. It has mythic themes; it is about radical beginnings; it has a middle and connects to the present, and even though it offers several possible endings, all of the them are radical endings. This story even has the advantage of being presented along with computer generated graphics that can be shown in classrooms and on public television to make the whole process seem concrete—certainly more concrete than an invisible spirit who creates out of nothing and who does not readily translate well as a dramatic computer generated

visual presentation.

It appears that we have completed a cycle. The traditional world, whose meaning was conveyed fundamentally through stories, has given rise to a scientific world that generates scientific theories. But it appears that the cycle has turned back on itself and that the contents of the scientific theories can be put into a story form that can be given back to the mythic consciousness of the culture. But something is missing. Even though there is the surface structure of a narrative, no actual story is told. At least this story is not like the mythic stories of old. There are no actors who perform deeds and there is no drama. Singularity explodes and supersymmetry spontaneously breaks, but no character is revealed. Stars are born but they only evolve and die. No community forms and no heroes rise up to do great deeds that shape the community that remembers them. With these deficiencies, how can such a truncated story as the big bang to the present gain such a hold on the popular imagination?

I think the answer lies in deeper stories. Western scientific culture still relies on the linear sense of a history of purpose that in western culture is rooted back in stories of a God who creates a world in which people act and a drama unfolds. In short, I think the question of whether or not new evidence for the big bang theory gives support for belief in the God of Genesis makes just as much sense when turned the other way round. The reformulated question then becomes: Does a fundamental cultural awareness of the story of the God of Genesis make the story that is generated from the big bang theory more cogent by underwriting all the mythic deficiencies in the big bang story? I am not sure what the answer is to the question of whether the big bang theory helps the Genesis story, but I am fairly certain the answer to the reformulated question is yes. The surface cogency of the story generated from the big bang theory, as it more and more functions mythically, is not only helped but is supported by the underlying sense of purpose that western sensibilities still trace back to Genesis in ways that are more fundamental than can be categorized by simple distinctions like why and how.

ENDNOTES

Part of an earlier version this article was presented at the Southeastern Regional Meeting of the American Academy of Religion held in Charleston, SC, March 1993.

1. John Hedley Brooke, *Science and Religion: Some Historical Perspectives* (Cambridge University Press, 1991), p. 46.
2. *Time*. Vol. 140, No. 26, December 28, 1992, p. 39.
3. *The Christian Century*. Vol. 109, No. 23. July 29-August 5, 1992., p. 705.
4. John D. Barrow, *Theories of Everything: The Quest for Ultimate Explanation* (Clarendon Press, 1991), p. 72.
5. James S. Trefil, *The Moment of Creation* (Charles Scribners's Sons, 1983), pp. 87-96.
6. Barrow, p. 74.
7. Ian G. Barbour, "Creation and Cosmology," in *Cosmos as Creation: Theology and Science in Consonance*, edited by Ted Peters (Abingdon, 1989), p. 131.
8. John A. Wheeler, "Foreword," in John D. Barrow and Frank J. Tipler. *The Anthropic Cosmological Principle*

(Clarendon Press, 1986), vii-viii.
9. Quantum mechanics does allow this to be imagined mathematically.
10. Rupert Sheldrake, *The Rebirth of Nature: The Greening of Science and God* (Bantam Books, 1991), p. 133.
11. Michael Polanyi has written extensively on the futility of developing a theoretical understanding to human beings in impersonal terms; even though I have not made any direct references to his work, I am obviously deeply indebted to him.

Theory, Rationality, and Relativism

Araminta Stone Johnston

ABSTRACT Key words: rationality/irrationality, theoretical/atheoretical, *theoria*, essentialism, relativism, Polanyi, Wittgenstein, Azande.

This essay returns to the Azande tribe of Africa, discussed by Polanyi (in Personal Knowledge*) and others, in order to rethink the issues of rationality and irrationality and of essentialism and relativism, and to consider what these issues mean in our actual lives as daily we make epistemological and moral judgements.*

What constitutes rationality? What is the relation between rationality and truth? Despite the work of Michael Polanyi and Ludwig Wittgenstein, thinkers of the stature and intelligence of, for example, Charles Taylor and Peter Winch continue to get themselves into a muddle when they attempt to answer these questions. We, in turn, should not be tempted to admire too much our own insightfulness and sagacity in dealing with these questions. As a consequence of the development of Western thought and culture and the assumptions and preoccupations of modernism, these are indeed difficult questions for all of us. In what follows I want to examine two positions — one represented by Taylor and the other by Winch — as examples of some of the difficulties that the questions "what is rationality" and "what is the relation between rationality and truth" pose for us.

The question as to whether there is some transcendent, unchanging norm against which we may judge questions of truth has been a persistent one in the history of Western thought. Beginning in the modern period and increasingly since its dawning, this question has become a more and more pressing one for Western thinkers. Clearly two facts at least partly account for our increasing preoccupation. First, we have come to see the traditional guarantors of truth — i.e. revealed religion — as decreasingly powerful and effective. Second, we have become increasingly aware of the diversity of cultural forms which exist among humans. Both these experiences — doubt about the power and effectiveness of traditional religion and increasing awareness of cultural diversity — we share, of course, with the Greeks of the classical period, and like Plato and Aristotle and the Stoics, we find ourselves asking the same kinds of questions in response to these circumstances. What is remarkable, given the twenty-five hundred years of history which intervene between us and them, is how often we still seem to get the same kind of answers — answers which are even less satisfactory today than they were two and a half millenia ago.

Just as in fourth century Athens, those in our own time who have felt called upon to deal with these questions about truth and rationality have tended to divide themselves into two main camps. The first, those who want to defend the view that there is some transcultural, transhistorical standard against which the diversity of human practices may be judged, have described themselves, among other things, as "rationalists".[1] This term is, I believe, an inappropriate one for those who argue in favor of this first view, since it does not take account of, but rather obscures their prior assumptions and commitments. Thus I will refer to them here as "essentialists," since they base their arguments on the belief that Truth has an essence, which, as in the reasoning of the ancient Greeks, is unchanging and transcendent to the multiplicity of appearing and disappearing existent things. Those who hold the second view — that truth is relative

to time and place — have been described by the essentialists and often by themselves as (what else!) relativists.

In what follows I want to consider several issues associated with this argument between essentialists and relativists. First, as I suggested above, I want to examine the implicit assumptions contained in the reasoning of many, if not most, essentialists. These assumptions, I believe, tend, through internal inconsistency, to undermine the essentialist position as one on which we may rest, and here my example will be especially Charles Taylor's essay "Rationality".[2] Second, making use of Peter Winch's well-known essay "Understanding a primitive society,"[3] I wish to draw out an implication which is, I believe, suggested in the relativist position, but which is often not made sufficiently explicit, thereby apparently weakening that position and allowing both essentialists and some self-described relativists to assert that if the relativist position is adopted, "truth" becomes merely relative or conventional.

II. Theory and Rationality

In his essay entitled "Rationality," Charles Taylor raises the question

> [A]re there standards of rationality which are valid across cultures? Can we claim that, for instance, peoples of a pre-scientific culture, who believe, let's say, in witchcraft or magic, are less rational than we are? Or at least that their beliefs are less rational?[4]

Taking the beliefs and practices of the Azande tribe of Africa, as described by E.E. Evans-Pritchard in his *Witchcraft, Oracles and Magic among the Azande*[5] as his example, Taylor proceeds to attempt to answer this question.[6] Recalling Evans-Pritchard's concern about the (to Evans-Pritchard) "obvious contradictions" imbedded in Zande beliefs relating to the inheritance of witchcraft, those "obvious contradictions" likewise imbedded in Zande oracle practices, as well as the Azande's indifference to Evans-Pritchard's objections to these apparent contradictions, Taylor begins by allowing that the Azande were "probably quite justified on their own terms" in brushing aside the objections.[7] While, he argues, it is certainly possible to construct "a theoretical defense" of Zande beliefs and practices against Evans-Pritchard's objections[8], this is exactly what the Azande either fail or choose not to do. In Taylor's view then it is this omission which constitutes "a crucial difference" between such primitive cultures as the Azande and our own: "we have this activity of theoretical understanding which seems to have no counterpart among them."[9] It is here that I must first take issue with Taylor.

Taylor (and unfortunately many others, including Winch,[10]) makes a too easy distinction between "theoretical" and "atheoretical" societies based on a far too narrow understanding of what constitutes a theory. Taylor's paradigm for a theory is that traditionally held by modern Western science which is rooted, as he himself suggests, in Greek philosophy. Our word "theory," as Taylor notes, comes from the Greek word *theoria*, which "we translate as 'contemplation'."[11] Now "contemplation", with its connotation of "disengaged perspective" (Taylor), is certainly one way of translating *theoria* and also is certainly the sense favored by Greek philosophers at least from Plato onward.[12] But it is not the original sense, either historically or lexically. The primary sense of *theoria* is simply "a looking at, a viewing, a beholding, an observing" without any necessary implication of "disengaged perspective" at all. The Greeks also used the expression *theorias eineken*, meaning "for the purpose of seeing the world," and this is exactly what a theory, in its less limited sense, actually is: something which we use for the purpose of seeing, or making sense of, the world.[13] Theory, in this original sense, is as broad as human existence itself (since we all have a "view"), and its manifestations include such diverse forms as narrative, or different styles of music or painting, or even language

itself.

Given this broader understanding of theory, it no longer makes sense to speak of "theoretical" and "atheoretical" peoples; the Azande are as theoretically inclined as Evans-Pritchard himself. To maintain otherwise is only possible if one speaks from the exceedingly ethnocentric position which assumes that theory, and thus rationality, are linked to Western scientific models of theory. This is, of course, the position from which Taylor speaks when, appealing to Plato and Aristotle, he links both theory and rationality to "being able to say clearly what the matter in question is."[14] In this view rational understanding is not only linked to the ability to clearly articulate our understanding of something, but also to the view that we have such rational or theoretical understanding of something only when we are able to clearly articulate it, to make it explicit, "to distinguish and lay out the different features of the matter in perspicuous order."[15] As for clear articulation and the explicit, we need not dwell here on the importance of Polanyi's point that, speaking strictly, it is the inarticulate and the tacit which are of far greater importance to our logic, our rationality, and our belief. There are, of course, still other serious problems with Taylor's statement. Who, for example, is to determine what qualifies as "clear articulation" or "perspicuous order"? Or are we simply to assume that "clear articulation" and "perspicuous order" are the kind to which we are accustomed in the dominant Western tradition?

In any case, from this commitment to clear articulation and explicitness as the marks of rationality, Taylor takes an enormous leap, by means of which not only the Azande and pre-Galilean scientists (both of whom he offers as examples of less-rational beings than ourselves), but also poets, painters, musicians and the like, as well as speakers of ordinary language, are doomed to be cast outside the pale of theoretical, rational thought and discourse:

> But *if this* [that clear articulation, explicitness, and perspicuous order are hallmarks of rationality] *is so*, then theory and rationality are connected. The best articulation of something is what lays it out in the most perspicuous order. But for those matters amenable to theoretical understanding, the most perspicuous order will be that from the *disengaged perspective*. This offers a *broader, more comprehensive grasp on things*. *Thus* one might say: the demands of rationality are to go for the *theoretical understanding* where this is possible.[16]

Unfortunately Taylor does not stop here, and now I must quote him at even greater length:

> I think that we who live in a theoretical culture tend to find some view of this kind plausible. And so we are tempted to judge other, atheoretical cultures as *ipso facto* less rational. This is a quite distinct question from finding them contradictory or inconsistent.
>
> Indeed the above understanding of rationality can show how consistency can be a key criterion, without exhausting the force of the term. To strive for rationality is to be engaged in articulation, in finding the appropriate formulations. But it is a standard intrinsic to the activity of formulating that the formulations be consistent. Nothing is clearly articulated with contradictory formulations.... So consistency is plainly a necessary condition of rationality.[17]

I have already made clear, I hope, my objection to the distinction made here between "theoretical cultures" and "atheoretical cultures" and the bias it assumes in favor of traditional Western philosophical and modern scientific notions of theory. If my imputations of bias are correct, then while it is true, as Taylor says, that we are tempted to judge other cultures as less rational, it does not follow that we are being anything other than ethnocentric when we do so.

As for Taylor's view of contradiction, once again his unthinking bias in favor of the dominant Western tradition of rationality leaps out at us here. In our quotidian lives, which extend far beyond the bounds of Aristotelian logic, it is obviously not the case that "nothing is clearly articulated with contradictory formulations." We need only call to mind such formulations as "she does and she doesn't" in answer to the question "does she love him?", or "he is and he isn't" in reply to "is he intelligent?" to realize the relative insignificance of non-contradiction in our actual (and yet still rational) lives.

As for consistency, Taylor has here within his reach a potentially important point, which unfortunately he proceeds to undermine with more of the same bias which we have already noticed. Consistency, he says, is certainly a "key criterion" of rationality — but then he takes another leap (or the same one again), and equates rationality with articulation and then with "finding the appropriate formulations." But, as we asked above about "clear articulations" and "perspicuous order," who is to judge which formulations are "appropriate", and "appropriate" to or for what?

It is, of course, the aim of Taylor's project to set forth for us a standard on the basis of which we may judge one set of cultural practices as superior or inferior to another. These kinds of judgements are inevitable, Taylor argues, not only in the sense that they seem to be an inevitable part of the human condition, but also because they are in some sense internal to the logic of cultural diversity itself. The fact of cultural diversity seems to require that we make judgments, or at least that we make choices.

Diverse cultures are incommensurable with each other, Taylor says, in the sense that rugby and soccer are incommensurable with each other: "the rules which partly define these games prescribe actions in contradiction with each other. Picking up the ball and running with it is against the rules of soccer."[18] Just as one cannot play soccer and rugby simultaneously, says Taylor, so is it also impossible simultaneously to live in and function according to both the "rules" of modern European culture and those of Zande culture, or those of pre- and post-Galilean science. Now if we are to confine the meaning of "incommensurable" to these boundaries, as Taylor seems inclined to do, we may concede that Taylor is correct.

Taylor asserts then that "incommensurable ways of life seem to raise the question insistently of who is right."[19] Once again Taylor is correct: the question does indeed seem to be a persistent one, and for some cultures (i.e., the modern Western ones) even more than for others. Because of this persistent human trait, however, Taylor wants to proceed to assert that the possession of this trait somehow gives us (particularly us Westerners — we must not overlook the implication) the ability to practice it well and to reach correct judgments which transcend our own historical and cultural location.

At one level, the ground on which Taylor wants to base this apparent claim to transcendent judgment is a perhaps uncontroversial one: all efforts to increase human knowledge aim at more effective practice.[20] Once again, however, Taylor does not stop here, but goes on to assert that the more effective practice at which these efforts aim is inevitably a more effective technological practice.[21] Here, as an example, he appeals to the ability to make a distinction between edible and non-edible foods. If modern Western science and technology can increase the scope of this ability, then surely, Taylor implies, any rational person would want to embrace it, since the possession of the maximum possible amounts of edible, rather than inedible foods is a goal which any human group would wish to attain. Thus he concludes,

> And this means that the protagonist of modern science has an argument which the Renaissance magus [or presumably the Azande chieftain] must listen to. One can almost put it in the form of a *modus tolens*: there is no scientific advance without increased technical applicability; but in your case, we see no increased technological application; so you are making no advance.[22]

Even Taylor senses that there is a flaw in his argument here: "we had to shift from 'applicability' to 'application' in moving from the first premise to the second." He realizes that "[t]he opponent could retort that he wasn't concerned about these applications, unlike our degenerate consumer society, but that the recipes were being generated none the less," but this objection he brushes aside airily — "assuming that this loophole could be plugged" — and proceeds on to his triumphant conclusion: "we have a *prima facie* convincing argument for the superiority of modern science."[23]

Do we indeed! What then are we to do with such historical examples as the ancient Chinese use of "gun"powder for fireworks rather than for guns, or of the "failure" of ancient Greek scientists to develop a technology? What are we to do with a society — the Amish one, perhaps — which has access to the marvels of Western science and technology, but which chooses not to take "advantage" of that access? What about those who argue that just because we have made the scientific advance which gives us knowledge of nuclear fission, that does not mean that we should apply such knowledge to the construction and use of nuclear weapons?

Once again, Taylor himself recognizes that he is not on very firm ground here and proceeds carefully to backtrack: "Of course, the argument could break out on another level, around in [*sic*] just what superiority had been proved."[24] That the argument could indeed "break out on another level" is clearly the case, as we have seen in the preceding paragraph. Thus pushed by his logical honesty, Taylor is forced finally to appeal to what is at the same time an apparently modest and yet in fact an enormously arrogant conclusion: "at least in some respects theoretical cultures score successes which command the attention of atheoretical ones, and in fact invariably have done so when they met. A case in point is the immense technological success of one particular theoretical culture, our modern scientific one."[25]

But surely this is a very primitive notion not only of success, but also of history; it is the modern, secular version of a more ancient argument: "We have won because of the justice of our cause, because God is on our side." That this is so, while perhaps inevitable given Taylor's assumptions, is still regrettable, because in his essay there are hints of a more helpful consideration of the problem of rationality and relativism, and it is to these, along with Winch's essay, to which I now turn.

III Consistency and Rationality

Taylor, having set forth the incommensurability of soccer and rugby as an analogy for the possible incommensurability of different world views such as those of pre- and post-Galilean science, goes on to say, "Giving an account in terms of the correspondences [as in pre-Galilean science] just isn't a valid move for modern science."[26] Here, I believe, Taylor comes so close to the heart of the matter that one can only be puzzled at his failure to pursue the insight implicit in this sentence unless one takes into account the depth of his commitment to the *a priori* goal of showing Western scientific culture to be superior in "rationality" (that is, "rightness") to other forms of culture.

Earlier in the essay, Taylor has suggested "logical consistency" as a criterion for judging "rationality."[27] Here again, he is very close to the heart of the matter, but he goes on to reject this notion. Logical inconsistency, he says, may serve as a useful criterion for judging irrationality, "but our concept of rationality is richer" than this.[28] Inconsistency may be "enough to explain the accusations of irrationality which we bandy around in our civilization," Taylor concedes, but, persisting in his project, he demands to know (while he assumes that the answer to his questions is affirmative) whether we can "claim that, for instance, peoples of a pre-scientific culture, who believe, let's say, in witchcraft or magic, are less rational than we are? Or at least that their beliefs are less rational?"[29]

Thus, driven on by his prior assumptions about the superiority of the Western scientific culture over others, Taylor is forced to conclude, "But the judgement of irrationality, or at least of lesser rationality, doesn't depend on contradiction. For we are tempted to judge as less rational members of atheoretical cultures who plainly don't accept our canons [of rationality]. . . ."[30]

This, as Taylor notes, brings us back to the Azande. The problem with the Azande, he argues, is not just that their beliefs about witchcraft and oracles contain [from our vantage point] contradictions. These "apparent contradictions" might be "ironed out if the peculiar nature of witches and witchcraft were to be given theoretical description."[31] The real difficulty with the Azande, Taylor insists, is that they are uninterested in giving their beliefs the kind of theoretical formulation which Taylor wants. Thus

> their very disinterest creates an imputation of lesser rationality in our minds. From our point of view, we feel like saying of them that they aren't interested in how things really are, outside of how things function for them in their world of social practices. They aren't interested in justifying what they say and believe from this [our] broader perspective.[32]

And so, once again, Taylor fails to see the thing right in front of his nose: "if," as he himself puts it elsewhere, "we stand inside an *episteme*" which links together the various elements of our world view (as he has just shown "understanding" and "attunement", or knowledge and wisdom, to have been linked in the *episteme* of the Renaissance) "it becomes not at all strained or unnatural" to argue for the validity or even the "rightness" of that *episteme*.[33]

This is exactly the point which Michael Polanyi makes in his consideration of Zande beliefs and practices, as well as our own and those of every culture, or even every sub-culture.

> Our most deeply ingrained convictions are determined by the idiom in which we interpret our experience and in terms of which we erect our articulate systems. Our formally declared beliefs can be held to be true in the last resort only because of our logically anterior acceptance of a particular set of terms, from which all our reference to reality is constructed.[34]

Of the Azande, Polanyi goes on to say that while they have "no formal and coercive doctrine to enforce belief in witch-doctors and their practice of the poison oracles. . . their belief is more firmly held for being imbedded in an idiom which interprets all relevant facts in terms of witchcraft and oracular powers."[35] As for us modern Westerners, we too hold to beliefs and practices which are dependent for their "rightness" on logically anterior tacit (and therefore inexplicit

and largely unexamined) assumptions. "And no one will deny that those who have mastered the idioms in which these beliefs are entailed do also reason most ingeniously within these idioms, even while — again like the Azande — they unhesitatingly ignore all that the idiom does not cover."[36]

Polanyi, of course, calls our attention to the importance of "circularity" as a characteristic which helps to maintain the stability of belief systems. Circularity, we recall, functions something like "if a, then b; but if b, then a," and so on. This circularity is evident in Taylor's surprisingly empathetic description of the pre-Galilean world view.[37] As an everyday analogy of the circularity of belief systems, Polanyi offers as an example a dictionary of any particular language:

> If you doubt, for example, that a particular English noun, verb, adjective or adverb has any meaning in English, an English dictionary dispels this doubt by a definition using other nouns, verbs, adjectives and adverbs, the meaningfulness of which is not doubted for the moment. Enquiries of this kind will increasingly confirm us in the use of a language.[38]

This is the same kind of point which Winch wishes to make: he quotes Evans-Pritchard who says that "Azande observe the action of the poison oracle as we observe it, but their observations are always subordinated to their beliefs and are incorporated into their beliefs and made to explain and justify them"; he then proceeds to restate Evans-Pritchard's observation about the Azande, only substituting "European" for "Azande".[39]

Here, as elsewhere, Winch is dependent on the implications of Ludwig Wittgenstein's thought about language. For example, he compares the disagreement between Evans-Pritchard (and, by implication, *a fortiori* Taylor) and himself to the difference between the early Wittgenstein of the *Tractatus Logico-Philosophicus* and the later Wittgenstein of *Philosphical Investigations*. The later Wittgenstein had rejected the thesis of the *Tractatus* that there exists "a general form of propositions" — that propositions qua propositions have some essential feature — and that a proposition is true when it reflects the arrangement of elements in "reality" itself. By the time Wittgenstein wrote the *Investigations*, he had not only, as Winch notes, come to realize that language is not limited to propositions, but takes an indefinite number of forms as it is put to an indefinite number of uses. He had also come to see that just as the meaning of a word is to be found in its use, so also does a language itself emerge out of a form of life: "to imagine a language means to imagine a form of life."[40]

Now Wittgenstein's term "form of life" is one which has come to be used widely, and perhaps too easily. A form of life is not a trivial matter, and the suggestion that it is could only be made by an essentialist — whether of the admitted or closet variety — who tends to see matters of convention as *merely* conventional — that is, mere in contrast to some more transcendent, unchanging truth. It is these persons who Wittgenstein imagines to pose the question, "So you are saying that human agreement decides what is true and what is false?" To this Wittgenstein responds, "It is what human beings say that is true or false; and they agree in the language they use. That is not agreement in opinions but in form of life."[41]

Nearly any person who has given the matter of cultural diversity much attention, and who is not caught up in the (as Wittgenstein terms it) bewitchment of philosophy, but rather heeds his injunction to *look* rather than think, senses the truth of what Wittgenstein means by form of life. For example, Winch quotes Evans-Pritchard speaking of the "web" of Zande belief in which "every strand depends on every other strand": "The web is not an external

structure in which [a Zande] is enclosed. It is the texture of his thought and he cannot think that his thought is wrong."[42] Evans-Pritchard's "web" is Wittgenstein's "form of life", and, as Winch says, one might have expected Evans-Pritchard's insight about Zande belief "to lead to a position closer to that of *Philosophical Investigations*". Like Taylor, however, Evans-Pritchard is blinded to his own insight by his desire to show that the modern Western view of reality — its language and form of life — is the correct one, and that the Azande one wrong.

In his diagnosis of Evans-Pritchard's difficulty, Winch, I believe, is correct, as he is in much of what he has to say. Where he goes wrong is the point at which he says that Evans-Pritchard's concerns and those of the Azande are "not on the same level".[43] There is a lurking ethnocentrism here comparable to Evans-Pritchard's which becomes explicit in the next sentence: "Zande notions of witchcraft do not constitute a theoretical system in terms of which Azande try to gain a quasi-scientific understanding of the world."[44] Although Winch is right to reject the notion that the Azande are aiming for a "quasi-scientific" understanding, Winch, as I have argued above about Taylor, is wrong in his assertion that the Azande belief system does not constitute a theoretical system. Even the disclaimer Winch offers in a footnote to this sentence — "Notice that I have *not* said that Azande conceptions of witchcraft have nothing to do with understanding the world at all. The point is that a different form of the concept of understanding is involved here." — is not sufficient to free him. While one may argue — perhaps interminably — over what is meant by "a different form of the concept of understanding," the point is that Zande beliefs have *everything* to do with understanding the world and with a theoretical — though not a traditional Western theoretical — understanding of it.

Thus, when Winch says that "the forms in which rationality expresses itself in the culture of a human society cannot be elucidated *simply* in terms of the logical coherence of the rules according to which activities are carried out in that society,"[45] I must take issue with him. Understanding the forms in which rationality expresses itself in another culture is certainly not a simple matter, and perhaps not a matter of elucidation, but it is just as certainly a matter of the logical coherence internal to a culture, its language and form of life. "Truth" is truth internal to a form of life, and only an essentialist — explicit or implicit — can be disappointed by this fact.

Our need for internal coherence — that is, our need not only to make sense out of our world, but to make sense of it in a way which agrees with that of fellow human beings in the culture in which we find ourselves — is an extraordinarily powerful need. We need only consider a few instances of people from one culture who find themselves in a very different one.

Surprisingly perhaps, Evans-Pritchard himself may serve as our first example. As Winch points out (although he fails to make sufficiently explicit the significance of the matter), Evans-Pritchard makes "more than one remark to the effect that 'obviously there are no witches'", but then goes ahead to write of "the difficulty he found during his field work with the Azande, in shaking off the 'unreason' on which Zande life is based and returning to a clear view of how things really are."[46] Winch also notes that "Evans-Pritchard himself ran his household in the [Zande] way during his field researches and says: 'I found this as satisfactory a way of running my home and affairs as any other I know of.' "[47]

Another anthropologist and defender of transcultural rationalism tells a similar story. In an essay entitled "Apparently Irrational Beliefs," Dan Sperber describes a conversation with an old tribesman in which the latter tried to persuade him to embark on an expedition to kill a dragon (with a horn at the nape of its neck and a heart of gold) which could be found only two days' walk away.

> [H]e said he would come back the next day and left. So I hadn't managed to refuse [to go in search of the dragon], only to delay. But why in the first place had I been so eager to refuse? Was I afraid I would have to confront the dragon? Didn't I know that dragons don't exist? Sure I knew, but still....
>
> There I was, a trained anthropologist...and a native came and asked me to kill a dragon. In the first second I knew I had hit on a great piece of data:...the cultural gap illustrated in a vignette! Yet, one second later, there I was, a reluctant dragon killer staggering on the other side of the unbridgeable gap.[48]

That these two anthropologists' experiences are not unusual we may judge, perhaps, from the enormous fear and disgust which British colonials expressed for "going native" and the extraordinary precautions which they took to uphold the form of life implicit in contemporary British practices while in the midst of very different (and once again, in their view, inferior) cultures. A similar story is told by "sane" persons who find themselves as patients in insane asylums.

When we find ourselves in another culture very different from our own and without the support of fellows who share our original culture, the pull toward making sense of — theorizing about — the world in the way others around us do is obviously very strong. When, so to speak, the game we are accustomed to playing is rugby, but everyone around us is playing soccer, the urge to join the soccer game is considerable. This is so not because, as "rationalists" throughout the ages have argued, the power of "unreason" is stronger than that of "reason", but because the power of *the reason of the community* — of theorizing about the world as our neighbors do — is so fundamental to the human condition. We are not autonomous individuals who individually construct our world *de novo* upon some *tabula rasa*, but, in order to be human at all, we are inevitably individuals in community with our neighbors.

This (for us) bedrock of human community need not lead us to conclude that our beliefs and our actions are absolutely determined by the community in which we find ourselves — when in Rome we must do as the Romans do, *whatever* they do. If, as Wittgenstein urges us, we *look*, rather than merely think about human behavior we see that this is not the case. Individuals do believe and act in ways which are at variance with, which challenge and call into question, the beliefs and practices of their communities. Sometimes other individuals, the community itself, other communities, or "history" judges these challenges to a form of life as superior to the existing community consensus, and sometimes as inferior. But neither individuals within or without a particular community, the community itself, other communities, or even "history" possesses any absolute transcultural, transhistorical guarantee of the rightness of its judgments; even the religions of the world, which have all too often offered such absolute guarantees, also recognize the fallibility and imperfection of the human condition.

To return, then, to Taylor's analogy in which he suggests that different belief systems or forms of life are incommensurable in the sense that soccer and rugby are incommensurable: it would seem to be true that one can no more fully inhabit two different forms of life simultaneously than one can play soccer and rugby at the same time. Yet this analogy is a useful one in another way too: no one would seriously argue that one game is superior to the other in some transcendent way or that one somehow reflects truth or reality more closely. Surely we could benefit from more fully incorporating the implications of this analogy into our understandings and appreciations of forms of life different from our own.

But where then does this leave us when it comes to the matter of judging our rationality, our form of life, our culture in relation to those of others? What are we to do about this relativism of rationality? This question raises a host of others which are at the same time both epistemological and ethical. How are we to claim, as Taylor wishes to do and as most of us presumably also wish in some way to do, judging by the way we live our lives,[49] that the Western model of rationality is superior to others? To turn to specifically moral questions, how are we to condemn Nazis, or Serbs, or the present government of China, or the sentiments and actions of Jewish or Islamic or Christian terrorists? On a less global level, how are we to call into question and reject our friend's decisions and actions when we discover that she has embezzled money from her doubtless oppressive and exploitive employer in order to pay off the $10,000 balance on her credit cards which had been run up by a man who claimed to be a friend, but who has now absconded?

On what grounds do we stand to make these judgments, if rationalities imply moralities, and if all moralities are based on rationalities which are relative to time and place, each qualifying as a theoretical understanding, each self-consistent, and aiming at an effective practice? Are we prisoners of our particular rationalities with no place to stand from which we may judge them and those of others?

If once again, as Wittgenstein advised, we look, rather than think, we know immediately that it is neither the case that we are prisoners, nor that we have no place to stand. If either of these were true, neither rationalities nor moralities would be challenged or changed, as they are both minimally and radically every day. When we reject the essentialist notion of rationalities and moralities, but, having done so, begin to be anxious about imprisonment and places to stand, we both conceal and reveal our hidden agenda, our real questions. What is the picture here which our anxiety frames?

I suggest that it is a deeply gnostic picture which is radically frustrated with the relative limitation which is endemic to the human condition.[50] As a result, it portrays the only alternative to this limitation — that is, the necessity for being in this or that place at this or that time — as infinity and eternity. Like the serpent in the Garden, it portrays an alternate existence in which we would no longer be human, but "like God, knowing good and evil" without limitation, absolutely.

What, however, is the alternate picture and how may we frame it? It is one in which we recognize our necessary limitation, our relativity, which also, of course, implies recognizing our relatedness. It is one in which we, by our actions and our lives, affirm — to a greater or lesser degree — our rationality, our form of life, our culture — but affirm them in such a way that we recognize that our affirmations are limited, in a way that recognizes, as Marjorie Grene has said, that "human aims and interests can always go astray, they can be 'merely' subjective, 'merely' commitments to what is not."[51] This view, then, recognizes that the "objective" knowledge which the essentialists promise us — or at least some of us — is a mirage, yet recognizes also that the alternative to this mirage is not a hopeless captivity to "subjectivity," but rather, to use Polanyi's formulation, personal knowledge. Personal knowledge, in which Polanyi means, of course, to include all human knowing, "submits to requirements acknowledged by itself as independent of itself," but since such knowledge "is an action guided by human passions it is not objective either."[52]

Yet, what assurances do we have that in our knowing we will not fall captive to subjectivity, that we will submit to requirements which we acknowledge as independent of ourselves? We may be assured of this to the extent that

we are neither autistic nor psychotic. Ordinarily, knowledge is knowledge in community, just as rationality and moral judgments are rationality and moral judgments in community. We not only acquire the rudiments of human knowledge (the capacity for language) in community, and throughout our lives build upon these original communal foundations, but also even when we pursue knowledge, or practice rationality, or make moral judgments in apparent isolation, we are still continuously dependent, even if only tacitly, upon the language and other symbolic systems of our cultures, as well as upon its bedrock assumptions, and this is so even when we disagree or take issue with some parts of these assumptions.

As humans, the one place that we *cannot* stand in order to judge the relative merits of rationalities and moralities is *nowhere/everywhere*. The god-like "objective" knowledge of theory as contemplation and the god-like certainty which it is supposed to provide and which the philosophers and modernity have held up to us as the only form of true knowledge is, in fact, simply *not* available to us because we are not gods, but *human* persons located in a particular time and place. Thus we must be content with the fact that, as Grene has reminded us, "[h]istory...comes first" and that "there is no grasp of truth apart from the historical situation of the *aspirant* to truth." And so while we, at our best, are aspirants to truth, it is also the case, as Grene reminds us, that, "[o]ur cultural heritage comprises, as Polanyi remarks, 'the sum total of everything in which we may be totally mistaken'."[52]

What, then, am I to do as I stand in this place, at this time, and judge my rationality and morality as superior to the Zande one, or judge racism to be wrong? All I can do — and it is enough — is to say with Martin Luther, "Here I stand; I can do no other. God help me," and act on that saying in whatever way is possible for me, while at the same time I recall Oliver Cromwell's words: "I beseech you, in the bowels of Christ, think it possible that you may be mistaken."

Endnotes

[1]E.g., those whose writings make up the bulk of Martin Hollis' and Steven Lukes' volume *Rationality and Relativism* (Cambridge: The MIT Press, 1982).

[2]In Hollis and Lukes, pp. 87-105. Taylor, presumably, would not choose to apply the term essentialist to himself, and it is certainly the case that since he wrote "Rationality," the subtlety of his thought on these matters has grown. Despite these facts, it is my contention, which I intend to demonstrate in what follows, that in the case of "Rationality," at any rate, the appelation is a justified one.

[3]In *American Philosophical Quarterly* 1 (October 1964): 307-324.

[4]*Rationality and Relativism*, p. 88.

[5]Oxford: Oxford University Press, 1937.

[6]Unfortunately Taylor's summary description of Zande beliefs and practices about witchcraft and oracles is too brief, and for that, if not for some other reason, confusing. Much clearer summaries of Evans-Pritchard's findings and conclusions are to be found in Peter Winch's "Understanding a primitive society" and in Michael Polanyi's *Personal Knowledge: Toward a Post-Critical Philosophy* (Chicago: The University of Chicago, 1962).

[7]*Rationality and Relativism*, p. 89.

[8]Taylor says, "One might say something of the kind: witch power is mysterious; it doesn't operate according to the exceptionless laws that you Europeans take as the basis of what you call science. But only if you assume this [the exceptionless laws] does the contradiction arise" (p. 89).

[9]Ibid.

[10]"Understanding a primitive society", p. 315.

[11]Ibid. The "we" here would seem to refer to Taylor and his intellectual compatriots who share, somewhat uncritically, the assumptions of the historical mainstream of Western thought. The mainstream is not the only stream, however, as I will suggest.

[12]That there should be this agreement between the *theoria* of the Greek philosophers and the modern Western scientific tradition is hardly surprising. It is in large measure, although of course not entirely, from the former that the latter inherited its assumptions about knowledge and how it is to be gained.

[13]We can understand "theory" in its larger meaning as akin to Aristotle's understanding of the function of logic: it is a *organon*, a tool which helps us to do the work we want to do.

[14]Ibid., p. 90.

[15]Ibid.

[16]Ibid. The emphasis is, of course, mine, intended to call attention to at least some of the points at which Taylor either takes an unwarranted logical leap and/or betrays his modern Western scientific bias. By these standards the whole paragraph might have been italicized, but I judged that to do so might dilute the effect of the key words and phrases.

[17]Ibid., pp. 90-91.

[18]Ibid., p. 98.

[19]Ibid., p. 100.

[20]Uncontroversial, that is, if we overlook the possible implication of a purely utilitarian standard. And in some circles, of course, such a standard *would* be uncontroversial, but that is another story.

[21]And thus we should perhaps *not* overlook the utilitarian implication.

[22]Ibid., p. 102.

[23]Ibid.

[24]Ibid.

[25]Ibid., p. 104.

[26]Ibid., p. 98.

[27]Ibid., pp. 87-88.

[28]Ibid.

[29]Ibid., p. 88.

[30]Ibid., p. 91.

[31]Ibid.

[32]Ibid., pp. 91-92.

[33]Ibid., p. 96.

[34]*Personal Knowledge*, p. 287.

[35]Ibid.

[36]Ibid.

[37]"Rationality", pp. 95-96.

[38]*Personal Knowledge*, p. 289.

[39]"Understanding a primitive society", pp. 312-313.

[40]Ludwig Wittgenstein, *Philosophical Investigations* (New York: MacMillan Publishing Co., 1953), par. 19.

[41]Ibid., par. 241.

[42]Quoted in Winch, p. 313.

[43]Ibid.,p. 315.

[44]Ibid.

[45]Ibid.

[46]Ibid., p. 307.

[47]Ibid., p. 311.

[48]In *Rationality and Relativism*, pp. 178-179.

[49]That is, we do not give up all that we have in order to follow, say, the Azande.

[50]William H. Poteat has masterfully described this gnosticism as the product of modernism in such works as *Polanyian Meditations: In Search of a Post-Critical Logic* (Durham: Duke University Press, 1985), *Philosophical Daybook: Post-Critical Investigations* (University of Missouri Press, 1990), and his forthcoming *Recovering the Ground: A Philosophical Essay in Recollection* (SUNY Press).

[51]Majorie Grene, *The Knower and the Known* (London: Faber and Faber, 1966).

[52]*Personal Knowledge*, p. 300.

[53]Grene, ibid.

Resonance Realism

John C. Puddefoot

ABSTRACT Key words: resonance, realism, version giveness, correspondence, reality, personal, subsidiary, focal, knowledge, culture, language, Polanyi, Goodman, Torrance.
Our culture and tradition, including our theories and our language, act as subsidiaries by which we attune to resonances between outselves as convivial beings and the world. These resonances afford us our senses of reality and illustrate the impossibility of a correspondence theory of truth. We select between theories and versions by learning to sense the deeper and deeper resonances which they evoke in our communal selves.

Foreword

The subsidiary-focal structure of tacit knowing is fundamental to Polanyi's thought, and in particular to his *realism*. In this paper I argue that Polanyi saw the entire socio-cultural-linguistic context of humankind as one vast subsidiary *through* which we attain focal awareness of reality, and which we can no more put off than we can shed our skin. Such a view involves an unequivocal rejection of the correspondence theory of truth as completely unintelligible, and demands a reconceptualization of what we mean by realism. For what it is worth, I offer the term *resonance* for this realism, and while I cannot and do not claim that it is to be found in a fully worked-out fashion in Polanyi's writings, I do claim that those writings, seen themselves as clues to the workings of his mind, point clearly in some such direction.

Argument

Michael Polanyi's realism is one of the most remarkable aspects of his philosophy, but because it was something he took completely for granted, and as such assumed only subsidiary status in most of his written work, it constitutes such an implicit and therefore tacit component in his philosophy that it has occasioned much less comment than it deserves. Eschewing the subject-object dichotomies that plagued philosophy from Descartes to Kant, he allows the intrinsic dynamic of active life processes to provide the chief criterion by which we judge the realism of our beliefs. Such a dynamic sets up resonances in us both as individuals and, rather more significantly, as communities, resonances which indicate the extent of our contact with reality through the depths of the convictions they induce. The resonant theories about the world that we should value are those we should credit as framing the facts we should affirm, and vice versa.

> We make sense of experience by relying on clues of which we are often aware only as pointers to their hidden meaning; this meaning is an aspect of a reality which as such can yet reveal itself in an indeterminate range of future discoveries. This is, in fact, my definition of external reality: reality is something that attracts our attention by clues which harass and beguile our minds into getting ever closer to it, and which, since it owes this attractive power to its independent existence, can always

> manifest itself in still unexpected ways. If we have grasped a true and deep-seated aspect of reality, then its future manifestations will be unexpected confirmations of our present knowledge of it.[1]

Polanyi was not afraid to extend this notion of reality to realms often regarded as unreal or subjective:

> [A]s we move to a deeper, more comprehensive, understanding of a human being, we tend to pass from more tangible particulars to increasingly intangible entities: to entities which are (partly for this reason) more real: more real, that is, in terms of my definition of reality, as likely to show up in a wider range of indefinite future manifestations.[2]

The essence of Polanyi's conception of reality lies in the faith in it that justifies our submission to it as a source of unlimited richness, and our consequent willingness to identify the richness of our conceptualizations with the richness of the reality that they arise from. We specifically make no attempt to move outside of our embodied selves to establish the credentials of our concepts according to a correspondence theory of truth; we allow the richness of those concepts themselves, as measured by the resonances they evoke from the world and in our own minds, to be their authentication.

It is for this reason that Polanyi both is and is not close to Richard Rorty: close in the sense that with Rorty, Polanyi fears and seeks to avoid the death of incommensurable discourse by preserving newness and fruitfulness in all conversation; not close in the sense that far from cutting the link between our conversation and reality, Polanyi wishes to tie it ever tighter by insisting upon the faith and trust we must have in reality as a source of regenerating information.

As I have indicated elsewhere, Rorty's programme is doomed for just the reasons that the Second Law of Thermodynamics dooms any closed system: by insulating itself from the boundary-crossing information permitted by open systems that is the source of renewal, conversation cannot but end up as commensurable and normal.[3] It is as if Rorty, unable to reconcile the demand for realism with the critique of realism afforded by modern philosophy, resolves the ensuing dilemma by taking the fateful step beyond respect for reality.[4]

It is not clear that Polanyi appreciated how close he had come to a resolution of the persistent problem of realism. To avoid association with many other terms that have been used to describe other responses to the problem, I shall call the view implicit in his work resonance realism. This term reflects the way the theory:

> -- does not attempt to achieve a correspondence between theory (language) and reality, for such a quest is hopeless;
> -- does not rest content with a conventionalist coherence, despite insisting upon rigorous internal coherence, for that is too close to the kind of closure Rorty allows himself to be drawn into;
> -- does not attempt to avoid the constraints imposed by the successes of science, as many have done by espousing anti-scientific positions;
> -- does not adopt a passive philosophy of perception or evolution as is implicit in a Lorenz-Popper evolutionary epistemology, but draws upon the theory of active perception advanced by J.J. Gibson and followed up by, *inter alia*, Rom Harré[5];
> -- does not require an absolutist view of cultural history or progress;
> -- does not require a foundationalist or a transcendentalist stance;
> -- does not involve relativism of truth;

-- does not rely upon a particular formalism, whether in mathematical or linguistic terms, and therefore admits incorporation of Polanyi's account of tacit knowing by which subsidiaries may be focused upon totalities to which they are essentially alien (more on this in a moment);
-- rejects any sense of the absoluteness of the given while leaving room for a sense of the rightness of what we regard as the given;
-- affords an opportunity to perform comparisons between more or less satisfactory formalisms and therefore offers us a way by which to compare the adequacies of versions in Nelson Goodman's sense;
-- leaves room for a plurality of rationalities.

The essential point about resonance realism, as the name suggests, is that it places the central criterion of our contact with reality on the boundary between the constructed world of human sense, culture and language and the discovered world "out there" of which we can have no direct unmediated knowledge. That criterion was that to which Polanyi drew attention in the first quotation given above, that the richness of the external world, which has the capacity to draw us beyond our current sense of completion and adequacy to new imagination and new depth, imparts a sense of the inadequacies of current theories and ideas by resonating with our enquiries in a way that suggests the further tuning and retuning that will improve that resonance. A correct theory makes us feel at one with the world, but the limitations of our theories imply that we shall only ever feel partially at one. There are always corners and untidy ends that do not find an easy resting-place in our theories, and which we seek to incorporate in a natural way.

I have spoken here of "theories", but I have in mind everything from the common-or-garden way in which we find our way round our own house and in so doing arrive at a sense of its external reality, to the most advanced physics and biology in which we tinker with the fundamentals of the universe and life. When we "hit the mark" something comes back to us, an echo, and we tune our theories by searching for resonances with the world that sharpen and increase the volume of that echo. It is this that gives us our sense of reality, of being on the track of the real.

In resonance realism, theory and language remain instrumental and to an extent arbitrary, as the tuning-fork remains instrumental. We do not pretend--at least, we should not pretend--that the tuning-fork in some sense "corresponds" with that with which it resonates; on the contrary, we know that it bears no essential resemblance to it, only that it evokes an echo which tells us something about the intrinsic nature of the world.

> While we do not have genuine knowledge anywhere apart from a complex situation, or apart from subjective experiences and intellectual or verbal articulation, nevertheless it is through these that we perceive the objective reality - logic and language should be used with scientific instrumentality and therefore used critically, but they ought to be transparent media through which we apprehend the objectively given reality beyond subjective experience and its articulation in speech.[6]

This is not mere conventionalist relativism, of course, which denies that there is any sense of "better" or "worse" about our theories and languages, for the resonances themselves permit us to select between theories (although it is by no means certain that we will never need to back-track to make further progress). What resonance realism requires is the essential involvement of the user of the theory in the process of using it, i.e., the sense in which we know what we are doing and are in this wise employing a skill as we investigate the world.

Resonance embraces other important aspects of Polanyi's wider philosophy: the intimations of fruitfulness that a good theory must exude; the conceptual wholeness that a good theory must display; the inherent sense of rightness that a good theory must engender.

The kinds of realism adopted by many scientists and theologians do not take adequate account of philosophical criticism of realism, seeming always to be based upon some more or less obvious kind of correspondence principle which can be detected in their persistent references to comparisons that must be made between theories and reality[7]. Resonance realism acknowledges and incorporates the insight of modern philosophy that such comparisons cannot be performed because they presuppose that we can somehow look "around" or "behind" our theories from some kind of neutral ground that is not itself hopelessly coloured by further theories and constructions. Instead, resonance realism insists that we test the adequacy of all theory through the total panoply of theories that constitutes our culture, our world-orientation, our collective mind. It is this that makes "resonance" a peculiarly appropriate term, for resonance is something we can only feel while still being inside the theory, not something we can assess while standing outside or beyond it.

However, to make too much of the way in which the world resonates to our theories, as if the world itself questions us actively and dynamically, and to stress the givenness of the world which we know, as Torrance does repeatedly in *Theological Science*, is to place insufficient emphasis upon the contingency of both language and theory on culture and history. Michael Polanyi resolved this tension in his theory of knowing by allowing not only for the arbitrariness of our language and theory and for the finality of the one reality of the world but also for a post-foundationalist and post-transcendentalist dynamic account of knowing such as Kierkegaard anticipated in his notion of kinetic thinking, i.e., a thinking that moves along with that which is known and is transformed by it in such a way as to be kept permanently attuned to it.[8] It is this dynamic thinking that lies at the centre of the post-critical thinking advocated here.

The key to understanding this dilemma in Torrance's work is his negative attitude to constructive elements in post-modern thinking, which he sees as fundamental betrayals of the faithfulness of our knowing to the known. Were all construction guilty in this respect (i.e., were no construction capable of avoiding exactly the kind of renunciation and betrayal of reality we find in Rorty), he would be right, but it is not. The givenness of the world does not and cannot dictate the givenness of our knowing of the world because our knowing is always by means of the contingent language and theory of a particular culture and history in a particular world-line, a language, theory, culture and history that we have constructed.

What is more, we construct those things using bodies that themselves exist by virtue of an evolutionary history itself contingently constructed out of the raw material of the world. Therefore, of necessity, the constructed must act as the subsidiary through which and by the sole means of which we come to focal knowledge of reality by sending out and receiving back signals which to a greater or lesser degree resonate with that reality. Were this not so we would need a correct language or formalism before we could attain knowledge, whereas we know that we are skilled at compensating for the deficiencies of our language and formalism and that their refinement often follows acquisition of new insights.

Unfortunately, Polanyi may be responsible for suggesting that there is some essential and therefore necessary connection between subsidiary and focal elements in tacit knowing by virtue of his own favourite analogy of the blind

man's stick in the palm of the hand. Moreover, he may have failed to press home his vitally important insight into the nature of apprenticeship and skill-acquisition to the level of our apprenticeship in learning how to use our own bodies, languages and theories - especially our bodies. We dwell in our bodies in such a way that, despite their differences from the reality which we come to know through them - i.e., despite the fact that they as subsidiaries bear no intrinsic relationship to the focally known world--we acquire the skills needed to perform the tacit integrations required to test and assess the resonances afforded us by the world as it reflects its nature back to us. By extension, we can use constructed languages and theories--indeed, entire histories and cultures which we have constructed - to acquire understanding of that which is not in this same sense constructed (i.e., not part of what man has constructed and is in this sense "given"), and to which--in a formal sense--those constructions are alien.

The ambiguity of the notion of givenness, as a means of referring to the "objective reality" of the external world, leads to considerable philosophical and theological confusion.[9] The term can easily amount to an attempt to short-circuit or circumnavigate the personal coefficient in knowing, the personal appraisal by which we find ourselves willing and able to affirm the nature of reality as an act of total personal conviction. In other words, whether, to use a theological example, Jesus Christ is the Incarnate Word or not, I can have no access to him as such without an act of personal assessment leading to such an affirmation.

> [W]e can only "convince" others of the truth of our existence-statements if we can get them to see or hear the reality they refer to as we see or hear it. It can never be forced upon them. They must be brought to share our intuition of the object given. That does not mean that by describing or explaining to others our intuition we can induce them to have a similar experience, for no act of knowledge is explainable from the side of the knowing subject (i.e., psychologically) but only from the side of the object known, for true knowledge arises in proportion as the subject allows his knowing to be determined by the nature of the object before him.[10]

It is the essential role of personal engagement and personal appraisal in all knowing, and the personal participation in a community of enquiry which makes that appraisal possible, that makes the notions of "givenness" or "self-authentication" so inappropriate. The Lordship of Jesus is in the same category as – although on a different level of importance and significance from – any scientific theory, or any everyday assessment such as "there is a waste-paper bin in the corner", or anything else we claim as human beings to know. The seamlessness of the garment of human knowing that requires elimination of the distinction between fact and value, science and theology, truth and opinion, objective and subjective, must be carried through even in this most solemn and significant matter.

The main reason for stressing this series of points is that claims about the "self-authenticating" nature of certain beliefs are counter-productive when it comes to the evangelical mission of the Church, for they lead to a frame of mind in which we expect to be convinced without having to do any work, without, that is, taking account of the need for, say, the possibility of the Lordship of Jesus to be first constructed in our minds in order that those minds might be directed to him as a significant figure. Jesus no more jumps out of history and into our minds than do theories about W and Z particles. On the contrary, we first have to learn about them, test them, feel the resonances we receive from them, and then find ourselves able to reaffirm them through an act of personal judgement. Indeed, the theological task is the construction of accounts which will help to construct those possibilities more successfully and so lead more people to test them, sense their resonance, and hence see the importance of Jesus. Christian evangelical theology is

not about persuading people that Jesus is Lord, but about establishing an intellectual environment in which those people will be persuaded to attend to the person of Jesus within the community of faith and so be persuaded by him. Theologians need to be more sensitive to the fact that the confession "Jesus Christ is the Incarnate Word" may for many come at the end of a long process of education and exploration, not at the beginning, rather as an appreciation of the W and Z particles comes at the end rather than the beginning of a journey into particle physics. We should no more insist that neophytes start from the "self-authenticating" Incarnation of the Word than that young physicists should begin from the most demanding results of theoretical physics.

Attempts to erase fact/value/opinion distinctions tend to founder on the palpable successes of empirical science because empirical science is viewed from a perspective governed by the correspondence theory of truth, the notion of a ready-made world (givenness), and the belief that experiments disclose raw, self-authenticating facts which verify theories. Each of these components is untenable, and it is one of the great achievements of modern philosophy that we can now see this to be so: nothing like the correspondence theory of truth is tenable because there is nowhere to stand by which to assess the adequacy of a "correspondence"; nothing like a ready-made (given) world can be known because everything we know is known through the constructed contingent media of language, theory, history, culture; nothing like raw self-authenticating facts are disclosed by experiments because data only become facts when interpreted in the light of theories which authenticate them.

To realize this is to be enabled to see empirical science as just one more very particular aspect of the life process by which we "sound out" the adequacy of our theories by searching for resonance. Nelson Goodman calls something like this "fit".

> Briefly, then, truth of statements and rightness of descriptions, representations, exemplifications, expressions - of design, drawing, diction, rhythm - is primarily a matter of fit: fit to what is referred to in one way or another, or to other renderings, or to modes and manners of organization. The differences between fitting a version to a world, a world to a version, and a version together or to other versions fade when the role of versions in making the worlds they fit is recognized. And knowing or understanding is seen as ranging beyond the acquiring of true beliefs to the discovering and devising of fit of all sorts.[11]

Goodman erases the fact/value/opinion distinction almost exactly as Polanyi does, by perceiving that "fitting a version to a world" and "fitting the world to a version" and "fitting versions together" and "fitting versions to other versions" become indistinguishable once we understand that the versions we construct and the world in which we live are indistinguishable in any final and absolute sense not because there is no world beyond our versions, but because it is a world that cannot but be known through versions or remain forever unknown. This is to grasp one horn of Kant's fundamental dilemma over things-in-themselves and things-for-us by denying, in effect, that the notion of a "thing-in-itself" is coherent in the absence of a version. There is, let it be stressed, a world beyond our versions, but it cannot be conceived to consist of "things" in any intelligible sense of the word.[12] One might just as well rest content with "the unknowable", or Rom Harré's delightful "glub."[13]

The following way of expressing essentially the same point may serve to fend off some of the opposition that this notion of the "unknowable beyond" usually occasions:

To be a realist in some version-free sense one needs to suppose that

> it is possible to describe something
> as it is
> when it is not being described;

or that

> it is possible to know something
> as it is
> when it is not being known.

Inasmuch as it makes sense to talk about the unconceptualized world, we must mean the world as it is known by God, and therefore the world as it can never be known by humanity. In the Incarnation we have to deal with God becoming man in a way that involves him coming to know the world through the constructed contingent media by which all men know it. The need to conceive of God in some sense emptying himself of knowledge in becoming man as kenotic Christologies require disappears on this reading - in this version - for God comes to know the world as he had formerly not known it. Everything Jesus learns as man - from conception to the grave - he learns in the same way that each man and woman must learn it, through the media of constructed culture, history, language and theory, the imperfect instruments with and through which we must struggle to live our lives. This eradicates any sense of docetism in Christology while preserving in the fullest sense the *vere deus* and *vere homo* of Jesus. It makes abundant sense of that otherwise puzzling allusion in Athanasius[14] to the Word taking a body so that he could feel pain and know death, since pain and death are themselves the stuff not of the world as an unconceptualized mass of glub, but of the world as lived and experienced by God's creatures.

Hilary Putnam, writing about Goodman's *Ways of Worldmaking*,[15] has expressed the hope that Goodman will expand upon the briefest of accounts of how we are to judge between versions which he gives on the penultimate page:

> Whether a picture is rightly designed or a statement correctly describes is tested by examination and reexamination of the picture or statement and what it refers to in one way or another, by trying its fit in varied applications and with other patterns and statements. One thinks again of Constable's intriguing remark ... that painting is a science of which pictures are the experiments.[16]

This seems to me to involve a fundamental betrayal of the position Goodman adopts throughout the rest of the book, for we seem to be invited to engage in exactly the kind of comparisons between versions and realities (in what looks suspiciously like a version-free way) that Goodman is elsewhere at such pains to say cannot be performed. Putnam seems to share this anxiety:

> Goodman would, no doubt, reply that any superiority of our versions over other versions must be judged and claimed from *within* our collections of versions: there is no neutral place to stand. I heartily agree. But what I hope Goodman will say something about in the future is what makes our versions superior *by our lights*, not by some inconceivable neutral standard.[17]

Resonance realism attempts to respond to this request by offering another and better account of the process of testing,

which goes beyond Goodman's "fit" couched in terms suggesting an oscillation between statement/picture and world/object. It seizes Rorty's ironic conversational "resolution" of the dilemma of modern philosophy, and says that Rorty does not know what talking is about. The conversations which Rorty and his fellow ironists engage upon are being tested against the real world because testing is performed through conversation, theory and experimentation, not by comparing conversation, theory and experiment with something else (which notoriously leads to an infinite regress). It accepts that we cannot "climb out of our minds"[18] and therefore that we cannot perform comparisons of the kind such verifications would require. Rorty thinks he and his fellow ironists are merely conversing, albeit edifyingly; but nobody can do this, since the adequacy even of mere conversation à propos nothing in particular is still being assessed by those conversationalists in relation to its existential adequacy as part of a life process, i.e., as an activity in which an existent being chooses to engage,[19] not only through the resonances evoked in and by his fellow conversationalists, but in life resonances as a whole.

How does resonance realism work? It may seem to smuggle in comparisons by the back door in order to distinguish between versions, as if it were saying, "this version is better than that because it compares better with the real world". This is the trap Nelson Goodman falls into, and to which I have already referred. Resonance realism most emphatically does not involve comparisons in this sense, but does involve comparisons between resonances, i.e., resonance realism regards the single criterion by which a theory is to be judged as whether it produces better resonances than other theories. What are "better" resonances? *Simply those that reverberate most in our lives, that involve echoes in the beyond that match echoes in ourselves*. These "selves" are not, of course, "individuals", but persons who embody cultures and histories in unique, contingent ways. A scientist senses the resonances of his theories not just because he has performed an experiment that gives the results he expected, but because he is a member of a scientific culture that weaves that experiment, the theory it embodies and tests, and the professional and personal hopes and convictions that the scientist shares, into a web of beliefs that shapes his entire being.[20] In just the same way, we judge the appropriateness of our everyday (and technical) language by employing the acquired skill of attuning ourselves to the resonances our usage evokes from the extended web of beliefs, meanings and usages that constitute a linguistic community. We test out our words by uttering them and receiving a response from other users, by allowing them to resonate in our own memories, and by setting them within a historical tradition which has already established in our community a set of unspecifiable criteria by which adequacy of speech is to be assessed[21]. In theological and religious usage those same general criteria are supplemented by what we refer to as "the spiritual" that enlarges the dimensionality of the space within which our beliefs can resonate and to which we can resonate. Without those beliefs as articulated in the constructed theological and religious teachings of a tradition we experience a devastating reduction in the available volume and quality of the reverberations which are absolutely necessary in the establishment and definition of our being[22], for contrary to so many of the suppositions that colour and limit humanity by diminishing the scope of his rationality, it is not in self-containment, passive receptivity, and closure, but in discovering the conceptual spaces to which we can resonate and in resonating be amplified and fulfilled that the attainment of true being is achieved. Let me summarize this in Dan Hardy's words:

> [P]ersonal confirmation occurs through the discerning of significant form, not the other way round: the direction is outward.... Polanyi's emphasis on the movement of thought away from ourselves makes it clear that there is an inescapable ordering in the interrelation between the discernment of significant form and the discovery of our significance, and that the latter is achieved through the

former.[23]

The discernment of significant form is only possible, however, if we allow ourselves to be induced to realize a complementary aspect of that form. We must first receive, then construct by searching for patterns (in which we are aided by our imagination) and then be conformed to and by the patterns which we discern. Resonance realism incorporates rigorous internal coherence, rejection of relativism, and the role of constructive conversation and contingency, into a substantial insistence on the single reality of the external world that we make and find through the versions we employ to explore it[24]. In effect, resonance realism takes philosophy and theology beyond the tensions and conflicts between realism, foundationalism, transcendentalism and post-modernism without embracing those elements in post-modern thought (exemplified in this essay by Richard Rorty's work) that involve a fundamental renunciation of recourse to and respect for the external world as an everlasting source of regeneration.[25] The singleness of this reality[26] manifests itself through our versions by resonating to them to differing extents and thereby suggesting that there are other directions in which greater resonances might be found. The world does not indicate of itself what those direction are, but the fact that there are differences of resonance suggests to us that those directions are there, and our imaginations enable us to seek them out. A good "nose", and in some cases the courage needed to back-track and begin the ascent again, will lead some of us to explore better (i.e., more resonant) avenues of enquiry sooner than others. Acquisition of that nose is one of the main objectives of apprenticeship and education, but in the end it will be the richness of our imagination and not the self-limiting rigour of our logic that will govern how rich a world we discover, and therefore how rich a world we inhabit, for unless we first construct the dreams we shall never be able to ask the questions that will find the most resonant echoes in the depths of reality.

Endnotes

[1] Michael Polanyi, "The Unaccountable Element in Science" reprinted in *Knowing and Being*, RKP, 1969, pp. 119ff.
[2] "Tacit Knowing", in *Knowing and Being*, p. 168.
[3] Cf. my "Information and Creation", in *The Science and Theology of Information, Proceedings of the Third European Conference on Science and Theology*, Labor et Fides, Geneva 1992.
[4] Cf. Rorty's *Contingency, irony and solidarity*, CUP, 1989, p. 21.
[5] Cf., for example, his *Varietes of Realism*, Blackwell, 1986, especially pp. 156-161.
[6] T.F. Torrance, *Theological Science*, OUP, 1969, p. 28. His emphasis.
[7] I have in mind especially the various forms of "critical realism" put forward by, for example, Ian Barbour in *Religion in an Age of Science*, Arthur Peacocke in *Theology for a Scientific Age*, and John Polkinghorne in *Reason and Reality*.
[8] Cf. Torrance's *Theological Science*, pp. 153n, 246n where attention is drawn to this element in Kierkegaard's thinking. Kierkegaard was himself drawing upon the work of Trendelenburg. In the *Concluding Unscientific Postscript*, p. 100 (Princeton Edition, 1974), Kierkegaard writes, "His [Trendelenburg's] merit consists among other things in having apprehended movement as the inexplicable presupposition and common factor of thinking and being, and as their continued reciprocity."
[9] Cf., for example, the many references to Torrance's own teacher A.E.Taylor's *The Faith of a Moralist* in Torrance's *Theological Science*, (OUP) 1969, p. 342n "Dogmatic science, of course, has its own kind of authority, but it is the authority of the irreducibly given, or as A.E.Taylor expressed it, 'that which is simply received, not invented by ourselves, and is therefore, in its nature, simply authoritative'", but elsewhere (e.g., p.28) Torrance shows much more awareness of the difficulties involved in the notion of "the given."

[10] T.F. Torrance, *Theological Science*, (OUP), 1969, p. 165. His emphasis.
[11] Nelson Goodman, *Ways of Worldmaking*, Hackett, 1978, p.138.
[12] Rorty refers to an article by John D. Caputo, *Review of Metaphysics*, 36 (1983) pp. 661-685, where he coins the phrase (which Rorty's nominalism leads him to dislike) "language ... is the event that gives birth to things". Understood theologically, this is just a restatement of the nature of the creative action of the Word of God and the words of men.
[13] The term is, of course, borrowed from his *Varieties of Realism*, Blackwell, 1986, pp. 300ff.
[14] Cf. for example, *de Incarnatione*, section 8.
[15] *Realism and Reason*, CUP, 1983, p. 168, where Putnam also expresses much the same doubts as I voice about the discussion of tests for truth in *Ways of Worldmaking*.
[16] Goodman, op. cit. p. 139.
[17] Putnam, loc. cit.
[18] Cf. Thomas Nagel, *The View from Nowhere*, passim.
[19] Supposedly meaningless books such as *Finnegan's Wake* are not counter-examples to this thesis since one cannot claim to be doing or writing something existentially irrelevant and insignificant without self-contradiction for the obvious reason that the mere desire to claim to be doing or writing such a thing automatically invests it with significance.
[20] It is for this notion of a "web of beliefs" and his reworking of the American pragmatism of C.S. Peirce, William James and John Dewey in the light of it that I am most grateful to and appreciative of Richard Rorty's work, although I am aware of the negative implications of his atheistic nominalist stance for many of the other areas which I have addressed in this essay.
[21] This account is compatible with Quine's account of language and its revisability in "Two Dogmas of Empiricism", in *From a Logical Point of View*, Harper Torchbooks, 1963,pp. 19-46. I have in mind particularly Quine's notion of a linguistic continuum that is susceptible to distortion and change and therefore, by extension, to resonating frequencies through which we can feel the appropriateness of our own linguistic usage in a particular culture.
[22] Although I have the gravest doubts about his rule-following account of religion, I approve in this context of Goerge Lindbeck's stress on the vital need to acquire the expressive medium of a religious tradition as he puts it in *The Nature of Doctcine*.
[23] Daniel W. Hardy, "Christian Affirmation and the Structure of Personal Life" in *Belief in Science and in Christian Life*, ed. T.F.Torrance, Handsel Press, Edinburgh, 1980, p. 73.
[24] This is an allusion to Vico's "found" and "made" distinction, which is itself erased by resonance realism, since the found and the made both arise within one or other of the versions we employ to explore the world and are therefore both found and made indistinguishably.
[25] For the parallels between the closure of such a post-modernism and closure in thermodynamics, cf. my "Information and Creation". As I say there, Rorty's double concern to avoid the death of incommensurable discourse and to renounce respect for reality constitutes a deep contradiction in his thought based upon an excessive optimism about the capacity of edifying conversation to be self-regenerating in isolation from the stimulation afforded by the external world.
[26] It should be obvious that when Goodman takes the drastic step of denying that "the world" exists he does not mean that external unconceptualized reality does not exist (that would be solipsism), but that any notion of "the world" is itself a function of the panoply of versions by which we conceptualize it, and that therefore "the world" exists in as many ways as we have versions, and not at all in the absence of all such versions.

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Eric Mount, Jr., *Professional Ethics in Context: Institutions, Images and Empathy*. Louisville: Westminster/John Knox Press, 1990. Pp. 176. $14.95. ISBN: 0-664-25143-9.

The title of the first chapter, "Seeing is Behaving," succinctly expresses the thesis of this book. That thesis grows out of Mount's reflections on a moral argument with an acquaintance, an experience that taught him that "how we saw things accounted more for our differences than the moral principles we might evoke in addressing an ethical issue" (14). If seeing is central to morality, it then becomes important to examine the factors which shape how we see. Mount realizes that ways of seeing and perceiving are always embedded in and reproduced by the institutions and communities to which one belongs, and which themselves often become objects of loyalty and faith (123). Thus he sets out to explore the institutional contexts which provide both the "settings and the lenses for vision" (17) with the intent of critically examining what shapes the outlooks of the professions and thereby enlarging our moral sensitivities.

Among the institutional settings (broadly construed) that Mount discusses are business corporations, institutions of higher education, hospitals, government agencies and the professions. He examines the metaphors, images and models used to create and sustain corporate self-understanding (Chapter Four) and traces them back to the stories and myths in which they are rooted (Chapter Five). According to this schema, stories are the most fundamental layer. They provide senses of identity and orientation which in turn drive the development of metaphors which generate models for construing reality.

Integrated into his analysis are two constructive approaches to issues raised by these investigations. First, Mount argues that institutions are best construed covenantally. Although this understanding has especially clear affinities with Judaism and Christianity, Mount argues that such a view is not the exclusive property of any religion. Rather, it is grounded in the tacit moral commitments one makes in joining a firm or a profession (58-59) and is confirmed in the experiences of certain paradigmatic organizations which stand out as exemplary (66-69). What is gained by this construal of institutions, Mount argues, is the ability to hold institutions and professions responsible for how well they uphold and support the common good which they were intended to serve.

Mount's second proposal has to do with how we assess and evaluate competing perspectives or visions. He is not content simply to report on the content of one's vision; he wants to put it under scrutiny. Acknowledging that there is no neutral perspective from which to make these assessments, Mount suggests that a critical perspective can be achieved, first of all, by registering inconvenient "facts" which refuse to behave as expected by preexisting attitudes and paradigms (126). Such a perspective is also marked by humility, integrity, a willingness to take responsibility for actions, a realism about human potential for evil, a sense of relationship with others, faith, inclusiveness and hope (126-129; cf. 155).

Mount is aware that these criteria are themselves indebted to the Christian tradition, but defends them because they are not uncritically adopted. Rather, they are themselves put into dialogue with the stories and perspectives of others (129), a process which requires the difficult but not impossible undertaking of empathetically "standing in others' shoes" (134-150). The point of this exercise is not to become those other people, but "to reoccupy our own shoes as different people" who "own our traditions in a new way" (150). Such an open dialogue, Mount thinks, may provide a way of discovering common ground in a fragmented world.

Both constructive proposals are timely (his discussion of empathy is alone worth the price of the book) and offer a much needed point of view at a time characterized both by the fact of social fragmentation and the suspicion that differences foreclose the possibility of communication and debate. Mount's position suggests that one can affirm both particularity and the common

good. Put differently, Mount refuses to choose between the two.

His proposals are not without their tensions, however. Both seem overly optimistic, given Mount's own discussion. In spite of his perceptive treatment of Bellah et al's findings on individualism in American life, he seems unaware of how difficult that attitude makes it to sustain any sense of common good. Following Bellah (perhaps too closely, in fact), he thinks that churches provide such communities and wants to suggest that institutions of higher learning are likewise capable of fostering such commitment (119-120). While the point should not be pressed too far, it does seem that Mount does not take seriously enough the degree to which individualist ideologies have already permeated these institutions and thereby render them incapable of doing what he wants them to do.

With regard to his discussions of common ground, Mount likewise seems to be very optimistic about the possibilities for discovering common ground based on the facts that we share a common planet and a common fate. Such optimism seems a bit out of place, given his own acknowledgment of the difficulties in getting into another's shoes and his cautions about the need to maintain a realistic perspective on the possibilities of human evil. He seems to assume that conversation will always lead to agreement and ignores the possibility that conversation may not proceed smoothly, or even if it does, that it may only clarify very real and deep differences.

Overall, Mount draws from an impressive array of insight and information. He combines theological reflection (primarily from the tradition developing out of H. Richard Niebuhr's work, with some liberation theologies thrown in for good measure) with work from the social sciences (most notably Robert Bellah and associates, Erik Erikson, Lawrence Kohlberg and Carol Gilligan), philosophy, popular literature and personal experiences. Although he does not explicitly draw from Michael Polanyi's work, those familiar with it will be able to see affinities between Mount's views and Polanyi's discussions of conviviality and commitment. As usual, however, the down-side of such breadth is that significant differences between thinkers are obscured and perspectives are too easily harmonized.

This remains an important and useful book, though, because it extends the emphases of virtue ethics to matters of institutional and professional ethics. It also provides an accessible and engaging secondary entry into many of the most pressing debates in epistemology and ethics today. It will not satisfy the decisionists and casuists among its readers, but that is to be expected since they see things so much differently than does Mount. The book does leave the reader somewhat sympathetic to their complaint, however, because Mount does not demonstrate the payoff of his approach by offering a well-developed example of professional ethics done this way. At best, he offers some tantalizing hints. In sum, the book should serve as a good companion and counterpoint to more quandary-oriented books. The book should also prove useful to undergraduates who will find the writing style and illustrations accessible and illuminative.

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Electronic Discussion Group

The Polanyi Society supports an electronic discussion group exploring implications of the thought of Michael Polanyi. For those with access to the INTERNET, send a message to "owner-polanyi@sbu.edu" to join the list or to request further information. Communications about the electronic discussion group may also be directed to John V. Apczynski, Department of Theology, St. Bonaventure University, St. Bonaventure, NY 14778-0012 PHONE: (716) 375-2298 FAX: (716) 375-2389.

Submissions for Publication

Articles, meeting notices and notes likely to be of interest to persons interested in the thought of Michael Polanyi are welcomed. Review suggestions and book reviews should be sent to Walter Gulick (see addresses listed below). Manuscripts, notices and notes should be sent to Phil Mullins. All materials from U.K. contributors should first be sent to John Puddefoot. Manuscripts should be doublespaced type with notes at the end; writers are encouraged to employ simple citations within the text when possible. Use MLA or APA style. Abbreviate frequently cited book titles, particularly books by Polanyi (e.g., *Personal Knowledge* becomes *PK*). Shorter articles (10-15 pages) are preferred, although longer manuscripts (20-24 pages) will be considered.

Manuscripts should include the author's name on a separate page since submissions normally will be sent out for blind review. In addition to the typescript of a manuscript to be reviewed, authors are expected to provide an electronic copy (on either a 5.25" or 3.5" disk) of accepted articles; it is helpful if original submissions are accompanied by a disk. ASCII text as well as most popular IBM word processors are acceptable; MAC text can usually be translated to ASCII. Be sure that disks include all relevant information which may help converting files to Word Perfect or ASCII. Persons with questions or problems associated with producing an electronic copy of manuscripts should phone or write Phil Mullins (816-271-4386). Insofar as possible, *TAD* is willing to work with authors who have special problems producing electronic materials.

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