

## CYBERNATION, RESPONSIBILITY, AND PROVIDENTIAL DESIGN

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**T**O KNOW anything at all about divine providence, Augustine and Thomas Aquinas both insisted, we must first understand human providence. Human governance is the clue to understanding divine governance.<sup>1</sup> This is also the tradition of the Greek Fathers, whose concept of divine government, moving creatures toward the realization of cosmic order and redemption, was called *dioikēsis* and *oikonomia*, words used more broadly for the government of a republic and more narrowly for the administration of a household. The crucial issue is thus not the abstract question of whether or not God is provident, but the very concrete question of what it means to say that God is provident. What might we expect a provident God to be doing in the human sphere, and how might we go about knowing what God does?

The answer is inseparable from a study of human history and an analysis of the dynamics of human freedom, responsibility, and choice. It is also inseparable from what modern science has discovered about the energies inherent in matter and the structures inherent in life, all those complex phenomena traditionally grouped together in former times under the theological rubric of "creation." Hence, to discover what God's providence is seeking to achieve for the human species, we must first ask what that species is seeking to achieve for itself, for it is in and through what the species is doing that divine providence works to accomplish its purpose and plan.

This classic interrelationship between God's providential design and human prudential decision has been severely strained in our modern age. The Judeo-Christian concept of human persons continually being drawn into coactivity with God has ceased to capture our imaginations, because human freedom has come to be equated with autonomy. Autonomy and self-sufficiency tend to be revered as absolutes. We moderns desperately want to eliminate the element of surprise in our lives, to receive no gifts, and to determine everything for ourselves. As we shall see, however, the malaise of contemporary culture is due in no small part to the general

<sup>1</sup> Aquinas elaborates his teaching on divine providence by analogy to the virtue of prudence: *De veritate* q. 5, a. 1-2; *Summa theologiae* 1, q. 22, a. 103; 1-2, 57-58; 2-2, q. 47-51.

awareness that as a species we can no longer claim to have such an insurance policy against all things unforeseen.

In the following pages I shall (1) explore this new awareness as it has been articulated by several astute observers; (2) sketch a model for God's providential design that can be more easily translated into the categories of modern science and technology, i.e. the model elaborated by Pierre Teilhard de Chardin; (3) examine the cybernetic model of society so widespread today, and ask how, within this model as well as within an evolutionary understanding of providence, we can intelligently discuss the parameters of political responsibility and choice.

## I

There seems to be general agreement in our time that something unusual is taking place in human consciousness. One clear symptom is what Robert Jay Lifton calls "psycho-historical dislocation" and what Alvin Toffler terms "future shock."<sup>2</sup> There is a kind of mass neurosis in the contemporary human psyche, an acute sense of stress and disorientation induced by the experience of too much change in too short a time. We are being asked to adapt psychologically to phenomena we do not yet fully understand, and our ability to do so is being taxed beyond healthy limits. Above all, there is the fear that we may not be able to adapt at all: the premature arrival of the future frightens us precisely because it is premature and we are unprepared. Accustomed for centuries to measure change in terms of the slow development of traditional institutions, we are being forced for the first time to evaluate our history in terms of the rapid adjustments required by our psychic experience.

"The process of change in the modern era," wrote Princeton historian C. E. Black over 20 years ago, "is of the same magnitude as that from prehuman to human life and from primitive to civilized societies." And Nobel Prize physicist Sir George Thompson has said that to understand the extraordinary cultural upheaval of the 20th century we have to think in terms of an event such as the invention of agriculture in the neolithic age.<sup>3</sup> Erik Erikson calls this modern experience of the human psyche an identity crisis. "The traditional sources of identity strength—economic, racial, national, religious, occupational—are all in the process of allying themselves with a new world-image in which the vision of an anticipated future and, in fact, of a future in a permanent state of planning will take

<sup>2</sup> Robert Jay Lifton, *The Future of Immortality* (New York: Basic Books, 1987); Alvin Toffler, *Future Shock* (New York: Random House, 1970).

<sup>3</sup> C. E. Black, *The Dynamics of Modernization* (New York: Harper Torchbooks, 1967) 4; George Thompson, *The Foreseeable Future* (Cambridge: Cambridge University, 1960) 1.

over much of the power of tradition.”<sup>4</sup> Erikson sees two principal ideological orientations as basic to the formation of future identities, the technological and the humanist, and even the great politico-economic alternatives will, he believes, be subordinated to these.

The cultural conditioning along technological and scientific lines has already been taking place for some time, according to Erikson, but is being opposed more and more by a humanist orientation, which insists that beyond the technological there is a much wider range of human values and possibilities now in danger of being lost. The technologists and the humanists seem to live in separate ecologies and almost to belong to different species: they oppose and repel each other; the acceptance of even part of one orientation could result in an ideological slide in the other's whole cluster of images, aspirations, hopes, fears, and hates. Erikson sees this polarity as most important in fostering a dynamic interplay between the technological and humanist identity, leading to radically new modes of thought and daring innovations in both culture and society. But he makes a point of adding to his judgment an ominous condition: “provided we survive.”

This question of survival hovers in the background of most discussions of the present crisis, whether it be described as one of identity or otherwise. Psychiatrists have argued that there is serious psychoanalytic evidence for saying that people today are suffering from an unconscious despair, arising on the one hand from fear of becoming an appendage to the machine, and on the other from the sense of having less and less to say about their own destiny. Beneath this unrest is a deep and well-justified fear: that the next step in technological progress may bring about the annihilation of the species. The terrorism prevalent in many areas of the globe today is so terrifying because we see these atrocities not only as a threat to people everywhere but as an ominous prelude to the whole future. In our unconscious, says Lewis Mumford, many of us are living in a postcatastrophic world, and our conduct is rational in terms of that world. We think of survival as problematic precisely because we do not seem able to control the technology we have created, and because the technological society we *thought* we were making is not being made at all.

Nothing illustrates this more vividly than the “imagery of extinction” that now dominates our corporate psyche. This is the term coined by psychiatrist Robert Jay Lifton to describe the long-delayed impact on our memories of Hiroshima and the Holocaust, as well as the Armageddon-like way we now think about our future. The slow destruction of our

<sup>4</sup>Erik H. Erikson, “Memorandum on Youth,” in *Toward the Year 2000, Daedalus* 96 (1967) 864.

planet's environment is one potent source of this imagery: the thinning of the life-protecting ozone layer in the high atmosphere; the gradual global warming that creates the fearful greenhouse effect; air pollution from acid rain and the smog that drains the life of lakes and forests; the sewage poisoning of coastal waters and estuaries on which marine species depend; the inexorable erosion of tropical forests which constitute the world's richest nurseries of life. The sources of all these threats are numerous, complex, and not easily understood. Damage to the environment is usually indirect and invisible, and the inevitable impact on humans usually long-delayed. Will we as a species have the courage to heed these warnings? Will we find the money and global co-operation necessary to conquer these threats?

A second potent source of this imagery is the fear engendered by our technology of destruction. The message of the nuclear threat is so grim because it pictures for us the prospect of a nuclear winter; even a very modest use of nuclear weapons could so block the sun's rays with dirt and debris and so lower the planet's temperature that no human, animal, or plant life could survive. This prospect could gradually alter our whole focus on the future from how to prepare for to how to prevent nuclear war. But we face a formidable obstacle to this radical change of focus: the more immediate threat of "nuclearism." Lifton sees this as an almost pseudoreligious phenomenon by which dependency on nuclear weapons reaches the point of worship. We seek from them precisely what they cannot give, i.e. security and safety; "the very objects that could destroy human civilization and the human species are embraced as a basis for symbolizing the endless continuity—and immortality—of that species."<sup>5</sup>

There is, then, a certain sense of despair stalking human consciousness in our time, a suspicion that we may not be succeeding as a species, that somehow the human enterprise may turn out to be a totally hopeless undertaking. This is what the French geneticist Jacques Monod, winner of the Nobel Prize in medicine, actually said just over a decade ago. He wrote a best seller then, *Chance and Necessity*, in which he tried to explain why science has finally shown human effort to be utterly meaningless, no more significant than the efforts of Sisyphus, who never ceased pushing his stone up the mountain only to have it immediately roll back down again into the valley. The human species, Monod insisted, was a freak, a product of pure chance, a quite accidental mutation in that otherwise fixed and invariable microscopic machine known as the genetic code. "If he accepts this message—accepts all it contains—then man must at last wake out of his millenary dream; and in doing so, wake

<sup>5</sup> Lifton, *The Future of Immortality* 25.

to his total solitude, his fundamental isolation. Now does he at least realize that, like a gypsy, he lives on the boundary of an alien world. A world that is deaf to his music, just as indifferent to his hopes as it is to his suffering or his crimes."<sup>6</sup>

It is interesting to compare the diagnoses we have been discussing with that made by Pierre Teilhard de Chardin over 50 years ago.

O man of the twentieth century, how does it happen that you are waking up to horizons and are susceptible to fears that your forefathers never knew? . . . Here at this turning point where the future substitutes itself for the present . . . do our perplexities inevitably begin. Tomorrow? But who can guarantee us a tomorrow anyway? And without this assurance that tomorrow exists, can we really go on living, we to whom has been given the terrible gift of foresight? Sickness of the dead end. . . . This time we have at last put our finger on the tender spot.

It is this tender spot, the growing suspicion that we may have nowhere to go in the universe, which is causing us to ask today whether or not we have been duped by life. An animal may rush headlong down a blind alley or towards a precipice, but human beings, precisely because they can *reflect* upon their condition, will no longer continue to take steps in a direction they know to be blocked. Despite their control of material energy, despite the pressures of their immediate needs and desires, without a taste for life human beings will simply stop inventing and constructing. The human species, in other words, is quite capable of going on strike. Indeed, it will surely do so unless, as Teilhard says, "we should be assured the space and the chances to fulfill ourselves, that is to say, to progress till we arrive (directly or indirectly, individually or collectively) at the utmost limits of ourselves."<sup>7</sup>

There is, then, a tension between our sense of belonging together in a communal planetary enterprise and the fear that whatever efforts we make as individuals may ultimately be pointless. While we sense that we can almost invent the future, this holding of human destiny in our hands nevertheless terrifies us, because the incredible power we have has not been matched by an equal degree of control. What assurance do we have that we can ever gain such control? And what precisely should be our objectives as we pursue such control? We thus face a double need as a species. We have to overcome the fear that our future may be hopeless, and we have to find some focus for the exercise of our responsibility in creating and controlling that future. Behind both needs lies their source: the knowledge we now possess of our world and our culture, and the

<sup>6</sup> Jacques Monod, *Chance and Necessity* (New York: Knopf, 1971) 172-73.

<sup>7</sup> Pierre Teilhard de Chardin, *The Phenomenon of Man* (New York: Harper & Row, 1965) 228-29, 231.

consciousness we have of our freedom to choose. Is it possible for our knowledge also to give us hope? Is it possible for our sense of freedom also to generate responsibility?

## II

The understanding of evolution elaborated by Teilhard gives us an answer to this first question that can in large measure satisfy our first need. This understanding also provides the religious person with a coherent model, from the physical world, of God's design for the species, as well as with indicators of how free human decision might mesh with this ultimate divine plan. For Teilhard believed that what most discourages contemporary men and women is the fear that what is happening to them in the 20th century is neither intelligible nor capable of success. "In the great game being played, we are the players as well as being the cards and the stakes. Nothing can go on if we leave the table. Neither can any power force us to remain. Is the game worth the candle, or are we simply its dupes? We will never take a step in a direction which we know to be blocked. There lies precisely the ill that causes us disquiet."<sup>8</sup>

Teilhard responds to this anxiety by analyzing the relationship between the "two complementary expressions of the arrow of time." On the one hand there is the law of entropy, the second law of thermodynamics, discovered over a century ago by physics, which says that the quantity of unusable energy in the universe is constantly increasing. While the first law of thermodynamics says that, during any conversion of energy from one form into another in any closed system, the total energy remains constant, the second law says that as a result of this conversion a certain amount of that total energy becomes unavailable for future use. No energy is lost by burning coal, e.g., but its conversion of energy into gas involves an irreversible expansion of the gas into space, and the coal itself can never be reburned. This dissipation principle in the second law has been generalized to mean that order in the universe tends to give way to disorder and to equilibrium, and that it is more difficult to achieve organization and structure than it is to have chaos. For all matter of its nature tends to become more diffused, sliding irresistibly downward, so that eventually, at some point of time billions of years hence, there will be no more energy to use: all activity will have stopped, except that of atoms vibrating in perfect equilibrium in the icy darkness of space.

In biology, on the other hand, we have an analysis of the phenomenon of life, revealing a long chain of composites extending from the electron to the human by way of proteins, viruses, and bacteria, which clearly seems to be moving in the opposite direction, i.e. toward an extraordinary

<sup>8</sup> Ibid. 275-76.

degree of complexity and arrangement. This phenomenon of life, Teilhard says, though a relative newcomer to the universe and occupying an incredibly small volume of space, manifests itself nevertheless as having developed in the very heart of the flow of entropy precisely as an eddy, as a countercurrent. In other words, while the behavior of matter is totally predictable, the behavior of life in the midst of matter has, over millions of years, been totally unpredictable. Entropy and life, two properties of matter as we have come to know it, the one pulling backward, the other forward, the one a dissipation of energy, an unfolding or granulating of matter, the other an increase of energy, a complexification of matter, a tendency in matter to arrange or center itself around growth in consciousness. In entropy we have a descent toward ever more probable zones of disintegration, whereas in life we discover an ascent toward ever more improbable zones of interiority, and, in the case of the human species, personality.<sup>9</sup>

No one doubts any longer that the world of living forms is the outcome of increasingly complex associations between the material corpuscles of which the universe is composed. But how are we to envision the generative mechanism of this "complexification"? It is very certain that matter on earth is involved in a process which causes it to *arrange itself*, starting with relatively simple elements, in ever larger and more complex units. But how are we to account for the origin and growth of this process of arrangement?<sup>10</sup>

For this growth itself is most extraordinary: eventually we see matter so organizing itself into nervous systems and brains that it becomes interiorized in the phenomenon of consciousness, and this consciousness so increasing in intensity in the human species that it becomes reflective.

In the human person, therefore, we see most clearly the undisputed fact that there is a certain pattern in the past: in all known forms of life the more developed consciousness always corresponds experimentally with the more complex organic structure. The human brain thus corresponds with the most sophisticated consciousness we know: the capacity for reflection. For Teilhard this scientific fact showed not simply that there has been change over millions of years, but that there has been "genesis," from the French word *genèse*, which means change in successive stages, change which is oriented toward some goal—more simply, directional change. This scientific fact also accounts for his coining the term "cosmogensis," directional change in the universe. More impor-

<sup>9</sup> These ideas are developed in many essays, e.g. *The Future of Man* (New York: Harper & Row, 1964) 47–52, 87–89, 103–23; *Science and Christ* (New York: Harper & Row, 1968) 92–97, 192–96; *Activation of Energy* (New York: Harcourt Brace Jovanovich, 1971) 329–37; *Man's Place in Nature* (New York: Harper & Row, 1966) 17–36.

<sup>10</sup> *The Future of Man* 199.

tantly, however, he believed that this scientific fact showed that the goal of the evolutionary process is the human species, which at the present time has both the highest organic complexity and the highest degree of consciousness. This human consciousness, this power of reflection, was for Teilhard the key to the evolutionary process. In a world where change is directional, where it is a genesis, clearly the movement of evolution has been in the direction of the human person, and therefore in the direction of human consciousness, of spirit, mind, thought, and love.

The movement of evolution is consequently taking place no longer in the sphere of life, the "biosphere," so much as in the sphere of mind and spirit, the "noosphere." It is thus not primarily a "biogenesis" but a "noogenesis." Hence "the social phenomenon is the culmination and not the attenuation of the biological phenomenon." Teilhard finds this trend toward complexity-consciousness to be like the thread of Ariadne. If we keep following this thread, it eventually lights up the meaning of the whole process. Assurance that the process will continue, therefore, comes first from that human experience of being part of an evolutionary movement which has come from prelife to life and then to human life. "To bring us into existence it has from the beginning juggled with too many improbabilities for there to be any risk whatever in committing ourselves further and following it right to the end. . . . Life, by its very structure, having once been lifted to its stage of thought, cannot go on at all without ascending higher."<sup>11</sup>

It is at this point, however, that Teilhard makes a most unusual analysis of that directional change in human history which he calls noogenesis. Let us imagine, he says, using the geometrical image of meridians on a globe, that a pulsation enters a sphere at its south pole and spreads out inside the sphere in the direction of the north pole. The movement of this wave is a converging movement from the start, since it is on a curved surface, but it has two very different phases, one of expansion from the south pole to the equator, the other of contraction from the equator to the north pole. Now no better image illustrates the crisis of growth through which humankind is passing at this very moment. In the first millions of years of its existence it has been expanding more or less freely, slowly covering more and more of the uninhabited earth. Because lack of space was no problem, the result was that, century after century, the socializing process was also extremely slow. There was a gradual branching out into the various races; civilizations were able to grow and rub shoulders on a sparsely inhabited planet without encountering any major difficulty. "But now," says Teilhard, "following the

<sup>11</sup> *The Phenomenon of Man* 223, 233.



dramatic growth of industry, communications and populations in the course of a single century, we can discern the outline of a formidable event. The hitherto scattered fragments of humanity, being at length brought into close contact, are beginning to interpenetrate to the point of reacting economically and psychically upon each other."<sup>12</sup> Given the fundamental relationship between geographic compression and the heightening of consciousness, the result is an irresistible rise within us and around us of the level of reflection.

In other words, what we have been experiencing for some time now, without being aware of it, is in reality the beginning of the second phase of noogenesis, the phase of contraction. In our own time humankind has crossed the equatorial point and entered into a new stage in the development of the species. "From the first beginnings of history," wrote Teilhard in 1950,

this principle of the compressive generation of consciousness has been ceaselessly at work in the human mass. But from the moment—we have just reached it!—when the compression of populations in the teeming continents gains a decided ascendancy over their movement of expansion upon the earth's surface, the process is speeded up to a staggering extent. We are today witnessing a truly explosive growth of technology and research, bringing an increasing mastery, both theoretical and practical, of the secrets and sources of cosmic energy at every level and in every form; and, correlative with this, the rapid heightening of what I have called the psychic temperature of the earth. A single glance at the overall picture of surface chaos is enough to assure us that this is so."<sup>13</sup>

Moreover, this overall converging movement of evolution, in which simpler subsystems unite into more complex systems centered upon themselves, takes on a wholly new element at the conscious level, the element of freedom. Evolution in the noosphere is not only conscious of itself but free to dispose of itself. Until the mid-20th century the vast majority of men and women were like passengers closed up in the hold of a ship distracting themselves as did the humans in Plato's Cave. When more and more of them climbed up to the bridge, however, they gradually became aware not only of the drift of the universe, but also of the risks and dangers in guiding the ship. To use Teilhard's phrase, the task before them now is "to seize the tiller of the world," to take hold of the energies by which they have reached their present position and use these energies to move ahead.<sup>14</sup> This is a fearful task, however, and to counteract their awesome power to refuse it, human persons must cultivate the moral sense of obligation to life. If they do not, then they face either ecological

<sup>12</sup> *The Future of Man* 294.

<sup>13</sup> *Ibid.* 275-76.

<sup>14</sup> *Activation of Energy* 73-74.

disaster or nuclear destruction. Thus the fundamental law of morality for Teilhard is to liberate that conscious energy which seeks further to unify the world. This energy is what he calls "the zest for life," that disposition of mind and heart that savors the experience of life, and manifests itself particularly in the relish we have for creative tasks undertaken from a sense of duty.

More specifically, this conscious energy is what Teilhard calls "love-energy." This is the energy which unifies, the same energy which unifies molecules, but which on the human level operates in the realm of interpersonal consciousness. Teilhard uses the phenomenon of electromagnetic waves to illustrate how his law of complexity-consciousness meshes with this concept of unifying love-energy. Through technology humans have made an enormously complex use of electromagnetic waves to enable them to share thoughts over vast distances. Someone with an idea in the remote mountains of Tibet can communicate that idea immediately to someone else in New York, provided there is the requisite technological complexity in the use of electromagnetic waves.

But is this not a terrifying prospect, human energy propelling us toward some mechanized, impersonal world, some vast technological complex, possibly blind to the needs of individual persons? Is this to be our social destiny, a destiny quite capable of stifling personalities rather than developing them? In Teilhard's mind this prospect is the reason for the world's present discouragement with any human aspiration towards unity. So far every effort toward unity seems to have ended by stifling the human person. What we miss, however, says Teilhard, is the fact that, monstrous though they are, modern totalitarianisms are examples of good energy gone awry, a distortion of something magnificent. The reason for the distortion is that these are unities based upon coercion or fear, not upon love and freedom. Love is the only energy in the world capable of personalizing by totalizing, of freely promoting synthesis without destroying the person. It alone unites human beings in such a way as to complete and fulfill them. For "in any domain—whether it be the cells of a body, the members of a society or the elements of a spiritual synthesis—*union differentiates*. In every organized whole the parts perfect themselves and fulfill themselves." This familiar evolutionary pattern of differentiating union is thus applied by Teilhard to the personalizing union of beings who relate to each other as persons. In this way "the grains of consciousness do not tend to lose their outlines and blend, but, on the contrary, to accentuate the depth and incommunicability of their *egos*. The more 'other' they become in conjunction, the more they

find themselves as 'self.' ”<sup>15</sup>

Hence the importance of the concept of “amorization” in Teilhard’s work: the gradual release of the power of love, the response of truly free men and women to increased social pressure. It is only love which can turn increasing socialization from a threat to a promise. Human persons need not fear the contemporary drift toward unity as long as they can freely relate to each other through what is most intimate to themselves. This fostering of freedom through love is the one way to counteract the blind necessity which forces human persons to actualize technological achievement simply because they *can* do so. The question to be asked is whether they *should* do so, and it must be asked in the context of the primacy of the person and the need for more humane ways to manage change. It is thus through the growth of love that we can cope as a species with the tendency to turn in upon ourselves in isolation and allow our world to become more and more impersonal and mechanized.

Teilhard takes great pains at this point to underline his answer to the chief objection leveled against his understanding of evolution: If the species is moving by design toward greater complexity, consciousness, and unity through the activation of love energy, how are we to explain the presence in our world of so much disunity, disruption, hatred, and evil, the very antithesis of love? Teilhard replies that for him growth in consciousness means growth in the *capacity* for love and union among persons, not growth in love itself. Insofar as human progress means growth in our capacity for love, it also means that we are growing in our capacity to refuse love. Tensions and turmoil continue in the political order precisely because of this freedom inherent in all self-reflective consciousness. Human progress thus takes place not in a straight line but in a coiling movement. Unifying energy pushes up the coil by tightening it, each new crisis constituting the product and result of some previous achievement. But each new advance also increases the temptation to stop or to regress. The human species is now aware of this option, and this awareness is precisely what has generated our fear of the future.

“Hence it is,” says Teilhard, “that there has finally emerged into our human consciousness in the twentieth century, *for the first time* since the awakening of life on earth, the fundamental problem of action.”<sup>16</sup> This problem of action is pre-eminently the problem of men and women using their reflective capacity responsibly, as an ethical imperative to

<sup>15</sup> *The Phenomenon of Man* 262. A more thorough development of this idea will be found in my *Teilhard de Chardin and the Mystery of Christ* (New York: Harper & Row, 1966) 46–55.

<sup>16</sup> Pierre Teilhard de Chardin, *Human Energy* (New York: Harcourt Brace Jovanovich, 1970) 124.

advance the process of complexification and consciousness. In the concrete, at any given point in the process, this inevitably involves political decisions in the public sphere. But is there any evidence in modern society of such growth in complexity related to growth in consciousness? Is something happening to the species that accounts for the increase of psychic tension we now experience in the global village? If so, can we find in that something a practical guide to the types of political decision demanded by our particular stage in the evolutionary process?

### III

H. Richard Niebuhr has reminded us that human beings grasp and shape reality, including the experience of their own existence, with the aid of great images, metaphors, and analogies. The symbols used in any given age will inevitably have profound ethical implications, since they shape the way humans perceive, understand, and organize their world.<sup>17</sup> There is good reason today, I think, to say that what humankind is involved in at present is one of its periodic redefinitions of the human. Its dominant image of itself for generations has been that of the machine, an image drawn from the mechanistic certainty of Newtonian physics, that has exerted such enormous influence upon science, technology, and general culture for over two centuries. This image has emphasized stability, order, uniformity, and equilibrium. Because it can be applied to any closed system with linear relationships, it has been useful in mirroring an industrial society based on heavy inputs of energy, capital, and labor.

The obvious danger of this image, however, is that people who use it to grasp reality will tend to think of themselves as efficiently functioning but isolated parts of some mechanized whole. There will be a corresponding de-emphasis in their lives of the social aspects of the human, as well as a narcotic blunting of moral and spiritual sensitivity. The fact that this has not happened to any large extent is due to a most unusual phenomenon: the late-20th century has suddenly produced a world of high technology characterized by accelerated social change, where innovation and imagination are the critical resources. Physics has introduced us to a subatomic world so volatile and apparently chaotic that almost nothing is predictable. We thus tend to have in our corporate psyche far more instability and disequilibrium than in our recent past. We no longer like to think of our society as a closed system that operates like a machine, but rather as an open system, like the biological species that have recently come to interest us so much. Such open systems are continually exchanging energy with their environment and are charac-

<sup>17</sup> H. Richard Niebuhr, *The Responsible Self* (New York: Harper & Row, 1963) 149-60.

terized by change, disorder, and process. We find little difficulty in applying to our lives the concept of evolution from biology and that of relativity from physics. This is why we have ceased describing ourselves in mechanistic terms and are searching today for some new symbol and image.

This search has been greatly if not decisively influenced by the phenomenon we have come to call "information." A new kind of machine has been created to deal with this phenomenon, i.e. the computer, and a new branch of science has evolved, cybernetics, whose object is precisely to study its control. Norbert Wiener named this science in his 1948 book *Cybernetics*, creating the term from the Greek word for "steersman" or "governor," by which he meant, as his subtitle suggested, "control and communication in the animal and the machine."<sup>18</sup> Information, said Wiener, can be considered to be a thing in itself, like matter, a fundamental building block of reality. The communication scientists who followed him have, over the last 40 years, made considerable effort to apply this insight to various communications "systems," such as the human body and brain, the social and political order, civilization in general, and even to the universe.<sup>19</sup>

Perhaps the most startling discovery of an information process built into organic life has been the genetic code. In the language of cybernetics, biological organisms are examples of self-regulating "systems," requiring no direct internal control by any human consciousness. A "system" in this sense is any group or set of elements interacting according to some unified pattern. The "information" in such systems is the patterned data itself, which can be communicated from one entity to another within the system, prescinding from whether or not the data is consciously known. "Information" is thus a concept that can be verified analogically in all living cells and organisms, in nervous systems, in all human communication, and also in the artificial communication of computers. In the case of biological reproduction, genetic information is imprinted in DNA molecules, to be transmitted indefinitely through heredity as well as through altered-by-chance mutations.

The functioning of these genetic codes is now providing us with a model for the whole evolutionary process. The fact that in the biological world generations communicate with generations in the molecular language of DNA gives us a new perspective on entropy, for example. Since we know that all life manifests itself as a countercurrent to entropy, genetic information can also be seen as counterentropic, establishing

<sup>18</sup> Norbert Wiener, *Cybernetics* (2nd ed.; New York: John Wiley, 1961).

<sup>19</sup> See, e.g., Ilya Prigogine and Isabelle Stengers, *Order Out of Chaos* (New York: Bantam Books, 1984) esp. 177-209.

order and ever-increasing complexity in a universe doomed to increasing divergence and random disorder. "Just as the amount of information in a system is a measure of its degree of organization," says Wiener, "so the entropy of a system is a measure of its degree of disorganization; and the one is simply the negative of the other."<sup>20</sup> Positive information and the reduction of uncertainty are thus all negatives of entropy. In another context Wiener says that "certain organisms, such as man, tend for a time to maintain and often to increase the level of their organization, as a local enclave in the general stream of increasing entropy, of increasing chaos and de-differentiation."<sup>21</sup>

By analogy with living beings, therefore, all systems—in particular, complex social institutions—are information-driven and information-producing. The more information generated, the more coherent the system and the greater the energy available to it for the achievement of its goals. Indeed, society itself must now be considered an information system, in effect a suprasystem, a complex maze of interrelated subsystems among human persons, one more interiorized than the other. In *The World as a Total System*, social scientist Kenneth Boulding sees this phenomenon as a hierarchy of complexity, where the content and meaning of messages and value systems, as well as the symbolism of art, music, and poetry, are transferred as information for subsequent generations through various forms of education. Rather than looking at the world as a mosaic of national political systems, he says, we should rather think of it as a dense web of communications channels, constituting an energy force pushing the planet toward a single world culture.<sup>22</sup>

Hence in this era of information systems the metaphor of the machine obeying "laws" is being replaced by that of the biological organism in dynamic evolution. That is to say, the astonishing storage capacity of the DNA molecule is now being duplicated by information storage at the human level. "And once you begin that," says Harvard biologist Edward O. Wilson, author of *Sociobiology*, "the potential becomes almost unlimited. And that's essentially what the information age consists of—the stepwise improvement in information gathering, storage, retrieval and transfer. When you put it all together, you have a truly impressive

<sup>20</sup> Wiener, *Cybernetics* 11. See Robert Wright, *Three Scientists and Their Gods: Looking for Meaning in an Age of Information* (New York: Times Books, 1988) 83–110, 195–211. See also R. Wayne Kraft, *Symbols, Systems, Science and Survival* (New York: Vantage, 1975).

<sup>21</sup> Norbert Wiener, *The Human Use of Human Beings* (New York: Doubleday Anchor Books, 1954) 95.

<sup>22</sup> Kenneth E. Boulding, *The World as a Total System* (Beverly Hills: Sage Publications, 1985). On Boulding see the treatment by Wright, *Three Scientists* 213–96.

superorganism."<sup>23</sup> This superorganism is clearly growing socially as well as conceptually. In 1900 only 13% of American workers made their living primarily by handling information; by 1960 the estimate was 42%; by 1980, 51.3%.<sup>24</sup> We may well wonder what the percentage will be in the year 2000.

It is at this point that we experience in a most acute way what Hans Jonas has called "the imperative of responsibility." Jonas is "in search of an ethics for the technological age" in order to "ease the great burden of freedom in an information society." In the human person nature has "left herself an unsure substitute for the shattered sureness of her self-regulation."<sup>25</sup> For our human "system" appears to us now not unlike those open systems discovered on the subatomic level by quantum physics, fueled by a constant exchange of energy and matter with their environment, where information and innovation are critical elements. Totally unlike the machine, the human system is clearly dominated by nonlinear behavior in which small inputs can trigger massive consequences. While the future must indeed be seen as *our* future, as an activation of human energy now available to us, such a future cannot be conceived as one without surprise, or as no more than a crass extrapolation from our past and present. For the human system has now been opened by the consciousness of freedom, and it can never again be thought of as closed.

But how, in such an open system, shall we go about making those responsible political decisions that determine how to manage these dynamisms of our "hominised" world? Jonas takes it as axiomatic that "responsibility is a correlate of power and must be commensurate with the latter's scope and that of its exercise." He continues: "What we must avoid at all cost is determined by what we must preserve at all cost, and this in turn is predicated on the 'image of man' we entertain . . . an understanding of man's duties toward himself, his distant posterity, and the plenitude of terrestrial life under his dominion."<sup>26</sup> Such ethical sensitivity on a planetary scale was underscored earlier by Niebuhr:

When we approach man's existence as self-administrative with the aid of the idea of responsibility, we are caught up in the same movement toward the universal in which the other approaches to ethics, that is, teleology and deontology, find themselves involved. . . . And . . . we find ourselves led to the notion of

<sup>23</sup> Quoted from Wright, *Three Scientists* 187-88.

<sup>24</sup> *Ibid.* 263. See Daniel Bell, "The Social Framework of the Information Society," in Tom Forester, ed., *The Microelectronics Revolution* (Cambridge: MIT, 1981) 500-549.

<sup>25</sup> Hans Jonas, *The Imperative of Responsibility: In Search of an Ethics for the Technological Age* (Chicago: University of Chicago, 1984) 138.

<sup>26</sup> *Ibid.* x.

universal responsibility, that is, of a life of responses to actions which is always qualified by our interpretation of these actions as taking place in a *universe*, and by the further understanding that there will be a response to our actions by representatives of universal community. . . .<sup>27</sup>

Here, then, is where from a religious point of view a meshing takes place between prudential human decision and God's providential design. For the task of prudence in human governance is to order action toward an end, in this case the larger common good of the community. God's governance, so the tradition has always held, involves itself in this human action "with gentleness," i.e. in a manner that corresponds to the particular mode of human activity demanded at any particular time. Both Augustine and Aquinas, as well as biblical authors before them, developed at length this graciousness of divine influence upon human decision: God moves humans from within, assisting them to choose freely what will promote the good of the species in its historical movement through time.<sup>28</sup> Because this gentleness of divine governance is a reflection of God's love, its human counterpart in prudential decision must also participate in that unitive energy. On the societal level this meshing will be reflected in human communities built through consensus and not through coercion or fear.

Now we have seen that the cybernetic character of our culture means precisely that our enterprise as a whole is concerned with control. As a species we want to control not only mechanisms and structures but also communication, which is the necessary mediator of control. But for what purpose? In what direction is the "steersman" steering? What objectives does the "governor" have? The answer to each of these questions will depend upon how one thinks about the "input" and "output" of information. It is these two phenomena that hold the key to the question of how we are to search today for the common good, and where we must seek to mesh responsible human decision with God's providential design.

Let us consider the process of input first. Here the cybernetic concept of "feedback" is crucial, an idea popularized originally by Wiener in *Cybernetics*. By "feedback" he meant channeling back into control centers a flow of information concerning the present state of any system. Feedback will thus operate analogically in computers, living cells, nervous systems, and intelligent human communication, as well as in the societal

<sup>27</sup> Niebuhr, *The Responsible Self* 87.

<sup>28</sup> The First Vatican Council summarized this tradition in its classic formula, "by His providence God watches over and governs all the things that He made, reaching from end to end with might and disposing all things with gentleness (see Wis 8:1). For 'all things are naked and open to His eyes' (Heb 4:13), even those things that are going to occur by the free action of creatures" (DS 1784).



macrosystem and its subsystems. In each case feedback will consist of information about any discrepancy between the present state of affairs and the state of affairs the system seeks to bring about. The feedback process thereby enables future operations of the system to be guided and corrected in terms of its present performance. Any system, from thermostats to persons to society, must thus employ feedback in order flexibly to pursue its goals.

The political issue, therefore, in a society conceived as superorganism is how we envision our society's goal: How organic do we want our society to become in future decades? For control of the human system is now clearly collective, open, and free, with machines acting simply as society's muscles, performing tasks without fatigue and on a superhuman scale. Increased socialization on a planetary scale is thus inevitable. But in what direction will such socialization move? What will be the role and importance of the individual in this planetary maturation? Will our reliance upon technology foster a technologism that blunts our psychological, moral, and spiritual sensibilities?

This relationship between individual autonomy and organic community growth has its parallel on the international scene. While nationalism was the dominant political movement, people found themselves bound together in unities which did not in fact tend to injure their loyalties to smaller subgroups like family and religion. In the future, however, as nations begin steadily to surrender more and more of their autonomy to a larger political society, will this movement toward global unification tend to multiply what Boulding calls "threat systems"? And if such threat systems do in fact multiply, will not fear and coercion become dominant on a planetary scale?<sup>29</sup>

In this context feedback has to be seen as an essential element in the elaboration of prudential moral decision in the political sphere. For any practical moral code depends not only upon ends to be achieved but upon evidence of what is actually happening in concrete human experience when a particular course of action is followed. All social morality, in other words, is a problem-solving process through feedback of information about the results of decisions that are made to achieve certain community values. For their part, these "values" do not really present themselves to us as "things," as the English language seems to imply, but rather as processes of evaluation and re-evaluation of what we believe to be socially good. Behavior on the societal level is thus not linear; our larger systems contain subsystems, with everything connected to everything else and with all in constant flux. What feedback does is to reinforce

<sup>29</sup> Boulding, *The World* 28-30, 83-87.

certain fluctuations until one or other subsystem becomes dominant, thereby achieving temporary equilibrium on the social scene.<sup>30</sup>

What we are coming to realize, however, is that the lifetime of an individual is not long enough any more to test out the adequacy of a given line of conduct. Humankind as a species will achieve true moral maturity (and not endlessly repeat the same errors and mistakes) only if we can develop an adequate species memory bank, a center for the analysis of information where long-range consequences of conduct can be observed and evaluated over many lifetimes, and then handed down to posterity as a common moral code accepted by the community. But there is only one way to enlarge this species memory bank: through feedback. Without it, what is more than likely to arise in the course of time are human evaluation structures that are pathological, that move society toward situations destructive of human personality and freedom. For the same evolutionary process that produced the complexity of heightened human consciousness is now producing complexity in that evaluation process that determines political choice. The judgment of Kenneth Boulding is much to the point here:

The greatest cause for pessimism at the moment is the apparent stability of the set of valuations that leads into violence, national defense, and the eventual destruction of the human race in historic time by nuclear war. The destruction of the human race by the present system of valuation would certainly indicate that it does not have much survival value, but that reflection is not particularly cheering. It is precisely the observation, however, of the evolutionary process in human valuations and the fact that these valuations do change—and often away from the pathological modes that do not lead to survival—that indicates that there is at least a reasonable hope that human evaluations will change toward a survival pattern and that this will happen in the world as a total system.<sup>31</sup>

If the concept of feedback is crucial for prudential political decisions governing the input of information, the concept of power is crucial in governing its output. "Knowledge is power," said Francis Bacon, by which in his time he envisioned the scientific control of nature. But what is at stake in our present age is the control of society and its future, and power now is information. Just as land and heavy industry were power in the past, and all societies eventually passed laws to control the use of both, so today political responsibility must focus on controlling the information society processes by setting technological goals that are

<sup>30</sup> See Prigogine and Stengers, *Order* 167–76. The authors call this phenomenon a "singular moment" or a "bifurcation point."

<sup>31</sup> Boulding, *The World* 275. I am indebted to W. Norris Clarke, S.J., for the insight regarding the use of an information memory bank for moral decision-making in a cybernetic society.

relatively modest. Such political caution is essential precisely in order to avoid that excessive use of power that inevitably takes place when totalitarian states ally themselves with technological expertise. If such cautious control is not to become mindless bureaucratic meddling, however, it must be based on norms derived from government's duty to promote the common good. It is thus not simply a question of negatively restraining the use of power, but of taking steps positively to create an environment in which science and technology are accountable to larger community needs.

Science itself will not be of much help here, because progress in all its fields is in principle unending, rooted deep in the dynamics of human cognition. Both this progress and these dynamisms are ambivalent, however, capable of damaging as well as fostering the human, and demanding some prudential control from the outside. The danger is that those exercising such control will have no adequate vision of the common good, but simply have functionalist concerns, like raising the gross national product by whatever means computers and their information can provide. This contrast between the narrow technocrat and the cultural idealist comes through in a scene from John LeCarré's *The Spy Who Came In from the Cold*. The Communist agent Fiedler wants to find out from the captured English agent Leamas what philosophy motivates English agents in their fight against Communism.

"What do you mean, a philosophy?" Leamas replied. "We're not Marxists, we're nothing. Just people."

"Are you Christians then?"

"Not many, I shouldn't think. I don't know many."

"What makes them do it, then?" Fiedler persisted. "They must have a philosophy."

"Why must they? Perhaps they don't know; don't even care. Not everyone has a philosophy," Leamas answered, a little helplessly.

"Then tell me what is your philosophy?"

"Oh, for Christ's sake," Leamas snapped, and they walked on in silence for a while. . . .

In this scene Leamas represents the true spirit of technologism. His loyalty is simply to the job at hand, to good workmanship. Almost completely nonreflective, he finds satisfaction in immediate experience, with no vision at all of any large community good. He and the ideological Fiedler are a source of deep puzzlement and frustration to each other. The irony, of course, is that neither would hesitate to use force to achieve his ends—Leamas because he seldom relies on intelligence, Fiedler because all totalitarian ideologies tend to maximize rather than to restrain power. Neither one of them would be capable of exercising the responsi-

bility that minimizes force. "Power is the greatest crime," said William Faulkner, "mitigated only by responsibility." He echoed here Lord Acton's famous aphorism, "Power tends to corrupt, and absolute power corrupts absolutely." William Fulbright's 1966 book on America, *The Arrogance of Power*, was one long reflection on that mindless irresponsibility by which force so easily takes the place of reason in the exercise of government power.<sup>32</sup>

If in an information society power resides in those who control information, then information can be used either to persuade or to coerce. It clearly can be wielded as a bludgeon, as a physical force that bypasses the freedom of persons, interferes in their private spheres without their consent, and reduces them to parts of the socio-technological machine. But those who control information can also use this storage bank of knowledge to expand the freedom and community of persons, because they believe such expansion to be both desirable and possible, whether in the realm of social morality, public order, or cultural endeavor. Whenever this takes place, there will also be a major effort to minimize the value of coercion and radically to narrow the field in which force can be legitimately employed.<sup>33</sup> In either case, however, the mechanisms of social engineering can never be morally neutral.

To some extent social engineering of this type is inevitable in our modern world, and illustrates well the remark of C. S. Lewis that all human power is in fact the power of some people over other people. The major ethical questions consequently become the following: Who shall own information? Who shall distribute it? To whom and on what terms? Shall there be the information rich and the information poor, classes of people who own and control information and classes of people who do not? Would not such a society be even more hostile to democratic values than one in which classes of people were divided into the commodity rich and the commodity poor?<sup>34</sup> Daniel Bell, for one, is clearly in favor of such a society. He envisions the inevitable growth of small groups of "knowledge elites," who produce and codify the information that makes the total system work. These elites, he believes, will be the true directors of future social change by instilling a greater and greater measure of

<sup>32</sup> See Karl Rahner, "The Theology of Power," in *Theological Investigations 4* (Baltimore: Helicon, 1966) 391-409.

<sup>33</sup> What Boulding calls "threat systems" can obviously be justified to some extent in any society. Law is often couched in terms of threat, especially criminal law. Most people pay taxes, e.g., because of threats if they refuse.

<sup>34</sup> See the perceptive article by Victor Ferkiss, "Technology and the Future: Ethical Problems of the Decades Ahead," in *New Ethics for the Computer Age?* (Washington, D.C.: Brookings Institution, 1986) 41-53.

rationality into the human enterprise.<sup>35</sup>

But here we must ask: At what price? Will those excluded from these elites begin to make life uncomfortable for those on the inside? Will their desperation be translated into violence, crime, and terrorism? If the future is to be built on finely tuned technologies of information control, then more and more coercion may be needed to protect the few against the violence of the many. One observer had drawn a startling analogy:

Universal literacy, which began to spread in the United States and Britain in the second half of the nineteenth century, proved to be a great equalizer. . . . Instead of information being held in the relatively few hands of those who could read . . . it was much more freely available. So dramatic are the changes that computers have brought to information handling that the inequalities of societies before universal literacy appear to be duplicated. Individual citizens compete unequally with private corporations and government agencies for electronically stored information. Their plight will be analogous to that of the illiterate working people of the early nineteenth century.<sup>36</sup>

#### IV

My argument in these pages has been that political responsibility in our present age must be seen in the context of an information society that is both of human making and the result of God's providential design. The evolutionary system of Pierre Teilhard de Chardin characterizes that design as a divine programming by which the evolutionary process moves from nonlife to life to human life, and in which a higher degree of consciousness always corresponds experimentally to a more complex organic structure. This scientific knowledge of human origins and development, Teilhard believed, could provide a basis for confidence, even on the part of the nonreligious person, that the human enterprise has some hope of a successful outcome in the midst of entropic matter. Humankind is now in desperate need of such assurance, because the self-reflection by which these origins and development are known also reveals a human freedom responsible for deciding in the future how these dynamisms of life are to be oriented on planet earth.

There is thus at present a species anxiety pressuring humankind to make myriad prudential decisions in the public sphere in function of this new awareness of responsibility. At the same time, men and women have begun to abandon the image of the machine in their self-understanding and to replace it with the image of a biological organism. This has in large part been due to the discovery of the astonishing storage capacity

<sup>35</sup> Bell, "Social Framework" 442-43.

<sup>36</sup> Ian Reinecke, *Electronic Illusions* (New York: Penguin Books, 1984) 210-11; quoted by Ferkiss, "Technology" 45.

of the DNA molecule, as well as to the realization that this phenomenon is being duplicated by a similar type of information storage at the human conscious level. This new capacity to store information of all types has been slowly transforming humanity into a cybernetic society, i.e. one preoccupied with the problem of controlling such information. Cybernetics is the science of such control, and its fundamental insight has been the closeness in which all levels of reality, including especially the human level, are tied together into one huge information system, one superorganism, with subsystems and lesser organisms linked together by common all-embracing laws, realized analogically in different ways at different levels of being.

In *The Control Revolution* James R. Beniger argues that all living systems must process matter and energy to maintain themselves counter to entropy. "Because control is necessary for such processing, and information . . . is necessary for control, both information processing and communication, insofar as they distinguish living systems from the inorganic universe, might be said to define life itself." By "control" Beniger means "purposive influence toward a predetermined goal," for which the feedback of information, continually comparing current states to future objectives, is essential. A society's ability to maintain control at all levels, from its interpersonal to its international relations, will thus be directly proportioned to its information technologies. The "control revolution," therefore, consists of all those rapid changes in the technologies and the economic arrangements by which information is collected, stored, processed, and communicated, and through which society influences human behavior. In Beniger's eyes, "the Control Revolution already appears to be as important to the history of this century as the Industrial Revolution was to the last."<sup>37</sup>

There is a negative religious assessment of this propensity for control in John Updike's novel *Roger's Version*. One of his characters, Dale Kohler, is a fundamentalist studying computer science. At one point he gazes at the patterns on a cathode-ray tube, hoping to find the fingerprints of God. Updike presents him almost as a caricature, utterly confident in his technological pursuit of scientific certainty about God. At one point Dale says to Roger: "What I'm coming to talk to you about is God as a *fact*, a fact about to burst upon us, right up out of nature." We've been "scraping away at physical reality all these centuries, and now the layer of the little left we don't understand is so fine God's face is staring right out at us." For Updike, on the other hand, as well as for Roger in the novel, the physical universe is utterly inhospitable to all

<sup>37</sup> James R. Beniger, *The Control Revolution: Technological and Economic Origins of the Information Society* (Cambridge: Harvard University, 1986) 7-10, vi.

our "anthropic" longings, and we have no recourse but to make our commitment to God in some other world. In another context Updike quotes his one time spiritual mentor, Karl Barth: "You do not speak of God by speaking about man in a loud voice." For Roger, as for Updike himself, it would be unthinkable for God to have left vulgar fingerprints on His handiwork for all to see, much less to allow Himself to be intellectually trapped. But neither author nor character has very much to say to the millions who now register the full impact of scientific materialism, and who in desperation seek somewhere to turn for solace.

As much as Updike and Barth, Teilhard would have put his emphasis on an act of faith. But Teilhard's faith would have a human as well as a divine focus. Long before we became a "cybernetic society" he saw humanity as a great "thinking envelope" covering the surface of the earth, a noosphere, a system of human consciousness—in effect, an information system. And long before Updike he located the contemporary crisis of that consciousness in a loss of nerve. Growing technological control, symbolized by the computer, appears to be either an invitation to self-destruction or a headlong return to the regimentation of the ant-hill. In this struggle between individual and collectivity, Teilhard wrote, there is no tangible evidence to produce on the side either of optimism or of pessimism. "Only, in support of hope, there are rational invitations to an act of faith."<sup>38</sup> The future of our cybernetic society is thus by definition open and indeterminate, characterized by process and change. The burden of responsibility in the public sphere is precisely the fact that human freedom can have no guarantees that its power over the total human system will not be exercised for ill.

It has been said that the essence of the technological mind is largely a refusal to believe on the basis of hope. Such belief will therefore always remain fragile and insecure. There will always be the suspicion that the values of individual persons, their desire for community, interpersonal creativity, and the preservation of the world of nature can no longer be fostered after so many centuries of growth. Here is where we must locate today the burden of political responsibility and power. For we live in a maximum-risk situation. On the one hand, the responsible use of freedom must focus on this new human capacity to control all governance decisions. On the other hand, from a religious point of view, relating such prudent decision-making to God's providential design must finally be the work of God's governance, not any human achievement. For power, as Karl Rahner has said, is something to be gradually modified and absorbed by love, like concupiscence and all its consequences. "Never did the might

<sup>38</sup> *The Phenomenon of Man* 233.

of the mighty bring them solely and clearly what they *planned*. The leader was always the follower as well, and his mightiest and best-planned deed was at the same time the most unforeseen. . . . He who is wise and loving knows this well."<sup>39</sup>

This is why the religious tradition has always insisted that there is divine decision-making in regard to the human as well as divine design in regard to the world of matter. Human dominion over the earth through science and technology, in other words, cannot be irrelevant to God's plan for the species. This is not to say that these human undertakings are themselves salvific or that they directly contribute to the kingdom of God. Nor is it to say that they can ever escape frustration and even subversion from the deeds of evil persons and the well-intentioned actions of good persons. It is simply to assert that they are human, and as such objects of a divine providential design whose source is love. This divine initiative proceeding from love, far from hurting the delicate functioning of human freedom, necessarily fosters the growth of human personality and, gradually in the course of time, the interrelationships of human community. But this meshing is as delicate as gossamer. It cannot be reduced to a mere intellectual problem. Ultimately it is an object not of probing curiosity but of reverence and adoration.

<sup>39</sup> Rahner, "The Theology of Power" 406-7.