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"The fear of the Lord is the beginning of Wisdom." Psalm 111:10

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Science as the Natural Philosophy of a Christian

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A Paradigm for Science

Like many of you here, I believe that Scripture is a revelation of God in *word*, i.e. in language comprehensible to man, and therefore we can have an *informed insight* about fundamental issues of man's existence. Putting this conviction into practice, I shall use a biblical text as an introduction for today's talk about the nature of science. In this text I think we find the elements for a paradigm of science in its broadest terms.

"*And out of the ground the LORD God formed every beast of the field and every bird of the air, and brought them to the Man to see what he would call them; and whatever the Man called every living creature, that was its name.*" (Gen. 2:19).

For the Hebrews, as for many ancient peoples, to know the *name* of something (or someone) is to comprehend it, to grasp its inner character, to acquire a degree of mastery or authority or privilege in relation to the thing (or person) named. (This is why the Pentateuch gives such emphasis to names, or changes of name, and why the name of God is such an important question.) Now that we recognize how inextricably our human conceptual powers are bound up with *language*, we can see that this view is far from superficial!

(1) *Objective Reality and Contingency*. We are reminded that *God* formed the creatures "out of the ground," like man himself. God is the maker of things as they are; they do not exist of themselves, but their make-up is "out of the ground." This is very far from the empty dreams of the pagan myths, in which there is an *organic* connection of divine nature with the universe; it is also very far from *Platonic idealism*, in which created things have a *necessary* form and structure derived from a *Divine Ideal* or *Archetype*. Things have a real form and structure, it is given to them by God; but it is "out of the ground, " i.e., by principles and forms arising within, and consistent with,

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The contingent character of the natural order requires us to look outside ourselves to objective reality itself for validation or falsification or our ideas.

the creation as God has chosen to make it. So here we have the assertion of a consistent external reality, but it is *contingent*; form and structure are not derivable from pure reason as a *necessary* reality, but are present as *contingent* realities by the sovereign acts of God. One of the most crucial issues in the rise of science was the recognition that form and structure in the natural world are indeed *contingent*; hence they cannot be derived by rational argument alone but require empirical investigation to be found out.

(2) *Human Creativity and Authority*. The main point of the story is that the Man is expected by God to play a creative role in relation to this created order—and it is a role with real authority. God brings the creatures to the Man, but He says nothing; He is waiting to see what the man would call them. "And whatever the Man called each living creature, that was its name"—*that is, out of the creative choices of the human mind, in response to what God has made, emerges a description with authority and insight as to the true character of the thing perceived.* It may not be absolutized, because the creation *itself* is a *contingent* order from the hand of God; but the power of the Man to grasp that order truly is *not in doubt.*

(3) *God's Interest and Value are Placed on the Activity Itself*. The spiritual holism of the biblical perspective is manifest in going beyond the intellectual plane to the deeper issues of *value*, and communion or participation. God is *interested* in the man's response and choices. Of His own creation, it is said, "God saw that it was good"; here, value is created because God is interested in man's participation in seeing too. What is implied is the possibility of a fellowship or participation, in sharing *with* God the appreciation of what he has created. This could be quite simple and direct, as in laughter, and I always think of this text when I look at some of the more grotesque animals. But it can also be profound, subtle, and rational, the appreciation of an excellence whose source is divine, and at its highest it becomes worship. Psalm 19 touches upon this in a characteristically Hebrew way, and St. Paul talks about the theological implications of such appreciation in Romans 1:20. Kepler's is only the first of very many voices telling us of the pleasure afforded in the appreciation of rational excellence, and we recognize that this appreciation of rational beauty, in an active rational participation by the thinker, is itself an intrinsic part of the creative activity and its dynamic motivation. In his book *Personal Knowledge*, Michael Polanyi has identified this capacity for rational appreciation, and its active exercise, as a primary factor in scientific discovery, and he illustrates it with many examples from the history of science;[1] on the basis of my own professional experience I am in complete agreement with him. Charles Coulson, a great scientist and a sincere Christian, comments on this same question in relation to the experience of worship, in *Science and Christian Belief*.[2]

Of course this story leaves many questions unanswered, and, according to our theological views of the relation between man's condition now and before the Fall, we may also differ on how validly man now might exercise this function. But in any case the story shows us much that is basic to the character of the scientific enterprise. Fundamentally I am convinced that in spite of a crippling ruin resulting from sin, the Creator's gifts and calling have never been revoked. It was Bacon's view, and one I generally share, that the liberty and opportunity to exercise such creation gifts might be recovered in some measure as general benefits of Christ's redemptive work in individuals and the influence of the Gospel on human society. Indeed, such a conviction underlies the Puritan view of a Christian role in the world and must have been important to such men as Boyle, Hooke, and other early scientists.

In my first talk I indicated that a critique of science based on a fundamental harmony between the scientific enterprise and a biblical understanding of man would have to be focally concerned with the modern philosophies of science and knowledge, and with the way in which they have distorted the truth about scientific knowing and its relation to the whole range of human activity. This was the point to which Michael Polanyi addressed himself first and for essentially the same reasons. These modern philosophies represent the outcome of an important departure from an older and much simpler view of science. It is therefore also helpful to trace the motivations for the development of these modern views to their historical roots, and also to look at the peculiar schizophrenia in modern thought to which they have led.

The older view of science—what I called the "outworn creed," because it is what simple-hearted practicing scientists are all committed to in their work of discovery—could be called a *naive realism*. It is clearly portrayed in the writings and expressed attitudes of the pioneers of science; again I'd mention the little book by Hooykaas[3] as a source of information.

Scientific Theory Not Fiction

Firstly, they rejected the medieval doctrine of "saving the phenomena" as a fundamentally unacceptable idea; instead, they considered that a scientific theory may be entertained as a *potentially true* description of the objective reality to which it refers, i.e., it can have a form and structure corresponding to and compatible with that reality, and need not be a mere fiction full of extraneous and mythical elements. Such a theory would ultimately be compatible with a valid theological explanation—whereas the essential point in the "saving the appearances" doctrine was that scientific theories *by their very nature* could *not* do this. To

use the imagery of the story from Genesis, it means we could (as little children) tell God without embarrassment about our scientific theories because, although their scope and accuracy is always limited, they are, within those limits, faithful to what He really has made, not unrelated to it; and He would not only listen with interest, but would approve the appropriateness of our account of things! "*And whatever the Man called every living creature, that was its name.*"

If you reflect on it awhile, you will realize that this claim or belief—as over against the "saving the appearances" doctrine—is really concerned with the *value* of scientific endeavour, the *dynamic motivation* for carrying it on, and the *means* to its continuation; whereas the opposite view is really an argument for being content with existing ideas, for ruling out the relevance or value of further inquiry, and for introducing other "explanations." It was because the early astronomers were convinced that the Copernican hypothesis had very much more to tell them about the *real world* than did its competitors, that they poured such scorn on Osiander's apologetic preface. In my first talk I have already emphasized these issues of *value* and *dynamic motivation*. I have expressed the view that whether scientific endeavour is undercut by resurgence of the medieval view for essentially medieval reasons (as we get, for example, in the writing of Henry M. Morris against the idea of scientific laws), or by a modern radical skepticism about "truth" (as we have in the phenomenalism or operationalism of Mach and Bridgman), the effect is the same, i.e., the *devaluation* of science and the substitution of false and inadequate *motivations* for science, such as the technological utilitarianism which currently threatens to destroy science.

Contingency of Natural Order

Secondly, we must not ignore the vigorous emphasis on the *contingent character of the natural order* which was insisted upon by the pioneers of science—as over against the concept of a necessary order derivable from (self-evident) principles of divine reason. This is the essential complement to the belief that a scientific theory may be entertained as potentially true, *because it requires us to look outside ourselves to objective reality itself for validation (or falsification) of our ideas.* These complementary ideas are opposite faces of the same coin. Nowadays we scientists take it for granted that theories must be tested against reality, but in the beginning it was not taken for granted. Moreover, a *continuing awareness* that order in nature is *contingent* (rather than rationally *necessary* or self-evident) is vital to the scientific enterprise, because it prevents us from absolutizing scientific theories as axiomatic systems and keeps the way open for revolutionary changes of thought and of our paradigms of description. Thomas Torrance[4] has made this point forcefully, using the examples of the Newtonian and Einsteinian conceptions of space-time relations in the universe. And using my biblical text I have tried also to show that we have a sound theological basis for retaining a firm grasp on the concept of contingency: it reminds us that we are also creatures, and directs our attention to the reality *outside* us which *God* has made, as the sustaining support for our ideas.

Again it is attitudes which are important here; in using the term *contingent*, we acknowledge that creation has an *external, objective* reality, not determined by our rational thoughts about it—we expect to be surprised by it in the future. However, we may also say that we believe it has a *rational order*. Either, we might believe that its "contingency" is not real, but only apparent and temporary because of the present inadequacy of our theories, and that ultimately we shall uncover its "true order" which is really *necessary* within itself and completely comprehensive in scope. Or, we might believe its contingency is a truly *open* one, because it finally depends on a source beyond itself to determine it (i.e., the free and creative choices of a sovereign God). In this second case, scientific theories, while potentially true, would always remain open to further, unanticipated extension; they could not, even in principle, be "necessary," absolute, or comprehensive in scope.

Generally speaking, the modern philosophies of science advance the belief that there necessarily exists an absolute, self-contained, comprehensive "scientific world view," to which they claim the scientific enterprise is leading (for example, see the view presented by Jacques Monod[5]). I would suggest that one very important reason for rejecting views of science which think of it as *absolute, axiomatic*, or *tautological* in its final structure, is that the holding of such views is really inimical to the open creativity of scientific endeavour itself—and is therefore absurd.

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Given their theological presuppositions, it is clear that the pioneers of science were committed to the idea of an *open* contingency in nature. Moreover they also gave ample evidence that they did not conceive of their scientific knowledge as approaching a final, complete, or absolute character. For example, both Boyle and Hooke were quite explicit on this point: they stressed the incompleteness of scientific theories as hypotheses to be tested and used in further development, and they also recognized the possibility that alternative theoretical descriptions might be given for a given set of phenomena. Their "naive realism" was not merely simple-minded! Yet the scientific enterprise as they conceived it *was* ambitious and optimistic as to its aim—a true understanding of an objective reality in the creation around us. They were prepared to take their theories seriously enough to apply them in as broad a context as the circumstances of experiment and observation permitted, and thereby they made many startling discoveries.

Natural Philosophy

I have some sympathy for the term "natural philosophy" to describe science, for the term expresses something of this original view: the claim that from a direct and honest inquiry into the actual behavior of things in the natural world, we can build up a consistent, orderly, and rational account of that world, compatible with its behavior in every known and tested aspect, and *excluding*, by its own existence, an infinite number of hypothetical (but demonstrably false) alternatives. The adjective "*natural*" expressed a conscious opposition to "philosophies" of whatever type which are derived *without* a sustaining ground in creation itself and which, therefore, reject the concept of the open contingent universe in favor of ideas of rational necessity or some other extraneous "absolute." On the other hand the noun "*philosophy*" equally implied a continuity and an undefined boundary between scientific thought and the broader context of human thought, in which it had to be set in order to retain a sound perspective. At some point, the questions provoked by scientific thought can lead us outside the domain of scientific theories themselves, and we shall never be able to tell just when, how, or where that might happen. In describing "science as the natural philosophy of a Christian," I am saying that such attitudes are fully compatible with a Christian understanding of ourselves and the world as God's creatures and on the other hand also fully compatible with the most ambitiously creative and optimistic understanding of the aims of science as an enterprise. It is the modern philosophical views of science which are finally incompatible with its vitality.

For the most part it was not the working scientists themselves but the philosophers who were responsible for the departure of modern philosophies from the older naive realism, though to be sure many scientists came to take up the same attitudes, in the long history of the "warfare between science and theology." It was not Newton but Hobbes who tried to formulate an absolutist world-view on Newtonian mechanics, and that pattern has been repeated often.

Descartes: Originator of the Modern Philsophy

As the philosophers themselves do, I would identify Descartes (circa. 1650) as the explicit originator of the modern tradition in philosophy—and the departure from the older creed of science. The Christian apologist Francis Schaeffer has identified the claim to the *autonomy* of the human mind over knowledge as the essential act of apostasy in philosophical thought, and I think he is basically right about this. In Descartes we have the first clear expression of this claim. Although Descartes acknowledged the existence of divine revelation as a fact, he explicitly rejected the idea that philosophy could rest upon commitments of the philosopher to presuppositions and ideas derived from revelation; in other words, he defined the task of philosophy as the establishment of an intelligible knowledge of the world *without* presupposing any religious or personal beliefs. The *ground* for doing so he took to be the *knower* himself, and from this ground he proposed not only to derive all knowledge but also to establish it with certainty. It is an odd fact that, in spite of wild variations as to methodology and conclusions, the tradition of modern philosophy has tacitly accepted the task defined by Descartes as a legitimate one: a very heavy burden indeed, and grievous to bear.

The Cartesian project of proof emanating autonomously from the self poses insoluble philosophical problems.

I haven't time to give more than a brief summary of Descartes' viewpoint and its profound implications. As you will recall, his fundamental starting point is the famous "*Cogito, ergo sum*"—"*I think, therefore I am.*" What Descartes means by this is: it is actually impossible for one who is in the act of thinking to actively or effectively doubt the reality of his own existence; the commitment to that is constituted by, and is present in, the very activity of thinking itself. This is true, and I do not wish to discuss it; my question is, what are the implications, limitations, problems and conclusions which arise if we take this as our starting-point? I should like to mention four issues raised by doing so, which unfortunately I cannot develop fully here.

(1) By introducing self-consciousness into rational discussion, as the primary fact of direct, conscious knowledge, Descartes poses the problem of the "self" for philosophy and becomes indirectly the father of existentialism. The sort of knowledge involved in "*cogito, ergo sum*" is *existential*, that is, it is accessible only to myself who am doing the thinking; it isn't at all the sort of knowledge I have of the *objective* external world outside my own mind. Jean-Paul Sartre identified this determined choice, to refuse all other bases for beliefs and knowledge and to insist on starting from the *self* ("being-for-itself") as

origin, as the essence of existentialism and the really significant element in Descartes—and therefore Sartre called himself a Cartesian.

(2) Descartes' viewpoint divides reality into two primary categories: the *object* world, known by the self, and the egocentric subject (self) who knows. All other distinctions are secondary to this one. For example, distinctions as to the character of objective reality: all reality other than "myself" is "*object*," that is, "that which is known by me"—God, other persons, and inanimate nature are all alike *objects of my cognition.* This has the effect of emphasizing *my* activity—as opposed to the role played by the *other*—in knowing. This may (perhaps) be an adequate stance for knowing the physical world, but what if we try to use it to understand the dimension of the *personal* in the objective world? The Psalmist understood very well that in personal relationship the role of the other is vital, and in relation to God, it is primary, when he spoke of the fact that *God knew him* (Ps. 139; Ps. 19).

(3) Conversely, for Descartes identity of the self is constituted only in its theoretical activity of thinking and knowing. "I" am "he who knows"; this is not enriched or amplified by such identities as "I am he who chooses," or "I am he who acts in the world," or "I am he who believes (or trusts)." Indeed, the last possibility is explicitly rejected in the Cartesian program. I mentioned in my first talk that the philosopher of religion John MacMurray analyzed the deficiencies of this program, and, implicitly, of modern philosophy, by pointing out that thinking and knowing are only one of the forms of human *agency,* and he has developed this critique in a study of modern philosophy, in the book *The Self as Agent*,[6] with the aim of understanding "the form of the personal" in human experience. His work is an invaluable contribution in mapping the influence of the Cartesian program on modern philosophy and indeed all of modern thought. Moreover, as Michael Polanyi has so clearly shown, even in the epistemology of science it has finally proved impossible to distinguish the identity "I am he who knows" from "I am he who believes (or trusts)." Lastly, the shallowness and absurd arrogance of the Cartesian identity is very simply laid bare for us by the apostle John: for him, there was something ultimately beyond *knowledge,* in being *"in* Him who is true" (I John 5:20), and a far more significant identity, in being "the disciple whom Jesus loved."

(4) *The Cartesian project of proof emanating autonomously from the self poses insoluble philosophical problems.* If all truth is "that which is known by the self," and we take Descartes seriously in his insistence that we establish what we know *with certainty,* how can we do so? In particular, how can we show that such knowledge is not entirely the product of our own minds? This problem has been the grand obsession of modern philosophy. Kant, for example, devoted his main effort to attempting an answer to it, and modern positivism is directly descended from Kant in this concern. My point here is that the whole tradition stands squarely on the Cartesian platform: it has to do so, once the necessity of *commitment* as the functional context for knowing is rejected.

The scientists contemporary with Descartes mostly disagreed vigorously with his rationalistic outlook, which they quite correctly identified as the continuation of the medieval rationalism they so completely rejected. (Descartes' contributions to science were almost entirely in pure mathematics.)

Polanyi's Philosophy of Personal Knowledge

At this point I wish to comment on Michael Polanyi's aims in his philosophy of personal knowledge, which, I think, has been widely misunderstood in some popular apologetics. Though Polanyi never discussed his work in the context of the Cartesian program, it is quite clear that he rejects, as a contradiction in terms, the whole idea of proof beyond the need for commitment, or a certitude which is beyond the possibility of risk for the knower; therefore he also implicitly rejects the entire Cartesian program. Polanyi maintains that, for us as human beings, to *know* is necessarily to be in a relation involving *commitment* as a continuing, active participation; commitment must be *responsible,* but it is inescapably commitment, and hence the *possibility* of risk is always apparent to us as knowers. Logical positivism had attempted to meet the Cartesian demand for objective certainty by completely removing from science any element of personal participation. But by showing that personal participation in scientific knowledge, as in all our knowledge, is pervasive and inescapable, Polanyi rejects Descartes and allows the return to an older conception of philosophy's task and to the naive realism which I have been defending here.

I was therefore quite astonished when I first read the assessment of Polanyi's views made by Francis Schaeffer (and some other evangelical apologists). Schaeffer, for example, identifies Polanyi's philosophy of personal knowledge as the last stage of existential skepticism, since he interprets Polanyi as questioning whether we can even have valid scientific knowledge![7] That this is a misunderstanding of Polanyi's views is evident, and I would hope that Schaeffer might not hold the same opinion on the subject today as he did when he wrote the passage in question. More fundamentally, however, it seems to me that Schaeffer believes that scientific knowledge could be obtained and maintained with certainty and without participating commitment and the entailed risk. Now it would seem absurd to me if he does so because he accepts the obligations imposed by the Cartesian claim to *autonomy,* since for him (and for myself) this is the real apostasy of modern thought; therefore I can only assume that he believes that scientific knowledge can be given certitude on some other basis. In some of his writing, he suggests that fundamental presuppositions about the *nature* of science, and also some minimum of actual scientific assertions, are part of a propositional revelation to be found in Scripture; and he apparently feels that it is sufficient for *certitude* that one may reason logically and in rational, deductive fashion from these propositions as *presuppositional* starting points for scientific knowledge. Now, I would not deny that in Scripture we have statements which offer us presupposi-

tions about the nature of the scientific enterprise (I opened this paper with consideration of just such statements) and *also* that we have statements with actual scientific content. I would also agree with him that, *logically and formally,* a Christian view of science and of the universe as a whole can be framed from *presuppositions* founded in scriptural statements, and I share his concern that we emphasize the objective, referential, and logical character of scriptural statements. However, logical form and consistency are not sufficient to establish certainty for our knowledge. Knowledge is a dynamic thing which involves my necessary participation in a responsible personal commitment, and this inevitably involves risk (from the knower's viewpoint). *Certitude is a state of mind,* not an abstract rational quality which we may assign to propositions. To talk about epistemological certainty as something deducible in rational fashion from one's presuppositions is to remain within a medieval framework of thought. It is just this rationalist framework which was found wanting at the Reformation and the dawn of the scientific revolution. Our task now is to develop our positive understanding of knowledge, faith, revelation, creation, and the relations between them in a manner consistent with what was good and vital in those revolutionary changes.

In my third talk, I shall try to show that there are fundamental similarities between Michael Polanyi's approach to the problem of truth and human knowledge, and principles expressed in biblical statements on the same theme.

To understand clearly the development of the modern philosophies of science from the Cartesian program, we would have to trace that development through such intermediate stages as the classical empiricism of Locke and Hume, and the philosophical critique of Kant, as the preliminaries to positivism, logical positivism, operationalism, and analytic philosophy. Time does not permit this and I restrict myself to a few remarks.

Kant and Impersonal Objectivity

Kant, as I have said, was very concerned with *proving* that our knowledge can be true objective knowledge of a real external world. His concern was partly a reaction to romantic idealism, then developing in German thought, which taught that the creative intuition is the source of all our knowledge (the idea is expressed later in Keats' "beauty is truth, and truth beauty. . ."). Kant rightly saw that such a view by itself leads to pure subjectivism.[8] He attempted to establish objectivity by arguing that although our minds do impose a rational *form* on knowledge, the *content* of that knowledge originates in our experience of an external objective reality and is therefore not created by our minds. Using the famous "transcendental apperception" argument, he tried to show that the rational categories constructed by our minds are also not free inventions but are *necessarily* those appropriate to the objectively real world. This subject is fascinating and far from irrelevant (note, for example, the implicit connections to the ideas of rational intelligibility and contingency in the natural order which are so important to "naive realism"), but for my present purposes there are only two points I want to emphasize: (1) Kant accepted, and tried to satisfy, the Cartesian demand for rational certainty; (2) he tried to achieve objectivity by restricting the contribution of our personal participation in knowledge to a purely logical, explicit, and rational *form.* After Kant, *objectivity* (and the possibility of epistemological certainty) was increasingly identified with *impersonality*, and the effort began to create an exclusive, objective, absolute "scientific knowledge" as "knowledge from the machine," which culminated in the modern forms of positivism.

The positivist conception of scientific knowledge excludes the possibility of "truth" as something having intrinsic value or requiring commitment by those who know it.

There is a price for this sort of "objectivity": if what is objective is necessarily impersonal, then by its very nature what is personal cannot truly be objective. That other half of the Cartesian polarity, the existential ego, to whose "reality" we are all committed *de facto*—that other half cannot be ignored; so we have the emergence of existentialist philosophy as a fundamentally *schizophrenic reaction to the positivist ideals.* What began as a polarization in Descartes between the self as knower and the object of his knowledge, eventually became a radical dualism in thought. Tragically, "objectivity" went with one pole, but "meaning" with the other, and modern man has not found it possible to reunite them. Within the Cartesian program, it *is* impossible.

Positivism

Let's look at the issues in the myth of the objective as the purely impersonal. I don't have to describe positivism in detail for this audience; you have been widely exposed to it in your scientific education, even sometimes mixed up with the teaching of science itself.

In this myth "scientific knowledge" is identified with a crystalline, formal and logical deposit, whose consistency, validity, and meaning can be assessed and discussed independently of the process of its discovery, and of the *knowers* who currently believe and practice it. This is a primary assumption: if we accept it, we accept the fundamental dualisms which positivism creates, and all other concerns are secondary.

Such a conception ignores the *agency of the knower,* not only in original discovery but also in the continued existence and expression, or *holding,* of that knowledge. It implies that there is a radical distinction—not merely one of precision—between "scientific knowledge" and every kind of *art* or *skill,* since these depend vitally for their manifestation upon the presence and agency of a skillful performer. Michael Polanyi correctly saw that this disjunction would

lead to the unravelling of positivism as a philosophy, since the practice of science is itself a skillful and artistic performance.

Positivist preoccupation with methodology—incidentally, an obsession which has spread far beyond the borders of philosophy in our technique-crazed culture—arises from the compulsion to divorce knowledge from its personal knowers. In the positivist view, a machine should be able to have "knowledge" and indeed generate it too. Descriptions of the "scientific method" are invariably written up in a way which conceals or minimizes participation of the knower in procedures, and instead focusses our attention exclusively on the formal and purely mechanical aspects of investigation. I shall not give a detailed critique of this alleged method, since such critiques are now widely known, but consider two or three essential points: Is it really true that science can be carried on by testing hypotheses generated at random? If not, where do hypotheses arise, and on what basis are some selected before others? Or, how can we impersonally decide whether or not a set of results is consistent with a given hypothesis? Is it really true that statistics provides an impersonal criterion of confidence? As Polanyi put it: this method is not an account of how we discover anything; it is an account of how we verify something we already believe to be true. While the "scientific method" does describe the formal and logical pattern of scientific testing, it does not recognize the personal participation of the skilled knower, whose agency renders the process dynamic and creative.

Positivist tendencies to conceal or deny the motive force or integrative meaning of scientific theories is another expression of the urge to remove the personal. A theory functions by pointing beyond the "facts" with which it is directly concerned as particulars, to a larger context of meaning which transcends them; it integrates particulars, to create for us an awareness of a larger whole, into which they fit as merely subsidiary, albeit necessary, details. Such vision is of course available only to those who commit themselves to the theory. The Copernican theory achieved this for those who believed it (Galileo, Tycho, Kepler, Newton); the Ptolemaic theory did not. Positivism ignores or denies the significance of this. On the positivist view, "facts" are supposed by themselves to assault our scientific nerve-ends and bring forth from our mechanically logical but unimaginative brains new hypotheses to account for them; and theories are merely after-the-facts convenient arrangements of all the relevant data. Nothing could be further from the truth; case after case from the history of science shows how the appreciation of a new rationality and a comprehensive excellence in a new theoretical paradigm has led believers to the definitive experiments which established its claims, while those who did not believe accomplished nothing. Nor is this relevant only for original or revolutionary discovery; it also provides the sustaining power for continued work. An experimental result is not a fact, but an interpretation; whether or not something is evidence depends on what you are looking for. We theoreticians like to remind our experimental colleagues that their very complicated experiments are a concrete manifestation of their deep commitment not to "facts" as such but to an elaborate background of theoretical conceptions which alone can give their data meaning (our reason for doing so, of course, is that we sometimes feel that some of these conceptions are rather mythical: a good case in point is the hold molecular orbital theory has on the minds of organic chemists! But I digress).

The positivist conception of "scientific knowledge" also excludes from it the possibility of "truth" as something having *intrinsic value* or *requiring commitment by those who know it.* Science is not concerned with "truth" in the old classical sense, but *merely* with facts. I have argued that our understanding of a scientific theory can point us beyond facts to a *larger context of meaning* which transcends them as particulars; the possibility exists that this larger context of meaning may transcend science itself, so that we are encouraged from our understanding of science toward other more holistic responses. In the old naive realism this sense of a larger possible awareness lay at the heart of scientific creativity, "thinking God's thoughts after Him." Positivism's insistence on radical disjunction, on the impersonal, on "facts" alone as reality, denies that such a possibility exists. Our understanding of physics and astronomy, in short, *really adds exactly zero,* objectively, to the meaning of the Psalmist's hymn "The heavens declare the glory of God, and the firmament shows His handiwork" (Ps. 19), or the dimension of his pondering in Psalm 8: "When I consider the heavens, the work of Your hands. . .what is man, that You are mindful of him?" I do not believe that for one moment—and neither do you. Moreover we know that scientists of all sorts (not just Christian ones) are frequently moved to express a sense of awe and wonder by their contemplation of the natural order. According to the "facts" view of science, such responses are not merely irrelevant or invalid; *they should not even be occurring.* The fact that they do occur, and occur persistently, shows what we really *do* believe—and *ought to believe*—about the potential significance of our theories. I'm not pointing this out because I expect positivists to be interested in worship (or even conceive of it!) But suppose a *Christian* thinks that he can wholeheartedly share Mach's opinion that "scientific theories are merely convenient arrangements of the facts," or adopt Bridgman's operationalism, which says that scientific theories are mere formalisms allowing us to describe the measurable relations of sense phenomena and to manipulate those phenomena effectively; then it is my belief that he has unwittingly thrown away something of the biblical view of man, and has, in principle, accepted the profound dualism between fact and meaning which positivism has created and which eventually leads to the existentialist reaction.

All this leads to the dreadful conclusion—for positivists—that we are inextricably involved as persons with our scientific knowledge, just as we are with all our knowledge. We do not merely "know" it, we believe and *hold* it, in an attempt to grasp the outlines of an objective reality within which we are placed. It is never possible (even were it desirable) for us to escape such commitments, for our language itself betrays us. The beginning of the end for positivism came when it was recognized that even the most primitive information, to be communicated, must take

form in *language;* and language in its very structure contains commitments to a tacit theory of reality which we can never fully erase. The force of that conclusion has not been diminished by fifty years of analytic philosophy, and has if anything been strengthened by discoveries in modern linguistics.

Proper Usage of Word "Truth"

Since we are talking about language, I think it is time now to make some remarks I promised in my first talk about the proper usages of the word "truth." Once again I remind you that I believe as passionately as any of you in "true truth," "absolute truth," or whatever other linguistic extremes you may feel driven to in your effort to reach out to the reality which is anchored in God, and that it is my purpose to proclaim the rationality and operative authority of such ideas. Clearly, whatever we mean by "truth," it is bound up with this business of "objectivity," since none of us holds to those existential philosophies or religions which allows us to suppose that we by our choices *create* the truth; and on the other hand few of us would like to explore the idea of an "objective knowledge" we possess, which is somehow not "truth."

When I said yesterday that I couldn't agree with the view propounded by Professor Gordon Clark that "science is not concerned with truth" or that "science does not discover truth," I said that this implies a *semantic reservation* regarding the use of the word "truth." I would take it that he reserves that word as appropriate *only* to describe *the potential knowledge which we have from God by revelation through His word* (never mind for the moment whether that revelation is propositional or not). I'd emphasize that it is our *potential* theological knowledge which is in question. Although of course we are prepared as evangelicals to assert that our *actual* knowledge is effective as a *functionally authoritative approximation* to a portion of that truth, we expect like the old Puritan that "God hath yet more truth to break out of His word." I know a great many Christians who wish to make a strong *distinction* between "ordinary truth"—the sort of truth that we can get at through science, and so forth—and "absolute truth" or "revealed truth"—the sort of truth Dr. Clark calls "truth." Now I think that what most Christians are getting at when they make this distinction, is some sort of claim about the *source* of the information, and possibly about its clarity as well. They are trying to say that there is a tremendous difference between God talking words to us, and our talking words about God's handiwork. They are trying to say that if God takes the trouble to speak words to us in our human language, then we may conclude that (a) the content of that speaking is much more important for us than created things themselves; (b) there is a clarity and definiteness of meaning in such speech, which comes from the Speaker's infinite wisdom and authority; and (c) there is consistent, logical reference to *objective realities* known to Him but possibly not yet known to us; therefore (d) such communication should have a transcendently greater measure of authority over us and our commitments. Well, I believe that, too, and I think we have a lot of solid hard work to do, to put these convictions about the importance of *a revelation in words* from God into intelligent and comprehensible terms. If such a distinction of quality were all that Professor Clark intends by his semantic reservation for the word "truth," then the differences between us would be only those of terminology, though I prefer my terminology for reasons that will become clear shortly. But I fear that his *extreme* reservation implies an equally *extreme disjunction* between two sorts of *human knowledge:* one sort having a kind of absolute, rational certainty to it because its *source* is *revelation;* the other sort being basically wishy-washy and always radically in doubt because it involves our personal blundering around, trying to get the proper conceptual and articulate "handle" on things. I think that this overlooks the fact that *all our knowledge,* regardless of its source, has to be acquired and held by persons: it is still personal knowledge.

I spoke secondly of what I called a "functional ontology" of truth. Man's interest in the truth arises because he believes himself to be free to make choices which can alter the future in objective reality. Whenever we speak directly of "truth," we conceive that there is, in objective reality, a proper authority to which we should willingly hold ourselves responsible, as a basis for directing thoughts, actions, and even feelings. We conceive that, in commitment to and knowledge of that truth, we may be so instructed in the use of our choices that we ourselves acquire authority and freedom through it, and it becomes effective in shaping our destinies. Lastly we conceive that we may acquire some knowledge, at least in part, of this truth, and we think that our efforts and concern to do so have not been completely in vain, whenever we affirm that something is *true.* Now this does *not* mean that truth is "whatever I seriously commit myself to"; indeed, we are well aware that our commitments can be *mistaken.* Moreover (and it is important to recognize it) we also know that even when we know truth, we may (because of sin) *prefer a lie which we or others have created,* and enter upon the folly of ignoring and disobeying truth. Yet none of us —unless we have reached that desperate state of wickedness which Psalm 1 describes as "sitting in the seat of the scorner"—ceases to believe in the existence of truth, and indeed we are continually calling on our fellow men to share our perception of it. To live without truth is to live passively and without hope. We believe truth *is*; therefore the word is indispensable to us, on ontological grounds. To illustrate: here I am, arguing for a view I believe to be true, and there, on the other hand, is Gordon Clark, doing the same thing. Each of us is aware that both of us can't be right, but we both *agree* that truth *is*, and that it should have functional authority over us. Semantically then, I think we must *use* the word, whenever we recognize the effective presence—or potential presence—of that functional authority, even though we know that the risks of imperfect understanding and sinful desires are present for us as knowers.

To illustrate this "functional ontology" of "truth" in depth, let me give a pertinent example: The Oxford philosopher A.J. Ayer, who coined the term "logical positivism," took his philosophy to such extremes that he actually claimed that there is no such entity as a self-

conscious mind or ego (i.e. the "self") but only a succession of sense-experiences ("sense-contents"). To this claim, the Oxford Platonist C.E.M. Joad made one of the most devastating replies I have ever read, when he wrote:[9] *"When Ayer says that there is no such thing as a knowing self, but only a succession of sense-contents, does he include that self which thinks Ayer's thoughts, and writes Ayer's books?"* This is devastating because, here is Ayer, passionately arguing for the *truth* of his philosophical ideas; yet these views are such that, if they were true, they would render such argument meaningless. Since we must choose between the two, surely we have to conclude that for Ayer, the belief in "truth"—something meaningful only to knowing selves—transcends any of his philosophical beliefs, and thereby in fact invalidates them.

Now I think that in the scientific enterprise we do have the potential capability to acquire a functionally authoritative approximation to a true understanding of the objective reality in created things around us, and that there *are* times when scientific knowledge can and should have such authority as truth, even though of limited scope, that it can correct or enlighten our understanding of communications coming to us from other sources. In fact, we have seen many instances of this in the last four hundred years; our understanding of what Scripture is telling us about creation *has* been influenced by the truth of science, and we simply can't deny that, *nor should we wish to.*

Conclusion: the Importance of Language

Positivism has been dead for some time now, and I did not exhume the corpse for the fun of deriding it. I have tried to show that the modern philosophies of science are finally incompatible with the reality of science in practice *and* with the continued vitality and creativity of science as an enterprise; moreover, the dualism between fact and meaning created by the doctrine of objectivity-as-the-impersonal, leads to the reaction of subjective existentialism and ultimately the denial of all objective reality. I have argued that the "naive realism" which was the creed of the pioneers of science contains essential elements of an understanding which unites science in a more holistic fashion with other aspects of human knowing, an understanding in which *faith* and *knowledge* were not seen as antithetical but closely linked.

As I said earlier, I think Michael Polanyi's aim in beginning the formulation of a "philosophy of personal knowledge" was to recover for the modern mind an understanding of the common ground within which the essential continuity and interdependence of knowledge and faith ("responsible commitment") could be clearly seen as both inevitable and appropriate. This was not to deny objective knowledge, but on the contrary to uphold it. Christianity claims to impart *objective knowledge* of spiritual reality; to make this claim comprehensible, we must understand also what is meant by objective knowledge in those areas of focal concern to science, in such a way that it relates to all our knowing.

All our knowledge, regardless of its source, has to be acquired and held by persons: it is still personal knowledge.

Polanyi rightly perceived that this common ground would be found in an understanding of what Thomas Torrance has called the *creaturely rationality* of man, that is, the manner in which man knows and grasps anything, whether that knowledge comes by the tacit perceptions of his environment which he shares with the animals or by the articulate communications entailed in the gift of rationality and its expression in *language.* Polanyi realized that *language,* both as *form* and as *function,* provides the key to man's enormous conceptual superiority over the animals, yet in its very nature links this rationality to the tacit forms of awareness and functional skills shared by man with the animals ("out of the ground"!). So language, then, is the evidence on the one hand for the continuity between articulate and tacit awareness, and on the other is the *means* of man's *uniqueness, effective transcendence* and *responsibility* in creation. *I did not say "source";* the aim of this understanding is not to build up an *autonomous* theory of the world or to "explain" creaturely rationality in some mechanistic fashion. On the contrary, it was to identify and proclaim clearly the truth that man is really *unique and responsible* through this gift of transcendence to a whole new dimension of objective, meaningful realities. This would be, I think, an interpretation of the biblical doctrine of the *imago Dei,* the *image of God,* in man. If this is true, we can begin to understand the supreme importance of the biblical concern with language and its affirmation that God speaks to men in a *word of God.* Although Polanyi did not explore the implications of a *revelation in language* within the context of his conception of human responsibility, it is an *open possibility* within the framework he had in mind. I hope to say something about this in my third talk.

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A Christian Tin-Can Theory of Man

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Now is a good time for scientists who profess that their life-consciousness is gripped by the Good News for modern man to exhibit a conception of the human creature that is really new instead of just a reshuffling of old ideas, replete with pagan dilemmas and dead ends. By "new" I mean a conception of man and woman that rings an exciting bell of blessings for theoretical analysis and professional praxis rather than frustrations: a conception that straightens us out, the psalmists would say, and affords a prophetic integration of how we do things in the laboratory, at home, in our hobby, as student, citizen or whatever. We need to have the presence of the Lord biblically embedded in our understanding of humanity, or we have sold out on our Christian birthright, no matter how often we import God into the environs of human nature afterwards.

With these foolish, brave words I mean to say that committed evangelicals who have grit to their faith would do well to shuck the age-old belief in body and mind, or the formulation that says body, soul and spirit is the composition of man. To think that a human is an embodied soul, or an animated corpse, or a rational animal with a heaven-bound spirit, or some other stock combination of a soul and a body, frustrates scientific analysis of man; it is contrary to experienced fact, and is unsupported by the scriptural givens. Many secular scholars, dissatisfied with the honky-tonk, commercialistic exploitation of men and women in our society, predicated on a materialist design, are also looking for some new thing on the nature of man today. Maybe we can help them if we truly do have a new, that is, a biblically fresh vision.

Psychosomatic Effects and Christian Theology

Everybody knows, of course, that so-called psychosomatic disorders have been a reality long before the invisible industrial management strain, or before the invisible university professorial and administrative tensions produced visible ulcers that can be cut and bleed. But trying to analyze psychosomatic troubles with the neat, theological categories of body, soul and mind, inherited from Plato, does not work well. Even a faculty psychology, pendent from the Aristotelian-Galenic view of man as having a vegetative soul, sensitive soul, and superimposed rational soul giving distinctive form to the material body, is inadequate, like trying to engineer a space shot with Ptolemaic astronomy.

Recognition of the reality of subconscious processes in human makeup has also demonstrated how artificial and scientifically impotent the traditional, church-sanctioned, dichotomistic anthropologies are. And the pressing need for a reformation of mind or soul-body problematics can be clearly seen in the quandry of modern psychiatry. Psychiatry has done everything from boring a hole through your skull to giving you a soft soapy talk while reclining on a couch, in its effort to get an analytic, scientific, therapeutic finger on the desires and pains, ideas and values swelling through human behavior. Psychiatric methods have been dangerously blowing in the wind, says zoologist von Bertalanffy, because the fundamental, a priori framework with which modern psychiatry approaches man is uncertain or askew—something no amount of data research can make good (*The Mind-Body Problem,* p. 30).

It is right at this point, I believe, that Christian philosophy should minister to specialized scientists, but not with a learned rehearsal of philosophical conceptions of man from Anaximander to Jean Paul Sartre, nor with a cavalier dismissal of those twenty-five centuries as a nightmare of pseudo-problems from which linguistic analysis shall save us. Needed instead is an encyclopedic conception of man which gently sacrifices that sacred cow of "the (substantial) soul" inside man's body without defacing him into a molecular combination of physique and biosensitive operations with epiphenomenal values rotating around like electrons. To study a man as a physical phenomenon is a gross inhumanity; it is like observing a water drop form in a man's eye and say "he leaks," instead of "he cries" (de Boer, p. 10). But what has passed for

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non-naturalistic, "Christian" reflection on human nature—whether in its Augustinian, meso-Platonic, freewill hassle of a man, or in the scholastic, intellectualistic version canonized by Thomas Aquinas—such reflections on human nature, have been, in my judgment, ersatz Christian and a stumbling block for down-to-earth Christian scientific analysis. Our Christian conception of man must feature the peculiar richness of his God-responsive creaturehood while accounting for what meets the daily eye, and not yoke exacting, firsthand examination of man with other-worldly, dogmatic baggage.

I do not wish to take the time to berate medieval theology for the fix we Christians are in, but theology that has not minded its own theological business, deepening our confessional life with insights proper to that facet of our interwoven existence, has always tyrannized other responsible, Christian reflection. The Roman curialists learned their lesson with Galileo and never put Darwin's writings on the Index, but evangelical theology has by and large not had the benefit of that historic training. Even today, conservative theological pamphlets flood the market with judgments on the age of the earth that make Christian geologists squirm. However, all that concerns me now regarding man and woman is this: it does not make good sense to theorize backwards from a supposedly known *post mortem* condition of man (about which Scripture tells us passing little), extrapolate logically back from existence-after-death to the now for determining how man must be found constituted. Such theological dictation is particularly egregious when it is so uncritical of its conceptual debt to a tradition of Orphic cult, Pythagorean mystique and Plato's *Phaedo*, especially if it misuses the Bible as a text book source precluding direct investigation. The Scriptures—Calvin said it right (*Institutes:* I, vi, I)—are the glasses *through* which, for example, we can look anew at human nature.

A Christian Philosophical Conception of Man

I sketch here what might be the basic elements in a Christian philosophical conception of man. I shall call it the tin-can theory of woman and man.

A leitmotif through my presentation is this, that each human creature is only one, a whole one. All special scientists—biologists, physicists, psychologists, sociologists, linguists, economists, ethicists, logicians, aestheticians, mathematicians, theologians, political scientists—each may take out his particular microscope to get a bead on a man or woman, but you may not, like the proverbial blind persons feeling the elephant, think you have the whole picture when you have a hold of the trunk or the tail, its leg or the hide. Scientists must beware of the temptation to parcel a man into pieces even only as a working method, for such a working method really presumes that the human creature is a synthesis of separate, functional compartments. Because a man or a woman is one, single, whole creature, it is the philosophical task to eatablish an overview, interdependently with findings of the special sciences.

Committed evangelicals who have grit to their faith would do well to shuck the age-old belief in body and mind, or the formulation that says body, soul and spirit is the composition of man.

Christian philosophy is not theology in non-ecclesiastic dress. Christian philosophy is philosophy: a systematic, synoptic analysis of things which focus on their interrelational meaning. Like every science, philosophy too has a theoretical character; it abstracts to get at the law-side of things, i.e., philosophy tries to approximate the structure of what holds for certain things and their functionings. Christian philosophy tries to grasp the structural contours which hold for man, in such a way that the truth of Psalm 8—"you have made him almost like a god"—gets obediently and fruitfully, however fallibly, disclosed in quite earthy terms.

A Basic Philosophical Assumption: Individuality-Structure

A fundamental, cosmological assumption I make is the thinghood of whatever is extant. Individuality, for me, is not a guilty philosophical problem until proved innocent; but the individuality-structured way we are constantly confronted I unquestioningly and happily acknowledge as a creational given. Our God-ordered universe is a population of various kinds of concrete, individuality-structured things—that is how God set it up. To be created means to be a cosmically ordered, irreducibly different, definite individual thing, one identifiable and re-identifiable thing among other comparable entities. Intrinsic to every creature or creational item is an enduring identity which bears a certain typifying and foundational closure to its singular configuration, which is established and maintained only by the fiat of God Almighty.

This confession on individuality-structure will sound to someone raised on Hume like a *deus ex machina* bow to convention, unworthy of philosophic tough-mindedness. But I would persist, because the idea of thinghood not only explicates an important dimension of what creaturely, created existence actually means but the philosophical idea of thinghood also corroborates our ordinary experience with an antinomy-free simplicity unknown to the old substance-philosophy accounts of individuation and individual permanence. Sophisticated attempts like that of Russell who, correctly avoiding substance, tries to explain away a-piece-of-matter as a string of physical events linked together—especially when that scientistic shredding of things is given general application (Russell, pp. 243-248)—always strikes me as some sort of *homo ex machina* solution, because sooner or later, unless you evasively beg the question, either *Bewusstsein überhaupt*, "a single unified spatio-temporal system" or some other

demythologized god of Humanism rears its head to guarantee what is a daily occurrence and a normal assumption—the individuality-structured thinghood of whatever is here or there and everywhere around.

More than two decades ago, the noted Oxford scholar P.F. Strawson, in his painstaking study entitled *Individuals*, stated clearly that a general philosophical justification intending to solve the "problem of other minds" is impossible to give; in fact, even the demand for a solution to the problem cannot be coherently stated (Strawson, p. 112). If he had remained consequent with that confession, his book would have had a shocking character similar to walking outside the walls of the university in emperor's clothes. But, while disclaiming any proof-making, Strawson still argues, and argues persuasively, that material bodies are the indubitable basic particulars and the concept of person has a primitiveness which simply must be admitted because our language, the conceptual scheme we as a matter of fact do have of physical things and other persons, calls for it and operates that way (Strawson, pp. 53-58, 110-113). Because Strawson wants to affirm the reality of individuals whose identity is more than a numerical or qualitative or monadic type-individual identity, one that can withstand change of place and time (Strawson, pp. 32-34, 125, 131-134), and yet because he is unwilling to profess it as a pre-philosophical ssumption, Strawson courageously (his reticent Kantian back to the wall, so to speak) goes ahead and "makes a case for it," with as much pseudonymic distance as possible, in an essay of descriptive (only "descriptive"! he says) metaphysics.

The predicament of this keen thinker, along with others, makes very convincing to me the fact that this lasting unin-terchangeable identity of one thing or another remains unapproachable to theoretical analysis. Individuality-structure is a given initially accepted or initially denied by philosophical theory and subsequent investigation. Our everyday experience of the macro world attests to its existence, I think, as a basic ordinance of reality—this is what Strawson is trying to work off of and something the Gestalt psychologists latched onto—that we normally perceive things first-off as whole configurations and fairly certainly recognize in a naive way whether it is the same one, an identical one or a different thing. (The micro particles of physics need special attention because sub-molecular physical entities, as largely theoretical constructs, have an identifiability-dependence upon the entire abstractive, scientized condition and lack the concrete, independent character of macro things. It is very important right here not to give scientific *experimence*, if I may coin a word, primacy over ordinary experience as to which points to the primary order of created reality). But the fact that we normally prehend macro objects as identifiable wholes does not *prove* an individuality-structured setup to a sceptic who simply disbelieves it, anymore than the fact that we see the sun disappear and that it is the evening and morning of a new day witnesses to the secularist that our Lord is the faithful Creator.

Many more observations and qualifications must be made, of course, about "things." A blade of grass or the

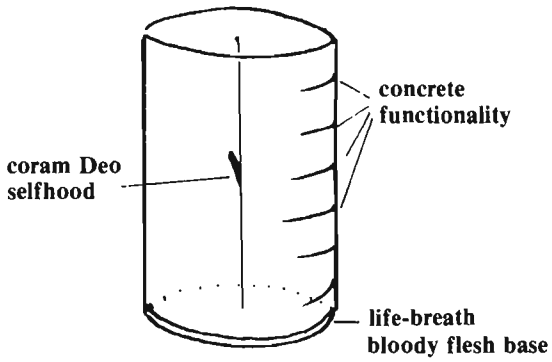

Figure 1. A tin-can model of man.

wind, a crow or my neighbor is never known disconnectedly as a completely separate, singular entity. But every thing is always like a thread on the loom whose warp and woof of quantity, extension, gravitational forces, energy, growth, sensibility, formativity, style, significance, conceptualization, use, and still more features as properties or latent qualities, totally enmesh the thing. Individual things also only exist as members of a kind; it is one of the plants or animals (despite the invisible crossover line), the inanimate physico-chemical kingdom, the human race, or angel creatures. Everybody knows that each thing within animalkind, for example, falls into a subgrouping dependent upon a common genetic or internal morphological structuration. Further, most macro things, despite their integral simplicity, have other individualities complexly interwoven within their wholeness, like the heart, lungs and stomach, for example, of a squirrel. But the original, whole thing is more than the sum of its internal organs, skin and nervous system, for their subordinated role is defined by the thing's singular configuration. Ordinary experience, it seems to me, bears that out again: a squirrel that has just been shot is not conceived of as a ruptured brain, collapsed lungs, stilled heart with four feet and punctured fur, but is taken to be a whole, dying squirrel. To notice, accept, and assume the enduring oneness of individuality-structuration does not mean you think every thing is blankly simple.

So the fundamental, cosmological assumption I make—which is the cornerstone for my tin-can theory of woman and man—is that individuality-structure is an ontic given holding for creation. The multiple functions of an individual thing are indeed present and can be differentiated, and the whole complex, integral, concrete thing is certainly open to development, deterioration and proliferation; but the identifiable, single prime which undergoes all such change and eludes theoretical determination is simply a structural creational given. Every attempt to locate that irrefragable oneness of a thing in some mysterious, hidden focus as a tension of functions (as monism does) or to pin-

point it as the relation of parts (as dualism does—as if a relation could be prime!) is going to lose the configured wholeness of a blade of grass, the planet or a squirrel. And then you have lost a lot. Because that leading idea of individuality-structure catches most perceptively the import of the biblically revealed truth of creation in that the very singularity of the thing, as well as its whole relative, temporal existence, is utterly and thoroughly dependent upon the creative-sustaining Logos of God who cares for it directly, whether it be sparrow, hair on your head, lily of the valley, or zygote.

The Skeleton of a Christian Philosophical Anthropology

Few people on the street deny thing-character to subhuman existents, that a rock, tree or an animal is of one piece. But it is with woman and man that especially Christians on the street have balked. There seems to be more to woman and man than meets the eye, and the "more" to humans is usually thought to be more than something like the back side of a box in one's visual field. There is something special, different, "spiritual" in the human creature.

I should like to disarm the man on the street or the woman in the home with the fact that woman or man is a creature, and as creature woman or man is a temporal, identifiable, individuality-structured thing. A human creature is also of a piece, whose single existence manifests itself in all sorts of ways—a man is so big, with such a shape, moves, has weighted mass, breathes, feels, forms, can play imaginatively, talks, thinks, socializes, saves possessions and spends them, fights, loves, prays—all these ways of concrete existence, which constitute the man's corporeality, are all manifestations of the one same, individual subject. A woman or man is a single, full-bodied, tin-can functioning unit, a prime individual thing grounded with physico-organic functionings and qualified by selfhood. Every constitutive factor of this configuration, including its bloody-fleshly base, is human only as and because of the integrally constituted, inseparably bound-together nature of the whole self-dimensional structure.

The normal features, as well as the selfhooded peculiarity, deserve emphasis. Man has a this-one nature and an unbroken fabric of concrete corporeal existence simply by being a created individuality-structured creature.

Again, the unrepeatable singularity of a given man cannot be scientifically established. Characterological studies may pinpoint persistent act-features; handwriting experts (presumably) identify a definite and recurring temperament; autobiographies get written, and good old fingerprints seem to approach documenting that woman and man exists one for one, an unquestionably individual creation. But at rock bottom you have to believe that the fellow who has put on twenty pounds, divorced his wife, gotten false teeth and learned Swahili ten years later, is still the same person. Actually the impenetrable mystery of the gift of individuality is guaranteed surely and only by biblical revelation—even beyond the eschaton (cf. I Corinthians 15:38).

As to the seamless unity of a woman or man's many-sided activity, much could be said. One crucial matter is this, that a human's energy, metabolic processes, desires, ability to control things, attempts to imagine things, communicate verbally, think, and other distinct functions are not to be understood as "faculties," some sort of autonomous powers which she or he has corralled and tries to keep in subjugated order. No, all the discernible ways humans can act are the very defining, cosmic, operating order of reality which each then as an individuality-structured entity enjoys. These ways of being-there in God's world which a woman or man bodies forth are facets of God's ordinances for all kinds of things, their existential reality. And the full-bodying tin-can human breathes, feels, opens a door, thinks, and does all the rest, not as if these were ontologically separate compartments one "participates" in; but all the many mutually irreducible ways in which a woman or man functions are interpenetrating, intra-related moments of his or her concrete existence. For example, there is power not only in a fist action but also reverberating within a man's desires and speech and loyalties. While a woman's feelings are not her thinkings, there is always emotional content inside thought, and there is a creational pressure to have emotions thoughtful. There are analogies of vitality in activity beyond one's muscles, in a woman or man's conversation, occupational routines or church life. And there are elements of economy anticipated in one's physical acts, aesthetic response, and social rela-

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tions. In fact, this tin-can solid, this cohering pattern of ordered, enduring activities is the proper meaning of corporeality.

That is an important point, because centuries of Western intellectualism have reduced the conception of corporeal and body to the cussed abstraction of "matter," to what is hard, intractible, this physical hulk about us, and pointedly disparaged it as animal baggage, but much too real for comfort. And that web of misconceptions has played havoc with our reflection on the human creature's created glory and over-all cohering reality. Any concrete durable act of man, I would maintain, is bodily expression—human speech, insinuation, penetrating reflection, are all corporeal acts. Words and thoughts kill as surely as rocks and bullets; a brick wall indeed stops a truck, but I have seen parental emotional upbringing stop a twenty year old more permanently in his tracks than any brick wall. Nicodemian scientists must learn that while poisons can end a man's breathing and brain waves, certain secular ideas can finish off a woman or man completely for good, as the New Testament puts it, when the Lord punishes him or her both "body and soul" in hell (Matthew 10:28). That is, the whole gamut of man's concrete action should be designated corporeal. The functioning tin-can man *is* a body. A woman or man is not incarnate, as if like Christ once was not yet human there is a human substance possibly not yet fleshed out concretely. If man be incarnate, where does the "carnage" begin? with his speech? craft ability? feelings? or only physique? Where does a woman or man's "body" stop and start? Is the promise of a love-act or sentencing one to jail, so that the other winces or knows joy, less corporeal, less bodily an action than bleeding or falling down a flight of stairs?

Do not misunderstand me. Because angels are as real as cement I am not saying prayers are like digestion and toothaches are mental. Only this: the whole blanket of activities, all the ways a man is in concrete action is him or her bodily, coporeally there. And there are no second class citizens in kinds of human activity. There is, to be sure, an order of conditioning: organic health gives psychic life stability in the clutch; good psychic integration certainly strengthens analytic development, and if psychic life is disturbed, it quickly shows up in malfunctioning social intercourse and frequently blocks confessional activity; a measure of technical competence is prerequisite for all forms of art, language, science, and societal leadership. And discovering the interlocking order and dynamic of support and enrichment among the complicated ways a woman or man functions has important implications for education. Physico-organic functioning also has special foundational character; it is the life-breath base of a woman or man that God gives and God takes away. As underpinnings, then, such bio-physical, bloody-fleshly functioning grounds the other activities, not as some "primary stuff" they shape and direct, nor as a set of neurophysical processes that maintain an isomorphic correspondence with the more cultural workings, but just as the founding, undergirding element needed, given by God, cohering in structuration with selfhood, to constitute a living, human individuality-structured creature. Man is not an animated corpse anymore than he is an embodied spirit: woman or man is a selfhooded thing with physico-organic base.

(Once God pulls that physico-organic rug out from underneath you, so to speak, your natural given time is up and that human one goes to be with the Lord or to hell, says Scripture. The left-overs or remains in this aeon are not human, not part or piece of a woman or man; although the remains are often the *object* of human devotion and distinguishable for a time from a carcass, the remains of an animal, relatively soon the corpse shows it is but dust left.)

Each human creature is only one, a whole one.

What makes *this whole* creaturely *thing* a *human* individuality-structured existent, what makes us people men and women rather than male and female animals, is this: we are built selfhoodedly open, and ready to be receivers of God's Word. Men and women are religious creatures: individuality-structured entities called to act out the self-conscious (communal-conscious) office of being *coram Deo*, serving lords of the universe. Peculiar to a woman or man's existence is that the whole richly concrete corporeality a human is has a thrusted bent to it. That man's existence is thrusted, innerly focused and intrinsically referential of all one does and means toward the true or some pretended Absolute Origin: that is woman or man's being in the image of God. All human's bear God's image. The worshipping-dependent, structural peculiarity of human creatures remains intact and is not annihilated by sin. Unbelievers betray the *imago Dei* by their restlessness, which leads to their distraction and eventual damnation. Manly and womanly believers, sinning saints, witness to their thrusted nature, glory in it, as they reflect and reveal God's ordinances.

The crux of my position is that the selfhood, the concentrated heart-specialness of a woman or man is not a separable from the body, the human's concrete functioning, nor is selfhood independent from being the lever-window-focal point of woman or man moved by *sarx* or the Holy Spirit. Selfhood or "heart" or "soul" is the unconscious structural opening-gateway thrust of man's inescapable relation to God under the Word-command, "Love me above all, praise!" This is why I use the tin-can metaphor to describe woman or man. What defines man is not an entity inside man but is the structured thrust of the whole, as invisible yet as all-determining and as inseparable as the axis of a cylinder. A tin can (cylinder) also has the graphic, humbling connotations that may stop us women and men from thinking more highly of ourselves, as earthen vessels, than we ought to think.

It is the strucural before-God position that provides a sense-of-self to human activity, i.e., a sense of a concentration point below consciousness which makes all one's oper-

ation personal. Man acts personally, intentionally-toward things in reality and realizes such intention by active deed. Such built in, reflexive act-character adds the dimension of shame to man's life—animals do not blush and are never naked—so that this monitoring tête-à-tête reservoir of silence in one's own preconsciousness (conscience = knowing with) is an important and delicate feature coloring all human doings. This inner room for embarrassment can be a hidden check to avoid what ruins one's self. This selfhooded preconscious depth is also able to be corrupted by false guilt-feelings or secularly defaced and leveled out so it is virtually inoperative, defacing the three-dimensional richness of human existence into a one-dimensional creature easily programmed for direct reactions to stimuli. But this creational sense-of-self in women and men is one important reason why human sexual relations can never be animalistic: they can be debased, wedlocked, full of joy or orgiastic, but they are always human.

Mankind in Community

Integrally interwoven with the self-act-structure of man is one's being a fellow-creature. *Mitsein*, a being bound together with other selves in society, neighborhooded, is what characterizes mankind alone. This non-genetic, interpersonal bond of communal consciousness is a given for every member of the human race because by its very creaturely specialness every human creature stands directly under the same central command of "Love God above all and your neighbor as yourself." Men and women who still exist in the first Adam experience this innate, neighborhooded given as a societal burden or make of it a distorted ideal: those who live in the second Adam accept it gratefully as a task within which we are called to be patient and gracious good Samaritans.

What defines man is not an entity inside man but is the structured thrust of the whole, as invisible yet as all-determining and as inseparable as the axis of a cylinder.

Sin

No understanding of woman or man is biblically Christian and complete without also showing how the reality of sin fits into the picture. Animals are not sinners, but individuality-structured humans are. Sin is not an animal-beastial lower roughness in men needing to be rationally overcome. Sin is also not simply devilish control of human nature. Since Adam's fall, I believe, sin is a fully congenital human condition. Sin is not due to our creaturely temporality. It is also not a passing functional state of affairs, although it shows up functionally. As a sinful religious creature, man is foolishly in proud, idolatrous rebellion against God. Sin is the whole-hearted, turned-in-upon-itself direction of religious man (pride) and the rooting of himself in creation at large or in his own self (idolatry), which is unlawful ground for ontic rootage, usurping God's prerogative of being the jealous Absolute Origin and Direction-giver for existential human meaning.

Despite ignorance or sincere intentions, if one does not keep God Almighty's Love-command, that person is breaking it and is therefore ignoring or violating God's central directive. While sinful, woman or man does not stop being woman or man, does not lose religious selfhood, does not lose touch with the world, but he or she does ironically deprive the self of its ground for being there. This apostate orientation also threatens the human creature with meaninglessness and the riddle of a disintegrating cosmos, since the focal point—the God-focused, viceregent calling to creaturely lordship in Jesus Christ—is lost. Sinful man loses himself by depending upon and giving total allegiance to creaturely things or creaturely activity, like science, for example.

One may be saved from this condition in time, through the work of the Holy Spirit, by being made a member of the body of Christ which is historically busy, in fear and trembling joy, to reconcile affairs of the whole world back to God, keeping the Lord's Word for all reality, since all creaturely reality was made by him and through him and for him. The heart of Christians is wholly turned, away from selfish-centeredness, converted, transplanted and set in Christ; but the concrete reforming of their bodily acts take time and often comes on inconsistently wagging its tail of sanctified feelings, skills, holy imagination, language, scientific analysis and societal relations behind.

The Whole Person

The fact that such a constellation of philosophical anthropological ideas together recognize the persistent unity and identity of the whole person defined *coram Deo* in history on earth is what marks them as biblically Christian. Traditional philosophical anthropologies have been unbiblical in so far as they misconceived the spirituality (the structural, to-God's-Word response-ability relatedness) and corporeality (multi-sorted ways of concrete action) of the human creature and theoretically abstracted and hypostatized spirituality into a spiritual part (a substantial soul) and corporeality into a somewhat begrudged, that-too, material part (a body one has for a while). Such God-neglecting analysis, begun by pagan thinkers who explained man *per se*, has been largely accommodated rather than critically reformed by Christian theoretical thinkers; the synthetic Christian, conceptual result has usually defined man *in se* and added a relation of man to God or Jesus Christ. Secular thinkers by and large define man *pro se*, and then have the problem of what to do with our selves. But the to-God-relatedness is what defines man, and only this idea of *coram Deo* structural centering, I think, has the ontological wherewithal to stop the theory of woman and man from losing the unity and identity of the human creature as only one whole woman or man whose total corporeality

must be directly obedient to the Lord, rather than letting him or her be fractured off into pieces where, for example, one talks about being a Christian *and* an athlete, or a Christian *and* a scientist.

Implied Reorientation for Theory of Knowledge

Let me give one brief hint of the kind of reform a Christian tin-can philosophical anthropology entails, for example, in the theory of knowledge. Every special scientist, as well as artists and every thoughtful person busy in daily life, works with a stance on knowledge. Most unchristian theories of knowledge infecting the cultural air we breathe assume a dichotomistic anthropology or a reductive one, and have impoverished and warped our knowledge of knowledge.

I have presented an idea of woman and man as a self-hooded, flesh-and-bloodily based, individuality-structured creature operating within all kinds of God's creational ordinances, a creature who is a sinful, neighborhooded, religious woman or man belonging to the body of Christ or who is a card-carrying member of the *civitates mundi* which is passing away. As historically developing human creatures, we whole humans are aware of other knowable, similarly cosmonomically ordered creatures, whether human, animal, plant, stone, artefact, or whatever. But most unchristian theories of knowledge assume a different setup than tin-can communions of humans in touch with other whole creatures.

The basic outline which unchristian theories of knowledge approximate, in several variants, assumes that there is a low-down sensing body either mysteriously linked or tenuously joined with a purely mental, thinking apparatus, and this localized combination is confronted by a bump-into-able world of stuff that can be weighed, measured, pin-pointed and double checked. In addition to such bump-into-able facts in the world there may also be abstract ideas called values, which at least some people consider important.

There are many lengthy disputes as to exactly how these factors jibe to produce valid knowledge. Does (C) or (B) initiate the process? How do (A) and (C) interact? Can (D) be proved if (A) or (C) is the last court of appeal? But my point here is that the whole setup is humpty-dumpty awry. Because of the partitioned human nature and the split world assumed, knowledge conceived within this unchristian setup has no intrinsic responsibility to be God-obedient, or to be interrelated with other kinds of knowing acts, or to be aware of its historical datedness. The split mind/body, thinking-camera model of registering facts and maybe affirming values has to import history and personal human responsibility and God-relatedness *afterwards*; it also neglects kinds of knowing that don't fit these two sorts, "sensing" and "thinking."

The tin-can vision of woman and man, however, begins by assuming that our human consciousness of other things is a self-reflective field of depth-awareness that is simultaneously subjective, multifaceted, variously normed,

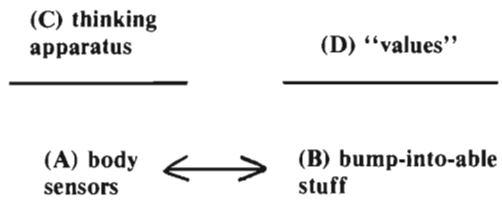

Figure 2. An unchristian theory of knowledge.

and called to bring about Christ's rule in history. From the tin-can perspective human knowing is always full-fledged bodily human action. That holds for human thinking and human sensing too—they are intrinsically subjective, relative to moments of guessing, mistaking, pain and even hoping, called to be holy (cf. Philippians 1:9) and called to be true, that is, called to be full of compassionate wisdom (cf. John 16:13).[a]

Even scientific knowing, which is an important, controlled modification of everyday knowing, takes place in the same setting and is liable to the same basic conditions and norms, because scientific knowing is also human knowing. The peculiar x-ray problematizing of creaturely things into fields of specific functions which special scientific scrutiny effects must be judged not only by the standard of accuracy but also by the norm of correct relatedness to other knowledge and to whether the scientific comprehension fills out the Truth itself. A tin-can philosophical anthropology, which will develop its own kind of scientifically precise knowledge, can be of service to Christian special scientists and help them find ways to couch their accurate psychological, biological or physiological points within a limiting and directing network of knowledge such that the specialized results give body to Christ's lordship of the world. If one's special scientific knowledge is not itself philosophically integrated with an anthropological vision that is true to our whole, tin-can status directly before God, no amount of prayer or church attendance or theological piety afterwards can make it Christian scientific knowledge acceptable to the Lord.

Conclusion

Medieval Christians usually allegorized nature into an earthly fact with a correspondingly heavenly meaning. We evangelical Christians have often pushed the biblical faith

[a]One of the first projects needing attention in a theory of knowledge working out of the viewpoint of a Christian tin-can, philosophical anthropology would be making a case for the interdependent existence, validity and richness of other kinds of human knowing, such as the hunch, or an imaginative grasp of things, or the kind of deliberative weighing of political intangibles we call prudence—all of which are not reducible to either "sensing" or (pure) "thinking." Cf. my essay on "The Fundamental Importance of Imaginativity Within Schooling" in *Rainbows for the Fallen World*.

we hold into our professional scientific acts in the same easy, bloodless way. But such an atrabilious approach to creation—especially if one is treating the human creature scientifically, trying to fashion a philosophical anthropology—underrates the creaturely object examined (for creation is revelation!) and overrates the scientific analyst into a type of God-discerner of meaning (who may postulate "spiritual truths" on top of "the facts"). If we could but begin to see woman or man as a tin can for whom Christ died—Christ did not die to save soul-pieces for a post-mortem existence—then we can begin to catch the full meaning of "the resurrection of the body," when the Lord comes again, and begin to track down the implications of "sanctification of us bodies" now, reconciling *all* we bodily are, including the most professional scientific knowing, quietly into his service.

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The Inductive Problem of Evil

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There is no doubt that evil constitutes one of the most severe challenges to Christian theism. From time to time, different formulations of the problem of evil gain the interest of philosophers and theologians. Currently, much attention is being given to what can be called the inductive argument from evil, while interest in the deductive argument seems to be declining. I carefully distinguish among various formulations of the argument and focus on the one that is most formidable—the inductive argument from gratuitous evil. Drawing on concepts from philosophy of science, such as probability, hypothesis confirmation, etc., I fashion a rebuttal to the atheistic attempt to construe evil as a kind of scientific evidence against orthodox theism.

It is widely agreed that evil constitutes a formidable problem for Christian belief. Serious, educated persons have typically thought that the agonizing presence of evil in the world demands explanation on the part of those who give allegiance to a sovereign and loving God. Yet scholars differ over the exact nature of the problem of evil, i.e., over what its exact structure and strategy should be. However, amid all this diversity of opinion, there are discernible patterns. The broadest division in the literature on God and evil is between theoretical (intellectual) problems of evil and existential (emotional-volitional) problems of evil.[1] Within the category of theoretical problems there is a further division between those that are deductive in structure and those that are inductive.[2] One could refine the point even more and distinguish between problems over moral evils (e.g., lying, murdering, etc.) and those over natural evils (e.g., pain, deformity, etc.).[3]

Twentieth-century philosophers have been largely preoccupied with the deductive problems. Yet, in the last few years, there has been a marked shift of interest toward the inductive ones. In this article, I examine and attempt to refute the increasingly popular and important inductive arguments from evil that arise at the interface of science and religion. These inductive-type arguments rest on the general presumption that the existing evils of our world can be marshalled as significant, and perhaps devastating, evidence against the truth of Christian theism, much as empirical data might be compiled to disconfirm a given hypothesis in any established branch of experimental science. But before entering upon this subject, the demise of the deductive problems must be briefly explained.

The Deductive Problem of Evil

Those who advance what I here call a deductive problem of evil (also called the logical problem[4] and the *a priori* problem[5]) seek to show that the concept of evil generates contradictions within orthodox Christian theism. More specifically, the opponent of Christian theism (let us use the term "atheist" in its literal sense) advances an argument the structure of which is deductive and the strategy of which is to derive a logical inconsistency by using the theist's own beliefs against him.

Two centuries ago, David Hume gave the problem classic expression:

> Is [God] willing to prevent evil, but not able? Then he is impotent. Is he able, but not willing? Then he is malevolent. Is he both able and willing? Whence then is evil?[6]

J. L. Mackie's presentation of this type of argument from evil is representative of recent treatments:

> In its simplest form the problem is this: God is wholly good; yet evil exists. There seems to be some contradiction between these propositions so that if any two of them were true the third would be false. But at the same time all three are essential parts of most theological positions; the theologian, it seems at once *must* adhere and *cannot consistently* adhere to all three.[7]

Since a collection of beliefs containing a contradiction—explicitly or implicitly—cannot be rationally accepted, atheists taking this line reject Christian theism outright.

Since statements of the deductive problem sometimes differ, it is helpful for our purposes to build a model of each of its extant versions, trying not to oversimplify one of the most important and subtle items of the philosophy of religion. A model helps us to understand better both its attractiveness and its fatal flaw. Let us first encapsulate the essentail theistic position in the proposition:

(*G*) *An omnipotent, omniscient, wholly good God exists,*

which is, of course, an amalgamation of the set of theistic propositions:

(1) *God exists;*
(2) *God is omnipotent;*
(3) *God is omniscient;*
(4) *God is wholly good.*

Obviously, any question about proposition (*G*) is equivalent to a question about one or more of the propositions in the set (I) - (4).

Now (*G*) does not exhaust the scope of theistic belief, and it is in specifying one further theistic proposition—one regarding evil—that the dreaded inconsistency is claimed to arise. In fact, the extensive literature on the topic contains three distinct versions of the inconsistency charge, each version being determined by what specific proposition about evil is cited.

The second phase in constructing our model is to delineate the three propositions about evil that distinguish the several permutations of the deductive problem. The atheistic challenger may claim that proposition (*G*) is inconsistent with either the proposition that

(E_1) *Evil exists*

or that

(E_2) *Large amounts, extreme kinds, and perplexing distributions of evil exist*

or that

(E_3) *Gratuitous or pointless evil exists.*

The following chart displays the three different versions. Anyone familiar with the vast and quite sophisticated literature on the deductive problem knows that formulation I has been by far the most widely considered, and is therefore the one I treat here. But II and III have also held some degree of interest for professional philosophers.[9]

The Demise of the Deductive Problem

In argument I, which is our prime example of the deductive problem, the atheist ascribes both (*G*) and (E_1) to the theist, which is an entirely acceptable maneuver. The next step in the attack is for the atheist to argue that (*G*) implies

($-E_1$) Evil does not exist,

(where $-$ means negation) and that the theist is logically committed to it. When the atheist believes himself to have established that the theist must hold ($-E_1$), he then reminds the theist that *qua* theist he is officially committed to (E_1) as well. Since (E_1) is the straightforward contradictory of ($-E_1$), the atheist seems to have made good his charge of logical inconsistency. This approach, if it can really be made to work, is so conclusive that it is not surprising that atheists have long been fascinated with it.

But the cruicial phase of the argument that proceeds from (*G*) to ($-E_1$) is not above suspicion. (*G*) does not by itself imply ($-E_1$), but does so only if it is supplemented by other propositions, such as

(1') God has being or independent ontological status;
(2') God has the power to perform any logically consistent act;
(3') God knows all the ways to eliminate evil;
(4') God wants to eliminate all evil;
(5') Evil is not logically necessary.[10]

Now, from (*G*) together with (1') - (5') it does follow that (—E_1) is true. But this brings us to the very reason why such atheistic challenges have regularly failed. In order to play fair, the atheist must use additional propositions that are also parts of theism. However, there are numerous theists

Deductive Arguments From Evil

I	II	III
(*G*) is inconsistent with (E_1)	(*G*) is inconsistent with (E_2)	(*G*) is inconsistent with (E_3)

We need not deny that theism is capable of evidential evaluation, and thus evade the inductive argument from evil. To do that would unwittingly be to make theism incapable of much desired confirmation as well.

(e.g., Lewis, Plantinga, Ahern, etc.) who have pointed out that various propositions in the set (1') - (5') are not or need not be included in theism, and hence cannot be used to produce the rumored contradiction.

Ironically, while trying to expose the fallacy of self-contradiction on the part of the theist, the atheist inevitably commits one of two fallacies: either begging the question by selecting propositions to which the theist is not really committed, or by lifting out of context propositions to which the theist is committed but attributing new and convenient meanings to them.[11] As this fundamental mistake in the deductive arguments from evil becomes more widely recognized, philosophers are beginning to put much less stock in it.

The Inductive Problem of Evil

Not to be completely thwarted by the failure of the deductive problem of evil, some atheistic critics have begun to develop arguments from evil which are inductive in structure and geared to establish that theism, or (*G*), has a low probability relative to the evidence of evil. Speaking for this group of thinkers, William Rowe charges that Christian theism is "an extraordinary, absurd idea, quite beyond our belief."[12]

Interestingly, there are three identifiable renditions of the inductive argument (also called the probabilistic[13] problem and evidential problem[14]) which correspond exactly to the three renditions of the deductive problem.

Again, each of these inductive-type arguments finds representation in the scholarly literature.[15] However, the significance and popularity of these inductive arguments seems almost to be the reverse of their deductive counterparts. Whereas I is the classic deductive problem, VI is clearly the most interesting and important inductive problem, the reason for which will soon become clear. Hence I focus on VI and simply state here that my critique of it applies *mutatis mutandis* to IV and V.

Admittedly, there are several different ways of calculating the probability value of (*G*) given some (*E*)-like proposition. The personalist, frequency, logical, and inductive theories of probability are well-defined studies of probability, any one of which might be employed to assess the probability of (*G*). However, I concentrate here only on the last theory, the inductive, both because it creates the most formidable challenge from evil, and because Alvin Plantinga has already provided an excellent refutation of the other three theories relative to the problem of evil.[16]

A Sample of Inductive Reasoning

A momentary digression at this point into the fundamentals of the inductive evaluation of hypotheses is helpful. (In this paper I do not distinguish further among specific inductive techniques, e.g., elimination, enumeration, etc.) According to philosophers of science, scientific induction consists in setting up proper test conditions for a given hypothesis and then checking to see whether and the extent to which they occur. Specification of the test conditions for almost any meaningful hypothesis can be accomplished only by adding some supplementary or auxiliary assumptions. After taking these propositions for granted, the proposition offered as an hypothesis can then be tested by methods appropriate to its claim.[17]

A simple example exhibits the inductive process perfectly. Suppose that we are in ancient times and want to check the hypothesis that

(*S*) The earth is spherical.

Christopher Columbus thought that (*S*) was partially confirmed (i.e., rendered probable) by the factual observation that

(*D*) The decks of receding ships always disappear from sight before their mastheads.

Now there is no obvious connection between (*S*) and (*D*) unless it is also assumed that

(*L*) Light always travels in straight lines.

Thus (*L*) would make the inductive reasoning cogent, reasoning which can be schematized as follows:

Inductive Arguments From Evil

IV	V	VI
(*G*) is improbable on (E_1)	(*G*) is improbable on (E_2)	(*G*) is improbable on (E_3)

If (S) is true, then, assuming (L) is true,
(D) will be true.
(D) appears to be true.
Therefore, (S) is probably true.

On the other hand, for a case of disconfirmation we would get:

If (S) is true, then, assuming (L) is true,
(D) will be true
(D) appears to be not true
Therefore, (S) is probably not true.

Examining the Inductive Problem of Evil

Returning now to the atheistic argument from evil of diagram VI and mounting it on our schema of probabilistic disconfirmation with (A) as the auxiliary assumption, we get:

If (G) is true, then assuming (A) is true,
(E_3) will not be true.
(E_3) appears to be true.
Therefore, (G) is probably not true.

Unfortunately, this type of reasoning is often buried under complicated philosophical jargon and persuasive rhetoric. Consider the argument made by Cornman and Lehrer:

> ...we seem warranted in concluding that the existence of what surely seems to be *unnecessary evil* in this world provides *inductive evidence* for the belief that God does not exist, because it is probable that if he once existed he would have created a different world and that if he now exists he would control the course of nature so as to avoid many pernicious events that do occur.[18]

Or, ponder the challenge posed by Madden and Hare, who state the inductive argument in the form of an enigma:

> If God is unlimited in power and goodness, why is there so much *prima facie gratuitous evil* in the world? If he is unlimited in power he should be able to remove unnecessary evil, and if he is unlimited in goodness, he should want to remove it, but he does not. Apparently he is limited in either power or goodness, or does not exist at all.[19]

These examples show that we have captured the essential atheistic argument in our model; but what prospect is there for answering it?

Strategy for Rebutting the Inductive Problem

The way to begin to generate a proper rebuttal to inductive arguments from evil is to review the prominent features and weaknesses of induction in general. First, there is the matter of ascertaining the occurrence or non-occurrence of the test condition. Were the instruments accurate, the reports reliable? Was the observer in the proper position to gather the facts? In regard to the atheist's argument VI, therefore, the enormous difficulty of establishing the truth of (E_3) is not taken lightly. There are clear grounds for theistic resistance to (E_3), and indeed this is the spirit of historical Christian theodicy: showing why what *appears* to be gratuitous evils are not *really* gratuitous. After a minimum of debate it becomes clear that whether one believes a given evil to be gratuitous depends on his already accepted values, the time dimension over which he investigates the evil, and other highly debatable factors. This is why the factual or evidential premise (E_3), as with such premises in other inductions, possesses a degree of probability short of complete certainty. It should be noted, however, that the probabilistic character of the factual premise(s) in induction is not in itself a reason for discrediting it.

Second, the inductive test of any hypothesis is only as reliable as the background assumptions that are connected to it. It seems clear that assumptions to the effect that God would not allow any evil or would not allow certain amounts, kinds, and distributions are much harder for the atheist to establish, since theists could offer a number of reasons why God could justifiably allow not only the sheer existence of evil but a very great degree and variety as well, and hence why neither (E_1) nor (E_2) count heavily against (G). But such principles would have to be presupposed in order to make arguments IV and V go through. By contrast, VI turns on a principle which is initially much more plausible than the others. I choose to call this assumption the *Principle of Meticulous Providence*[20] and express it as follows:

(MP) *An omnipotent, omniscient, wholly good God would not allow the existence of gratuitous or pointless evils.*

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Whether or not it is expressed in precisely this way, (*MP*) plays an important role in the preponderance of contemporary inductive arguments from evil, and functions as (*A*) in my schema.

Although a great many theists would be inclined to accept (*MP*), close scrutiny reveals several potential problems with it. For example, it is entirely imaginable that God might allow gratuitous evils to occur if eliminating them meant curtailing the scope of human freedom or abrogating the regular operation of natural laws. Or, God might allow gratuitous evils to exist in order to enhance the quality of faith. Moreover, it seems that God might allow numerous trivial evils to exist while directing his sovereign activity to more significant evils and the broad contours of history. (I will not here attempt a detailed distinction between trivial and significant evils.) Last, it could be maintained that biblical passages (e.g., Romans 8:28) and other Christian teachings (e.g., total sovereignty) can best be interpreted as entailing the principle, not that God must meticulously compensate for or redeem every particular evil *event*, but that God seeks to redeem every *person* affected by those evils. This interpretation of God's ways not only avoids the errors of, say, Karmic-theorists and Job's comforters, but also enlightens us more fully about what it is to live in a world which is *lost*.

A third feature of any induction is the probabilistic character of its final result, which stems from the overall logic of induction as well as from the modality of its premises. In the case of confirmation, there could be alternative theories which would be verified by the same test results; or, the assumptions taken for granted may be debatable. The process of inductive confirmation also automatically commits the deductive fallacy of affirming the consequent, which therefore falls short of certainty. In the case of disconfirmation, the hypothesis that is seemingly falsified by certain test conditions may be verified by other conditions. Or, the hypothesis may be logically related to other already confirmed and accepted hypotheses, and thus be retained even in the face of some adverse evidence. It is now quite understandable why many philosophers of science impose the ideal requirement of *total evidence* on the inductive evaluation of any hypothesis, even though the requirement can never be fully met. In light of these considerations, then, induction gains its distinctive probabilistic, tentative character.

The ramifications of all this for the inductive problem of evil are clear. The apparent disconfirmation of (*G*) by (E_3) may be overridden for the several reasons suggested above. So, the final and complete appraisal of orthodox theism is extremely complex and is hardly exhausted by the inductive problem of evil.

The Importance of Facing the Inductive Problem

In the last analysis, we must admit that evil—particularly instances of what seems to be senseless, pointless evil—may constitute *prima facie* evidence against Christian theism. After all, orthodox theists do claim that a God of power and love superintends the events of this world, and must square that claim with the facts. And squaring theism with the facts at least means treating it in a way analogous to the way we treat any scientific hypothesis which is amenable to evidence. This is why we are justified in rigorously examining the mechanics of scientific induction in general and the inductive argument from evil in particular. We must know as much as we can about the type of reasoning process which, when applied to evil, supposedly renders theism improbable, implausible, or unlikely.

Knowing more about induction helps us focus on the weak points of the atheist's inductive argument from evil. To sum them up, first, we can contest the basis and accuracy of the factual premise about the actual gratuity of evil. Second, we can question the legitimacy of the assumption (*MP*) which stipulates how God should dispose evil in the world. Third, we can insist that more and different evidence—rational, historical, existential—actually tends to confirm, not disconfirm, Christian theism. So, we need not deny that theism is capable of evidential evaluation, and thus evade the inductive argument from evil. To do that would unwittingly be to make theism incapable of much desired confirmation as well. As I have urged here, what we must do in response to the increasingly popular inductive argument from evil is to meet it on its own ground and fashion a competent rebuttal.[21]

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[5]e.g., A. Plantinga, *God and Other Minds* (Ithaca: Cornell, 1967), p. 128.

[6]David Hume, *Dialogues Concerning Natural Religion* (New York: Hafner, 1948), p. 66.

[7]J. L. Mackie, "Evil and Omnipotence," *Mind*, 64 (1955), p. 200.

[8]Although orthodox Christianity makes a host of other claims, (e.g., Christological), these prime theistic propositions form the necessary foundation for the other, more specific claims. The attack from evil actually has force against the whole of Christian belief, since it threatens its base. Hence, our need to reply.

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[10]I discuss the import of these additional propositions in my "Christian

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[11]*Ibid.*, p. 39.

[12]Wm. Rowe, *op. cit.*, p. 89.

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Aggression: Shall I Let It Out or Control It?

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The view called ventilationism, or the idea that it is unhealthy to bottle up aggressive feelings and healthy to express or ventilate them is examined. There is little empirical support for the ventilationist position, although there is some support for the position that display of aggression itself seems to be rewarding, and thus expression of aggression encourages higher levels of aggression in the future. In addition, other disadvantages of the ventilationist position are discussed, such as the reality that openly expressing aggressions can have negative present and future consequences. A number of examples are given as to how frustrating situations can be dealt with in ways other than expressing open aggression.

One frequently encounters the belief that "if something is bothering you, 'let it out,' for you have to get it out of your system sometime." Some writers even stress the idea that we should not control aggressive feelings, but openly *express* our aggression (Janov, 1970, 1973; Casriel, 1972). The reasoning for this advice is that bottling up aggressive feelings is harmful and can cause a variety of problems, both physical and mental.

This view is called "ventilationism" because it holds that in general it is unhealthy to "bottle up" aggressive feelings and healthy to ventilate them. Some writers go beyond this and argue that we should overcome our inhibitions, and freely show *all* (or almost all) of our emotions. This would, the theory maintains, eliminate disturbing tensions and enable us to be without many of the aches and pains, both physical and psychosomatic, that commonly impede happiness and mental adjustment. Is this view psychologically sound?

The Ventilationist Position

Many of the ventilationists are very concerned with the present, stressing "now is all that exists, the past is over and the future is not yet." The future though becomes the present for *only* a fleeting moment, but remains the past forever. However, much of what we are depends upon the past, and much of how we view the future affects what we are now. The past and future are extremely important.

Although there is not much we can *do* about the past except learn from it, there *is* much we can do about the future. By and large, we make the future. Thus, before ventilating any emotion, we should ask ourselves: "What consequences will this act have on the future—will it help or hurt me?" This does not mean we live in or become preoccupied with the future, but only that we reason on the consequences of our behavior, realizing that our present behavior profoundly affects our own future as well as the future of others. Much behavior that we later regret, such as stealing, lying, fornication, dishonesty, and selfishness, is committed because of an over-concern with the present and a disregard for the future. One clearly cognizant of the future rarely involves himself in an act which will likely have clear negative future consequences. This concern is especially important when considering the effects of acting out aggression. Acting out one's feelings may produce one set of consequences for the immediate present, but a very different set in the future.

There are a variety of ways to "eliminate" aggression. Some are clearly healthy, others are not. For example, some writers encourage fantasizing physical aggression, such as "imagine biting the person you dislike, imagine hitting or hurting him" or even simply "imagine breaking up his furniture." A vivid "thinking of hostility", according to the theory, reduces hostility. Other writers encourage persons to openly take out their frustrations, only not against people but *things*, reducing aggression by hitting, pushing or damaging non-living objects. If Mr. Jones is mad at his wife, he should smash her good salad bowl instead of smashing his wife.

Research on Aggression

According to (Berkowitz, 1973: 28), "Experimental psychologists, by and large, are skeptical of the energy theory that underlies the ventilation therapies. More and more investigators of animal and human motivation—such as by R. W. Hinde, R. C. Bolles and C. N. Cofer—believe that traditional energy notions fail to hold up under close scrutiny and, as a matter of fact, that they often lead to incorrect predictions."

There are a number of causes for the different levels of aggression normally found in children, including brain anomalies, disease, diet, differences caused by inheritance, hormone levels, the period of life, and other similar factors. This paper concerns itself primarily with aggression that is learned, and the comments apply primarily to those individuals who have an average amount of aggression, i.e., are not brain-damaged, etc.

Research in aggression includes studies done by researchers using bo-bo dolls (life-size, plastic, air-filled dolls). The children used in the experiments could, at a given time during the experiments, hit, punch, or push the toy doll. Children that were rewarded in various ways for punching the bo-bo doll were found to be much more aggressive when they later competed against their peers (Bandura, et al., 1961).

If an angry person acts aggressively "to let off steam" and then feels better, he is being *rewarded* for his aggressive behavior and is more likely, according to the study above, to behave aggressively in the future. In addition, in the future *less* provocation will trigger that aggression. In many cases the aggressor will feel better *only* because he/she has used up the energy that his body mobilized to overcome the situation that caused him to become aggressive. If the aggression eliminates this energy, he/she will feel tired and not as tense. Reducing energy must always reduce tension because the person no longer has the energy to maintain tension. Tension requires a large amount of energy and for the simple reason that the person is less tense, he/she feels better. But after he/she uses up energy, the situation that caused the original aggression is still there, unless energy has been directed into specific activities that solve the cause of the aggression. This is not ventilationism, but simply an energetic problem attack. Even here too much energy may impede performance.

There are other problems. For example, parents who encourage their children to "go ahead and beat the sofa until you feel better" are teaching the children a specific way to react to stress. This behavior pattern will most likely continue to be used outside the home. In most cases this is an inappropriate reaction and invariably causes many more problems than an immediate reduction of energy may solve. Children thus *learn* to behave aggressively; they learn that this is an appropriate way to respond and behave when confronted with a situation that they perceive requires aggression (Mednick, et al., 1975: 48, 442, 345-346, 457-463, 503).

Open aggression and violence are so common that Corning (1975: 310) brought out that, "...human societies in which violence is totally absent are the exception." Yet it should be stressed that there are *some* human societies which have almost a total absence of harmful violence, demonstrating that this ideal state of affairs is possible. Even though these societies tend to be small and are few and far between (e.g., the Hopi, the Arunta and the Eskimos) the fact that they exist indicates that it is possible for all societies to become non-aggressive in time.

As with all other human behavior, aggressive behavior falls on a continuum. All humans, to some degree, are aggressive. Such behavior as driving 60 instead of the speed limit 55 is, to some degree, an expression of aggression. It is mainly high levels of aggression, levels likely to be physically destructive, or at least destructive of quality interpersonal relations, that we are concerned with here.

The Physiological Mechanisms of Aggression

When a person perceives a situation as frustrating, this causes, among other changes, an increase in the release of adrenalin from the medula of the adrenal glands into the blood stream. Adrenalin mimics the action of the sympathetic nervous system and causes the same general effects as does sympathetic nerve impulses: increases the heart beat

rate, and causes glycogen in the liver to be converted into sugar and released into the bloodstream. This process raises the blood sugar level. The adrenalin also stimulates the thyroid gland that operates to increase the general oxidation level in the body. All of these changes are for the purpose of giving the person a high level of extra energy. This energy is designed to be utilized to solve whatever problem elicited the emotional reaction in the first place. Unfortunately, for the aroused person some situations that elicit the above response cannot be solved by extra energy; thus the body is ready to act but either cannot act or there is no need to act. Herein lies the problem.

The enormous amount of energy this process produces is illustrated from a number of cases on record, where in emergency situations an unbelievable amount of strength was displayed. A typical case is that of a husband working underneath his car when the jack slips, causing him to be pinned under the car; his wife is able to pick up the back end of the car and push in something solid to hold the car up so that her husband can be pulled out from underneath the car. Except in this specific situation, few women could probably achieve a feat requiring this much strength, even if offered $10,000. This illustration helps us to understand the amount of energy available during stress that must be dissipated. If we don't have a car to lift up, the energy must be dissipated in some other way.

Frustrating situations often do not require much extra energy, but instead require time, patience, and skill. Studying hard for a test and then doing poorly may elicit aggression, which, if turned inward, may cause depression. After the test is completed, in most cases there is little the student can do, at least for which an extra amount of energy would be helpful. Thus the increased energy level built up by the adrenalin gland is, in this case, useless or often harmful. Importantly, though, individuals react differently to each situation. Whether or not the medula of the adrenalin glands produces an extra supply of adrenalin depends primarily upon the person's *perception* of the situation, not the situation itself. This is a crucial point. One *learns* from his culture, his family, his peers, and others, to see a situation in a way that elicits an aggressive response. Likewise one can learn to react rationally to almost all normally occuring experiences.

The rapid dispersion of oxygen and food to the tissues to increase their ability to act enables the body to take care of situations it normally would be unable to; this is a necessary adjustment mechanism, helping us solve various problems. Unfortunately, the same mechanism can also impede our adjustment, especially in modern society. This excess energy causes a strong feeling of discomfort in the person; most of us do not feel comfortable when we are nervous, anxious, or in any way emotionally upset. If one is able to dissipate this energy, the reducing of the energy level reduces the nervousness, anxiety, etc., and causes one to feel better. Thus, as noted above, the *very act of eliminating* this excess energy can be rewarding, causing a more desirable state of affairs within the person. Tragically, though, this desirable state of affairs (feeling better) may cause the person to react aggressively *more often* in the future, causing behavior that is undesirable both because of its eventual effect on the long term health of the person (high blood pressure, heart problems, etc.) and often undesirable short term consequences (embarrassment, loss of respect, etc.)

Effects of Observing Aggression

Watching aggression by others will often reduce the inhibitions of the observer and *increase* his level of aggression. For example, Berkowitz (1973:29) concluded that: "I have spent more than a decade doing careful laboratory research, which consistently has shown that a person who watches violence is much more apt to become aggressive himself, whether he is angry at the time or not. He is not purged of angry impulses." Thus, the ventilationist theory, at least in these studies, has been experimentally shown not to work. Much of this research has shown that television can have a pernicious effect on the viewer, increasing the level of aggression in both children and adults. Berkowitz (1973:29) also concluded that "this heightened stimulation to violence occurs whether the individual passively observes the aggressive stimuli or actively constructs the stimuli in his thoughts and fantasies." (See also Liebert (1973) and Bandura (1961).)

It is important to distinguish between verbal aggression and the need to talk about one's feelings. Ideally, one should have someone he can freely communicate with, honestly talking about his angers, frustrations, feelings, hopes,

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dreams, disappointments and, in short, all the feelings that characterize normal humans. But intelligently discussing disappointments and displaying physical aggression are two different things. Describing one's emotions ("Boy, this really makes me feel angry!") and becoming openly aggressive, banging things around the room, even if one describes his emotions at the same time, are two different situations.

The problem of dealing with anger is clearly not new. The *New World Translation of the Christian Greek Scriptures* (the original was written during 1st Century of the Christian Era) used either the word "anger," "angered," "angrily" or "angry" 283 times. This is evidence for the belief that anger has been a common experience in human history. But the ability to control one's anger is another matter. Importantly, though, it is not so much the fact that one is angry that should be of concern, but how one *reacts* to this anger.

Dealing with Aggression

Much of the problem with anger is trying to avoid solving the problem causing the anger. If something upsets a person, it is best to react *appropriately* to the anger. If a person upsets you, reason with him. In short, try to *solve* the problem which causes the anger. If nothing else, for the time being one can walk around the block. This both reduces the excess energy and gives one time to think more objectively about the situation. But the problem should be solved, or at least one should endeavor to begin to solve the problem. At times, the situation simply has to be accepted if it cannot be changed or it is very difficult to change. If this is the case, a person should realize that with effort he can accept almost any situation; once accepted, the situation will no longer upset him.

This, in brief, is the crux of the whole problem. One must find out specifically what *causes* him to be aggressive, and then work on solving the problem as soon as possible. But "sinning," throwing chairs, yelling, hitting people, or "losing your cool," does not help to solve the problem—it only compounds it.

In social conversation, for example, Mr. Jones tends to get extremely upset when Mrs. Jones corrects him, especially on irrelevant details. At one gathering with friends, Mrs. Jones interrupted with, "Dear, it was not three weeks ago, it was almost four weeks ago." In solving the problem, Mr. Jones has the following alternatives:

1. Keep his feelings inside and become angry, while controlling his anger as much as possible. This is unsatisfactory in that he will probably continue to become angry and it will be harder and harder to control his anger each time his wife contradicts him. As discussed below, this solution may have long term consequences for one's health.

2. Become extremely upset, giving vent to his anger, telling Mrs. Jones, "How many weeks ago is an irrelevant detail and does not matter." He may add that she is grossly rude in interrupting him and he has no desire to finish telling about the incident as his train of thought is interrupted and he is now upset. This is also inappropriate. Aside from more than likely causing his wife to become angry, he will probably alienate both him and his wife from their friends, so that they will be less likely to want to socialize with them in the future. Further, an episode similar to the one above is embarrassing and probably will not solve the problem, but only create more problems.

Bottled up anger clearly does contribute to such things as ulcers, headaches, colitis, arthritis, heart problems, high blood pressure, and a number of psychosomatic complaints.

3. Mr. Jones could accept the correction at the time and later, preferably as soon as possible that day, try to explain to his wife how he feels. He could, for example, say, "Honey, you have a much better memory than I do. I wish I could remember minor details as well as you can. I admire your excellent memory, but I want to convey to you how I feel when you correct me. You no doubt are usually correct in your facts, but it is very embarrassing for me when you correct me. I tend to lose my train of thought, and this makes it hard for me to finish what I am saying. Further, when I am shown to be wrong in some detail, my credibility suffers considerably. The audience realizes that if I am wrong in this fact I could be wrong in many others, and they may tend to not take too seriously anything I say. Further I feel this is a minor detail and it really doesn't matter if it was three or four weeks ago. What matters is the moral of the story I'm telling."

Mr. Jones could also try to elicit the aid of his wife in telling a story. Realizing he has a difficult time remembering dates, he could ask his wife, "I cannot remember if it was three or four weeks ago—Honey, do you remember?" or "Maybe you could help me out, was it three or four weeks ago?" Of course the explanation probably would not be as blunt of succinct as the above, but still similar. To maintain a marriage, a husband must be extremely concerned about the feelings of his wife and a wife of her husband's feelings. Yet both must be honest and communicate their feelings, even if they cause more temporary conflict.

It is best to solve the problem which causes anger as soon as possible. It is not healthy to store anger for long periods of time (but not healthy to act out aggressively either). Bottled up anger clearly does contribute to such things as ulcers, headaches, colitus, arthritis, heart problems, high blood pressure, and a number of psychosomatic complaints (Kolb, 1977). But it does not help to indiscriminantly lash

out at everything in sight. The solution is to solve whatever *causes* the aggression, as illustrated in the case above. Sometimes it may be difficult to pinpoint specifically what causes one to be angry—sometimes one has to look quite hard. But there is always a reason. Because it is not apparent does not mean a reason does not exist, but means that one has to do more looking. Certainly friends or loved ones can help in finding the source. This is not to say this will work in all cases. There are some specific conditions that are best treated under appropriate guidance by ventilation techniques. But these are quite uncommon and should be worked with only under the supervision of a competent professional. Even in most of these cases it is not necessary to act out one's hostility—but only to work with one who is highly accepting and able to help one control and accept his hostility. Acceptance of the person expressing aggression is the first step in the process of change. Some people who are overly inhibited can "loosen up" without being indiscriminantly aggressive in other settings. But, unfortunately, it is difficult to keep aggression within its proper bounds. Violence has a way of breeding more violence. In the long run, interpersonal problems can be solved only with reasoning, echoing the ancient advice of the writer Isaiah who said, "Come, let us reason together."

In the above illustration, we can see that if Mr. Jones lashed out at his wife by throwing her favorite salad bowl, it may help him feel better momentarily (but more than likely may not even help him momentarily), but it probably will have long term adverse effects. Mrs. Jones will probably feel upset about losing her good bowl, and react to Mr. Jones in various undesirable ways, i.e., verbally becoming aggressive towards him or even smashing his favorite model car. This act of aggression will most likely cause Mr. Jones' initial aggression to increase, although at this point primarily as a reaction to Mrs. Jones' aggression. Even if Mrs. Jones does not become aggressive herself, the incident will still more than likely affect her and the relationship she has with her husband. At the very least she will have lost her favorite bowl. The long term effects could be much more disastrous. Incidents like this could build up in Mrs. Jones' mind until she no longer can tolerate her husband, *even* if she understands that he is aggressive because of a frustrating day at work, etc. Incidentally, behavior such as the above is often called "adult temper tantrums" by psychiatrists.

Other ventilationists recommend reducing the aggression by totally avoiding the source of aggression and concentrating on eliminating the excess energy. This method, called the "bio-energetic" approach, stresses that dammed up energy is best released through overt actions such as beating a bed with a tennis racket or making appropriate verbal statements such as, "I hate you, I hate you" over and over. The subject is encouraged to be more aggressive, to let go, and in essence, to "let it all out."

Investigators that concern themselves primarily with aggression find that, although the "let it all out" view is popular, there is almost always much more harm than benefit in this approach. Most psychotherapists do not recommend it. Most of Freud's writings were strongly critical of any attempts to help a person by releasing aggression. Most often this approach is recommended by uninformed, self-appointed "therapists."

This is not to say that there cannot be some benefit in this approach. Most often if the person is given the chance to see how foolish it is to beat the bed, bang the wall, or kick the tires on his car, this insight will help him look at his/her own behavior more objectively—and the person may be less likely in the future to resort to such tactics in solving problems. Often, though, ironically the person never does see the foolishness of his behavior. A few examples will suffice. A 22-year-old man was seeing a psychologist because of his temper. The incident which caused him to be referred to the doctor was that he could not start his car one day, so he got out of the car and smashed the windshield with his hand, and then took a hammer and smashed the hood. He had to be hospitalized because of the lacerations in his hand, it cost $140 to replace the windshield and $260.00 to replace the hood, and his car still would not start! The original problem *still* had to be taken care of, plus several new ones.

The next incident involves a 24-year-old auto mechanic. When things did not go right at his work, he would come home and take out his frustrations upon his wife, and this often physically. He was referred to a psychiatrist because of an incident in which he beat his wife so severely that she had to be hospitalized. The incident made the papers and there was much community talk. It was thus felt that he should begin to work on controlling his extreme temper (which he has had most of his life).

The above two experiences are useful in that they point out an important factor—violently eliminating one's aggression does not reduce it. Both of the above people "had tempers" and freely eliminated their aggression most of their lives, but yet were *more* aggressive when referred for help compared to when they were younger. Adult aggressiveness is often seen as nothing more than a temper tantrum a person never outgrew. Obviously, letting the child blow off steam forever does not help him outgrow the temper tantrum. Both the above people needed help to overcome their problem and functionally deal with their anger. One mother was told that she should let her child "let off steam" by kicking the furniture, the walls, the doors, or whatever else he wanted to. Thirty years later he is still kicking the furniture—and has added to his repertoire of things to kick his cat, wife, children, and anything else that gets in the way.

A dangerous result of ventilating one's aggression is that the person's perception of his *own* aggression actually causes him to become *more* aggressive. He sees himself becoming aggressive and this aggression stimulates him on to greater levels of aggressivity. If he feels better after the aggression, he is actually being rewarded for aggression—and he is more likely to exhibit aggression in the future. A number of research studies have found that this commonly occurs in children who were initially low in the amount of aggressive behavior they displayed. When encouraged to increase their overt aggression when they encountered frustrating experiences, or "drain their frustra-

A dangerous result of ventilating one's aggression is that the person's perception of his own aggression actually causes him to become more aggressive.

tion" and eliminate it on the spot, most males in time became more and more aggressive. They became more aggressive not only in situations that are fairly frustrating, but also situations that do do *normally* cause a high degree of aggression. In other words, it now takes less to elicit their anger.

How do children become aggressive in the first place? A number of researchers (Appel, 1942; Sears, Maccoby and Levin, 1957 among others) find that aggression tends to spring either from too much or too little discipline in the home, jealousy of brothers and sisters, excessive parental standards or home tensions. The child rearing pattern that produces the most aggressive child is one in which the parents disapprove of aggression, and punish it with physical aggression of their own when it occurs, i.e. aggressive spanking, etc. This counter-attack on the part of the parent may work for the moment, but generally it ultimately generates more hostility in the child. The parent who uses a large amount of physical punishment tends to provide the child with a model of aggression that the child is likely to copy.

Highly aggressive children also tend to be produced in homes where the mother is *very permissive* in her reaction to the child's outbursts of aggression. When the parents let the child display his aggression, the aggression itself tends to be self-reinforcing. The least aggressive children, on the other hand, come from homes where aggression is clearly disapproved of and is stopped, but with techniques other than physical punishment. These techniques include reasoning with the child, removing privileges, requiring him to sit in the corner and think about his actions, or ignoring the child, while clearly letting him know that his behavior is not approved.

The main concern with controlling aggression is that uncontrolled aggression often puts one in more and more frustrating situations. For example, it is found that aggressive boys are much more likely to involve themselves in aggressive acts earlier when introduced to new friends, and as a result become involved in power struggles with other children. These invariably result in fighting, which puts the child in a precarious position relative to friends, school work, parents, the school and the teachers trying to deal with him or her. Thus the child will be confronted with *more* situations which are likely to provide aggression in the future.

Much aggression is "circular." The child is aggressive towards his/her parents or teacher, and they in turn retaliate, causing the child to be further angered and frustrated. This, in turn, causes more aggression, which causes the teacher or parent to become even more aggressive against the child. To reduce this circular effect, parents must realize that, by and large, children want adults to help them control their aggressive behavior. But they want it to be controlled in ways that do not cause them to increase their own aggression, i.e. by causing them to "become angry." Parents and teachers should be very *firm* with the child, specifying punishment that is reasonable and that can be carried out. If the child misbehaves, the parent must carry out the punishment. It is essential for the parent or teacher to threaten only those punishments that they can reasonably carry out (McCandless, 1967:143).

Experimental Research on the Results of Aggression

That the main problem is learning to deal with aggression, and thus control the situation so the aggression is never aroused in the first place, has been demonstrated by several studies.

Studies of hypertension have isolated a number of personality factors which differentiate hypertensives from normal-tensives. The only consistent finding was in the way each person handled anger and aggression (Buss, 1966: 414). Further, Lipowski stated,

> hypertensive patients have been described as unable to accept and express their hostile impulses for fear of losing approval and securities; as they are subnormally assertive; as guilt prone; insecure; as tense; hypervigilant, and tending to perceive their environment as dangerous, as covertly resentful; as obsessive-compulsive; as more or less than average susceptibility to anxiety and depression.

This may indicate that the difference between hypertensives and normal tensives is that hypertensives cannot express their anger where normal tensives can. This assumption is commonly accepted, although research indicates expression of anger does not reduce one's hostility.

Various laboratory studies have shown that if a fear situation is presented to a hypertensive patient a rise in blood pressure results. When the fear stimulus is removed an immediate drop in blood pressure follows. On the other hand, if an anger stimulus is presented to a hypertensive patient, the blood pressure also rises but when the anger situation is removed the blood pressure continues to remain high (Buss, 1966: 412). The difference evidently is that in an anger situation, the person remains agitated for a much longer period of time, whereas once there is clearly no danger in a fear situation the agitation is reduced much more quickly. For example, if a husband says something to his wife to make her angry (raising the blood pressure) and then later apologizes, her blood pressure remains high. Anger is evidently a situation where even if an attempt is made to rectify the situation, it is still perceived as upsetting. On the other hands, a *fear* situation such as a mother's fear that her child has fallen into a bathtub full of water, is easily reduced once the mother finds the child is not in the bathtub and safe. Subjects exposed to a high level of fear do not tend to develop hypertension, whereas subjects exposed to a large number of situations which precipitate aggression tend to develop hypertension.

The reason for these results could be that situations which cause aggression raise the blood pressure and keep it higher for much longer periods of time, a situation which is conducive to developing hypertension. Fear, on the other hand, likewise raises the blood pressure, but once the fear situation is past, the blood pressure immediately is lowered, a situation which is not conducive to developing hypertension. The implication here is that the problem of anger is not a matter of being able to "let one's hostilities out" but the pure fact of perceiving a situation in such a way that one can avoid eliciting aggression in the first place. Thus it is the reaction to a situation and not the situation itself that causes the problem. Even if one expresses his aggression, it is still going to cause problems. The key is to not develop the hostile impulses in the first place. One's attitude toward the environment around him is the all important factor.

Summary

All of our present research evidence indicates that the ventilationist position is invalid. Releasing one's aggressive feelings and "getting it out of one's system" does not reduce aggressive feelings in the long run and can increase the person's general level of aggression. The most effective way of dealing with aggression is to solve the problem which elicits the aggression in the first place. In addition, learning to control one's emotions and physical outburst is also quite functional. The key is proper training primarily from the parents. Also necessary is knowledge of aggression, its function, source, and purpose, and the will power to develop self-control and work at solving the problems which cause one's aggression.

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Within a few decades, under the pressure of experimental facts and the bold and convincing analyses of Planck and Einstein, there was, as Karl Heim puts it, a "twilight of the gods" of absolute space, time, object, and determinism - a Wagnerian Götterdämmerung *in which the golden prize of absolute intellectual ascendancy over nature's laws which these gods had attempted to seize was finally interred in the inscrutable depths of nature's intrinsic realities from which it had been so roughly alienated, while the Valhalla of the world those gods had constructed around them was consumed by the new fires of quantum and relativity theory. Although most of us, including physicists, still move in that old world, and there is sense in this, considering the scale of our sensory apparatus, yet these gods really have been eclipsed and their world gone beyond recall.*

A. R. Peacocke

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The Cults: Why Now and Who Gets Caught?

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Scores of young people have turned to the cults in recent years. For many this choice, if it can be called that, has not been a casual one. Rather the new members have often paid a steep price, i.e., the surrender of even the most basic of personal freedoms, living under unusual and often severe living conditions, breaking of ties with parents, giving up of all personal possessions, severing of relationships with the world, and becoming something akin to a slave while the cultic leader lives in luxury. Why do people endure such privations? What draws the youth to the cults? Is it the respective theology of these different groups? It would seem not. Rather the key to understanding the magnetic power of cultic phenomena lies in the realm of practice rather than ideology.

People join cultic groups for three primary reasons. (1) Wider societal forces have created conditions conducive to cultic growth. (2) Cultic groups employ recruitment techniques that allure, or perhaps trap, the youth. (3) Certain types of people are more susceptible to these wider societal conditions and the methods utilized by the cults.

What then is a religious cult? According to Lowell Streiker, a cult is a movement of social protest and personal affirmation. It offers a total way of life to those who are alienated from their families and society in general.[1] Thomas O'Dea designates it as a group based on individual concerns and experiences, often transient, and containing a fluctuating membership.[2] Perhaps the best way to describe a cult is to list some of its characteristics. A cult, above all, has a living leader who determines its doctrine. This leader enjoys absolute authority over the cult's members and often lives in regal splendor while the members subsist in poverty. Second, a cult promises a system in which a convert may work to save the world and humanity, but actually sponsors few community improvement programs. Third, the daily work of nearly all cult members is demeaning and utilizes little of their potential, in terms of intelligence, training or education. Fourth, religious cults are exclusive social systems, claiming that their members will achieve salvation or happiness. In fact, to be a member of most cults entails cutting oneself off from society, friends, and family. Fifth, methods of ego-destruction and thought manipulation are part of a religious cult's recruiting and indoctrination practices. Indeed, cults discourage critical analysis by dictating the suppression of negative thoughts, therefore fostering a dependency on the cult's authority. Finally, the cult rituals and practices are generally psychologically unwholesome, and in come cases physically harmful.[3] Religious groups exhibiting the above characteristics generally include the Unification Church, Hare Krishna, the Children of God, the Alamo Christian Foundation, the Love Family, the Way, and the Divine Light Mission.

Societal Forces

Cultic phenomena are not new in America. Nevertheless, during the 1960's and 1970's they have certainly experienced a resurgence not only in America but elsewhere.[4] This cultic surge is closely related to two societal forces. The rise of the cults is both a product of and an extension of American religious pluralism and vitality. The cultic phenomena can also be seen as a religious expression of the counterculture, i.e., a youthful response to the chaos of our time.

Religious pluralism, as Martin Marty has demonstrated, does have its boundaries. Nonetheless, one can legitimately argue that pluralism is the key to understanding American religion.[5] Contrary to popular belief, America has not always had a true "religious pluralism". The Constitution officially disestablished religion on the national level. Yet both state establishments and a *de facto* Protestant establishment existed well into our early national history. Early national America had a "Protestant pluralism", namely a variety of Protestant groups. Exceptions to this Protestant dominance did exist (e.g., Universalists,

Unitarians, Rosicrucians, Mormons, Catholics, Transcendentalists, Swedenborgians, and Spiritualists). Hand in hand with this Protestant pluralism, and partially because of it, went a remarkable growth in American religion (e.g., The Second Awakening).[6]

The post-bellum period is often depicted as a period of declining religious enthusiasm. Yet this era did witness religious vigor, namely Pentecostalism, revivalism, and missionary expansion. Nevertheless, by the late nineteenth and early twentieth centuries, cracks began to appear in the "Protestant Empire", i.e., immigration and urbanization radically changed the picture of American religion. Catholics and Jews poured into the cities from Europe; southern Blacks moved to the North. Christian Science and the Russellite movement, which later became known as the Jehovah's Witnesses, burst on the scene. Even Eastern religions made their debut in America. Historically, the forces of transition from American Judeo-Christendom to a larger range of religious pluralism began to be visible near the end of the nineteenth century.[7]

It is not misleading nor simplistic to describe twentieth century America as "post Protestant" or even "post Christian", if by this we mean that other forces have displaced Protestantism, and perhaps even Christianity, as the primary definer of cultural values and behavior patterns in the nation.[8] Two world wars, military involvement in Korea and Vietnam, all of the contacts that world leadership entails, to say nothing of a creeping secularism, have expanded American pluralism beyond its Judeo-Christian confines.[9] Today we have a different kind of pluralism than existed in our earlier history, one that is not confined to the Judeo-Christian tradition, much less to Protestantism. The cultic phenomena of the 1960's and 1970's must be seen as both a continuation and expansion of both the pluralism and vitality of the American religious tradition.[10]

The American tradition of religious pluralism notwithstanding, something different happened in the 1960's. This turbulent decade acted as a catalyst to forces already in motion. By now long-term economic, moral, theological, and cultural processes were brought to a critical stage by the enormous economic expansion and rapid social change that the United States had experienced and thoughtlessly enjoyed during the affluent years that followed World War II. The long-developing problems of rampant, unregulated urban and industrial growth began to create difficulties with which American political and fiscal practices could not cope. Technological and scientific advancements seemed to have no bounds. Consequently, for many, the idea of the supernatural lost its force. The Kennedy family in the White House and Vatican II symbolized the drastic alteration of old Protestant-Catholic relationships. Between 1954 and 1963 the Supreme Court removed crucial legal supports from the power structure of the Protestant Establishment. Of great importance, Black America began to seek rectification of the historic inequalities of its situation. For the first time in American history, the traumatic implications of true pluralism began to be realized. Moreover, the destructive affects of the Nazi exterminations and the atomic age mitigated what remained of humanistic optimism. And finally, the supreme catalyst came in the escalation of the Viet Nam War.[11]

The cults do not hesitate to step in and fill the spiritual, social and emotional voids left by many of today's overburdened institutions.

In all of these events and others, America's traditional spiritual institutions were tested and found wanting. The mainline denominations experienced a decline after 1965. The youthful counter-culture, profoundly alienated from the parental generation, sought and demanded radical changes, which they perceived to be solutions, in politics, education, the arts, and social relations (love, courtship, family, and community). It was, therefore, only natural for the youth to turn to radical religious solutions—otherworldliness, withdrawn communalism, mysticism, the occult, Eastern religions, and the cults. Indeed, America's developing religious pluralism and the youthful response to the turbulence of our age, have combined to create societal conditions conducive to the rise of the cults.[12]

Cultic Techniques

When nine hundred people seemingly commit suicide in the jungle of Guyana, charges of cultic brainwashing quickly followed. Many people refused to believe that this many people would voluntarily lie down their lives for Jim Jones. Are these charges accurate? Of more importance, do other cultic groups brainwash their adherents? To lump all cults in one category is a tenuous operation because they do demonstrate considerable diversity. Nevertheless, some common denominators can be found in their tactics and techniques. Though "brainwashing", as employed by the Chinese Communists, may be too strong a term, most cultic groups do engage in some form of spiritual and psychological manipulation. The methods common to most of the well known cults generally fall into three phases: the initial contact, the preparation stage, and the act of commitment. Because empirical studies on cultic tactics are scarce, my evidence comes primarily from recorded case histories of former cult members.

Most cultic members make a good initial impression on potential converts. Some disciples, particularly those belonging to the Unification Church, the Love Family (sometimes called the Church of Armageddon), and the Divine Light Mission strike outsiders as being devoted, well groomed, clean cut, and generally class people. During the initial contacts they heap love, warmth, friendship, and concern on the neophytes—thus making them feel right at home. This affection, in particular, attracts many lonesome people. In a similar vein, cultic recruiters often appeal to the prospective members by flattering them.[13]

The specific tactics employed by various cultic groups in their first contacts differ greatly. This engagement may be an individual encounter on the street or the corporate set-

ting of a religious meeting. In either place, some groups, especially the Moonies, do not reveal their true identities. They utilize evasive advertising, adjunct groups that conceal their affiliation with Moon, and even outright denials that they are members of the Unification Church. The Moonies justify these lies, and other false tactics, as "heavenly deceit". Most cultists have an uncanny ability to immediately recognize susceptible people, and therefore concentrate on them while avoiding less promising prospects such as Mormons and others holding to firm religious beliefs. Some cults, namely the Children of God, the Alamo Christian Foundation, and the Way, employ techniques resembling those of hard sell evangelicals or Charismatics. For example, they pressure the neophyte, preach hellfire sermons, and encourage speaking in tongues. Other cultists, such as the Divine Light Mission, take a soft sell approach and rely on the prospective convert's desire for meditation. The initial messages of these cults usually refer to some basic problem in individuals or society that the group promises to resolve. These promises are often vague and general. For example, one group called the Way, promises that "you can have whatever you want", and then offers personal testimonies to confirm its ability to make good its pledges.[14]

After the initial presentation, the visitor is usually invited to stay or to go away with other recruits to a religious center. During this second stage the cultic group prepares and "softens up" the visitor, now a guest, for indoctrination. The tactics employed by the various cults during phase two have more uniformity than they did in the initial stage. The objective of these tactics is to increase the suggestibility of the mind for the cultic ideology and ultimate conversion to the group. Most cultic groups, except the Divine Light Mission and Scientology, isolate prospective members from all contacts with the outside world. The centers usually have no newspapers, no radio, no television, and the only music is that performed by group members. By this isolation the cults intend to separate the neophyte from any input or feedback from the outside, while at the same time discouraging questioning and refusing to tolerate dissent. As a result, the cultists deprive the individual of any opportunity to exercise self expression and independent thought. A group of singing, chanting, or meditating peers constantly surrounds the prospective converts and sprinkles them with what Robert Lifton calls, "thought-terminating cliches." Some sources regard this constant chanting or praying as actually a form of auto-suggestion.[15]

During this preparation stage, most potential cultists experience some form of sensory deprivation—usually food and sleep. In varying degrees nearly all cultic groups that we have mentioned utilize this tactic. Because the Divine Light Mission relies on meditation and an instant experience, they employ this technique less. Starchy, low-protein diets combined with only four or five hours of sleep wear down the individual's physical and psychological defenses and make a person even more vulnerable to indoctrination. Many ex-cult members complain of undernourishment and loss of weight. A typical day runs from 5:00 or 6:00 a.m. to midnight; every hour is jammed tight with activities, i.e., lectures, music, work and exercise. The cults never permit the guest to have any privacy or to reflect on the lectures—they are constantly propagandized.[16]

After a week or longer of these tactics, the individuals' reasoning capacity is reduced, and since there is no alternative support group nearby, the person becomes a prime candidate for cultic conversion. During this second phase, the cultic groups mobilize guilt and anxiety in the indoctrinees in order to inhibit their judgmental processes. The imposition of guilt and fear is basic to the brainwashing process. Cultists make the neophytes believe that their salvation will be jeopardized if they abandon the group. They are made to feel guilty if they want to be alone, or raise questions, or even speak of something pertaining to the outside world. The cult bombards individuals with the idea that self amounts to very little, that the group and its leader are everything, and that outsiders are hostile and should be feared and avoided. A person's guilt and personal inadequacy are heightened to the degree that the idea of being directed by a perfect leader becomes attractive.[17]

The doctrines of each cult vary greatly, but an emphasis on the leader, the community, and strict discipline pervade nearly every group. The role of such founder-prophets as Sun Myung Moon, Maharaj Ji, Moses David, Prabhupada, Love Israel, Tony and Susan Alamo and Victor Wierville is absolutely essential to their respective cults. Their influence is immense and their power is absolute. Adulation for the leader borders on worship. While the rank and file subsist in demeaning conditions, the leader usually lives in affluence. A sense of community or family dominates the cult's ideology. Cults achieve a sense of togetherness both by encouraging "team" effort and by repeatedly reinforcing the notion that "we have the best team". Cultic groups also develop a "we-feeling" by stressing the exclusivity of their belief system, particularly the path to salvation. They further accomplish communion through frequent group meetings and participation in group ritual. Persecution, real or imagined, tends to unify people. Cults, therefore, emphasize the threat of the outside world as a means of coercion. A focal theme of nearly all cults is regimentation and discipline. As Lowell Streiker notes, the cults impose harsh standards of discipline. You must merit your membership by wholehearted devotion. If you fail, you will be disciplined or expelled. If you remain, you will know that you belong to the chosen, the elite. The ways of the cults are demanding and difficult.[18]

Stage three entails some action of commitment on the part of the seekers. To remain with the group, they must take a definite step that usually involves confession of guilt or weakness, a renunciation of past behavior and a pledge of loyality to the group and its leader. At this point, the neophyte must make a total commitment to an absolute system. In some cases (e.g., Moonies, Hare Krishna, Children of God, People's Temple, and to a lesser extent the Divine Light Mission) this action means the surrendering of all personal possessions to the group. Still others (e.g., Children of God, Moonies, Hare Krishna, Alamo Foundation, and the Love Family) demand that family ties be severed. Most all groups require the seeker to surrender his

or her individuality, i.e., allow the group to make all decisions for them including marriage arrangements. When seekers make commitments of this magnitude, it is difficult for them to turn back.[19]

Do the cults really brainwash their adherents, or are these tactics just super-salesmanship? To answer this accurately requires a cult by cult and case by case analysis. There can be no doubt, however, that many of the cults employ techniques closely resembling Chinese brainwashing as described by Robert Lifton. In what he terms "Ideological Totalism", he lists several critieria for identifying thought reform. They include: control of the individuals' environment, isolation, personal manipulation, demands for purity that create guilt, an obsession with personal confession and exposure, self-surrender on the part of the individual, an aura of sacredness surrounding the controlling group's ideology, thought-terminating cliches (e.g., brief, reductive, definitive-sounding phrases, easily memorized and easily expressed), the subordination of human experience to the claims of doctrine, and drawing a sharp line between those in the group and those outside who have no right to exist. In addition, many cultic converts experience altered personalitites, altered world views, and partial or complete loss of the ability to think clearly and abstractly. The cults, it would seem, certainly engage in spiritual and psychological manipulation. Nevertheless, the comparisons between Chinese Communist thought reform and cultic techniques do not hold up in every respect. The cults, for example, do not appear to employ direct physical coercion.[20]

Susceptible Types of People

Are some people more susceptible to both the societal conditions and the cultic tactics previously described? Is there a personality type that is more prone to religious conversion than are others, and as a result more likely to join a cult? Is there a type of person who gravitates toward the cults in general, or do specific cultic groups attract certain types of people? For example, do the Moonies draw different kinds of people than do the Children of God? These are very difficult questions, too difficult for the scope of this paper. In fact, few psychological studies have been made in this regard. My evidence, therefore, must come from varying case studies that, unfortunately, often offer contradictory evidence. My approach is to cite the opinions of three sources that describe cultic types, and then attempt to draw some conclusions from these often conflicting opinions.

Ronald Enroth says that most people who join the cults are between eighteen and twenty-two years old at the time of the first contact. A profile of the typical cult member, Enroth contends, reveals that he or she is white, middle or upper-middle class, with a least some college education and a nominally religious upbringing. In short, the typical cult prospect fits the image of the average American in the immediate post-high school period. Some cult members come from the margins of society or have experienced unstable family relationships, but they are not the norm. Many have known the pain and deprivation of a single-parent home, and perhaps for this reason some have strongly identified with cult leaders who provide a parental image. According to Enroth, more than anything else, the young people pursuing cults are involved in a search for identity and a quest for a spiritual reality that provides clear-cut answers to their questions. Indeed, the cults not only furnish black-and-white answers to life's questions, but also make promises that appeal to those needing reassurance, confidence, and affirmation. Most cult seekers have had nominal religious exposure, and invariably have found these conventional religious institutions to be lacking in spiritual depth and incapable of inspiring commitment and providing clear-cut answers. Moreover, people who have recently gone through some kind of painful life experience or who find themselves in a state of unusual anxiety, stress, or uncertainty are far more susceptible to cultic involvement. Some youth have a single, traumatic life experience that triggers entrance into a cult, but according to Enroth, a significant number have chronic emotional or personality problems of a pathological nature.[21]

Lowell Streiker regards cultic conversion as an aspect of conversion in general. He believes that in any conversion experience, cultic or non cultic, personality factors are primary, and the ideological content secondary. He sees parallels in most conversion experiences, whether in the content of Christian revivalism or cultic groups. In other words, a personality type that is prone to religious conversion, will be more susceptible to cultic involvement.[22]

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Streiker relies primarily on information from William James, John Kildahl, and D.A. Windermuller to establish his conversionist type. Unfortunately, these opinions are not always in agreement, and thus Streiker's conclusions seem to lack consistency. In sum, he says that cultic converts have generally superior intelligence, but are somewhat emotionally and sexually immature, bored and lonely. Conversion experiences, he argues, are seldom as radical as they appear. Consequently very few religious converts come from nonreligious backgrounds. Religious experience, Streiker contends, is not the establishment of contact with a hitherto unkown sacred power as much as it is the transformation of the quality of this contact. Consequently, those who from childhood have participated in religious rituals have a starting place for their religious quests. Nevertheless, the child's religious experience may not always conform to that of his background—it may, for example, turn out to be cultic. At this point, Streiker's diagnosis demonstrates some incongruity. He also argues that many children of religiously neutral and ethically permissive parents also find their way into an authoritarian cult, i.e., they are seeking direction that the cult offers. Rootlessness, insecurity, and lack of hope set the stage for religious conversion; and the cults are most obliging in this regard—they offer total security in return for total subjection.[23]

Stoner and Parke admit the difficulties in establishing a profile for the typical cult member. They, therefore, content themselves with recording the findings of other authorities. They cite the cult member profile of Rabbi Davis, a clergyman active in combating these groups. A typical member is an upper middle class, white, boy or girl from eighteen to twenty-five. They have a great deal of hunger for peer approval; they are not comfortable in a permissive society, and need a strong father figure. The world is too big for them, as it often is for a college freshman away from home for the first time or for the person about to enter a profession they never really wanted. Often they have had an unhappy love affair, or they are just trying to find themselves. John Clark, a Boston psychiatrist who works with ex-cult members, contends that there are two distinct groups of people in religious cults. The first group is made up of chronic schizophrenic, border-line personalities whose problems get them involved; for he believes that sick minds gravitate to the new religions. Clark's second group consists of normal, developing young people who are going through the usual crisis of development on the way to becoming adults and who fall into a trap laid by the cults.[24]

At the onset of this section on personality types I raised some questions that I now attempt tentatively to answer. The evidence as to whether one cultic group attracts one type of person while another allures still a different kind is too tenuous for a conclusion. The personality profiles of the various cultic groups, however, seem relatively similar. The differences, if there are any, would seem to be in regard to social class and education. For example, those joining the Unification Church seem to be of a higher socio-economic group and better educated than the youth joining the Children of God. Also those gravitating toward the Diving Light Mission appear to be seeking a more instant meditative experience.[25] Is there a conversionist type person, and if so are they more prone to cultic involvement? My answer here is a qualified yes, at least in the sense of a radical conversion to extremist cults. Streiker, I believe, is at least partially correct when he stresses the similarities of revivalistic and cultic conversions. For example, some hard sell evangelicals and cultic groups both utilize certain methods, i.e., isolation, testimonies, hell-fire sermons, tongues, and pressure. It would seem to me that some personality types are more apt to respond to these techniques.

Is there such a thing as the typical cultist? The average cult member, most studies indicate, is white, college aged, middle class, moderately well educated (some college) and at least religiously oriented. Minorities (Jonestown is an exception) and older people usually do not join cultic groups. Rather middle aged people who experience a mid-life crisis, gravitate toward the occult. Moreover, many cultists seem to be from a single-parent family, thus prompting them to perceive the cult leader as a parent figure. Cult members are seeking direction and structure that the cults readily supply. In addition, many converts appear to fall into two categories: those who have chronic mental problems, especially depression, and those who are coming off a single traumatic experience which has depressed them. Depression appears to make young people susceptible to cultic tactics.

Conclusion

The cults do indeed prey on the youth, by utilizing techniques that are deliberately designed to trap them. In this they go beyond super-salesmanship, or even the manipulative tactics employed by some hard sell evangelicals. For this exploitation the religious cults ought to be held morally accountable. But the cults cannot be blamed for the cultural conditions that make today's youth especially vulnerable. Rather, the cults do not hesitate to step in and fill the spiritual, social and emotional voids left by many of today's overburdened institutions.

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[3]Carol Stoner and Jo Anne Parke, *All Gods Children: The Cult Experience—Salvation or Slavery?* (Rador, PA: Chilton Book. Co., 1977), pp. 3, 4.

[4]Europe is also experiencing a cultic surge. See Fred Bruning, *et. al.*, "Europe's Rising Cults", *Newsweek*, May 7, 1979, pp. 100-102.

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[6]Sidney Ahlstrom, "From Sinai to the Golden Gate: The Liberation of Religion in the Occident," found in *Understanding the New Religions*, edited by Jacob Needleman and George Baker (New York: The Seabury Press, 1978), pp. 13-15.

[7]Ahlstrom, "From Sinai to the Golden Gate," pp. 15-19; Eldon G. Ernst, "Dimensions of New Religion in American History," *Understanding the New Religions*, pp. 39, 40.

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[9]Ernst, "Dimensions of New Religion," pp. 42, 43; Robert Wuthnow, "Religious Movements and the Transition in World Order," *Understanding the New Religions*, pp. 71-78.

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[17]Edwards, *Crazy for God*, p. 64; Stellway, "Four Steps to Cultic Conversion," pp. 25, 26; Enroth, *Youth Brainwashing*, pp. 160, 162.

[18]Streiker, *The Cults are Coming!*, pp. 10-13; Stoner and Parke, *All Gods Children*, pp. 52-67; Levitt, *The Spirit of Sun Myung Moon*, pp. 71-76; Enroth, *Youth Brainwashing*, p. 182; Boa, *Cults, World Religions, and You*, pp. 170, 171, 183, 194; James C. Hefley, *The Youth Nappers* (Wheaton, IL: Victor Books, 1977), pp. 77-93. See Sontag for a rather favorable view of Moon's leadership. Frederick Sontag, *Sun Myung Moon and the Unification Church* (Nashville: Abingdon, Press, 1977).

[19]Stoner and Parke, *All Gods Children*, pp. 26, 159, 160. Some sources note four stages in cultic conversion, but I use three as Stoner and Parke do. Stellway, "Four Steps to Cultic Conversion," p. 26; Enroth, *Youth Brainwashing*, pp. 38, 40, 60, 84, 91, 105, 138, 144, 157, 196.

[20]Lifton, *Thought Reform*, pp. 419-437; Enroth, *Youth Brainwashing*, pp. 149-164; Stoner and Parke, *All Gods Children*, pp. 5, 11-13, 27, 30, 156, 159, 172 ff., 221 ff. Scientology does not completely fit the cultic pattern. Nevertheless, evidence would indicate that they employ powerful control techniques. See Roy Wallis, *The Road to Total Freedom: A Sociological Analysis of Scientology* (New York: Columbia University Press, 1977), pp. 156, 180, 188, 189, 246. For more on the issue of mind control see William Sargant, *The Mind Possessed: A Physiology of Possession, Mysticism and Faith Healing* (Philadelphia: J.P. Lippincott Co., 1974).

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Time and the Rock Record

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The doctrine of time, a difficult one that has not been explored by any investigator, as far as I know, is not discussed here, nor is the concept of time as taught in physics. Rather, the term "time" as used in the title, refers merely to the fact that man believes that time has been passing, and continues to be passing, and that its passage can be measured or estimated in some way, so that we come out with a numerical yardstick on which we place various events in a sequence that we call history.

The rock record is not treated in detail, either. Rather an effort is made to show how the rock record and the Bible record combine (or fail to combine, if we insist on defending our ignorance). This combination, however successful as it may be in the present state of our understanding, is necessarily set against a framework of time.

The more recent the time, the less fundamental disagreement arises. The more ancient the time, especially past about 6,000 years ago, the wider the disparity in viewpoints. Because secular written eye-witness accounts do not exist for these earlier times, various inferences must be made from second-hand sources: interpretations, whether of Scripture or of nature. And when different people engage in interpretations, there is ample room for disagreement.

The earliest event we ordinarily consider is the creation of the planet, the solar system and the universe, commonly thought of as a single event or process, although this is not necessarily so. And because this takes us back as far as we think time extends, it offers the maximum opportunity for disagreement.

Many different positions are available, in connection with the creation controversy; five of them are stated here:

1. God was not directly involved in creation, which was a purely mechanistic process.

2. God was the direct creator of the universe, but the record is mysteriously jumbled in nature, and hence only the Bible can be used to obtain a reliable history.

3. God was the direct creator of the universe, but the Bible (a poetic book) does not cast any real light on the process; hence we must turn to nature to obtain a record.

4. God created the universe, and two records are available for study; the Bible and nature.

5. God created the universe in a very recent moment, such as *last night*, with all books, newspapers, films, carvings and memories already built in, so the concept of a record is meaningless from the historical point of view.

It is conceivable that a Christian could adopt any one of these. In the case of No. 1, a Christian might argue that the Genesis language is poetic, and that the universe is a giant machine (which belongs, in some special sense, to God) but which evolves in a mechanistic manner without divine guidance.

It is argued here, however, that one of the five is superior to the other four. No. 1—no direct intervention in creation—is rejected as contrary to Bible statements. It is true that the Bible is a poetic book, but that line of argument does not provide license for any individual to substitute his own biases for biblical statements, regardless of whether the latter are poetic or not.

No. 2—the record in nature is jumbled beyond understanding—is rejected as contrary to the Bible. Paul, in Romans 1:18-20, stated that we are to learn about God from nature (rather than vice versa). This cannot be a statement that we should study nature (biology, geology, meteorology, etc.) in order to acquire spiritual truths, and therefore must teach that the study of nature tells us about God's creation. This conclusion is consonant with the entire teaching of the Bible that God operates rationally, not capriciously, whether he is dealing with spiritual or mechanistic matters.

No.3—the entire story of creation must be unravelled by the astronomer and the geologist—is rejected as contrary to the Bible, which makes specific statements about creation, in both the Old and New Testaments, that could not have been deduced by ordinary human investigation.

No. 4—both the Bible and nature shed light on the creation story—is adopted.

No. 5—instantaneous creation last night—is rejected, although it is completely self-consistent, as being contrary to the purpose of the Bible, which offers to each man a spiritual pilgrimage like those journeys taken previously by people who have gone before; the Bible does not teach that we, in 1981 (or any other year) have been placed on a special pedestal far removed from men of other times, who did not really exist.

If No. 4 is adopted (we study both nature and the Bible, to our advantage), then it behooves us to look carefully at both the Bible story and the natural record. Therefore the central part of this paper is organized as follows:

a. What do we learn from the Bible?

b. What do we *not* learn from the Bible?

c. What do we learn from nature?

d. What do we *not* learn from nature?

It is assumed that the discussion is limited to the creation story. It is further assumed that a rational basis for investigation must exist, otherwise there is no point in making a study of any kind. And it must be kept clearly in mind that, in the light of statements such as those in Ro. 1:18-20 and Col. 1:16-17, we may not return to the medieval position that observations of nature reveal tricks of the devil, placed there specifically to confuse and distract the spiritually unwary.

The catastrophist grabs for a few spectacular events—and there are a few—and ignores the tens of millions of cubic miles of strata which were laid down under more-or-less average conditions.

What Do We Learn From the Bible?

The first lesson is, in the words of the title of a recently-published book for children, "God did it." An unequivocal statement of this kind can be obtained from no other source. From nature we can deduce the concept that a creation must have a creator, but plenty of students of nature have found this deduction foreign and repulsive. Only in the Bible can we find an authoritative assertion, without modifiers or qualifications, that our mechanistic universe is the handwork of God.

The second lesson is that creation was a rational procedure. This is clearly taught in the first chapter of Genesis, regardless of the extent to which one thinks this passage is poetical. Genesis 1 is a methodical account of a systematic process which required detailed advance planning. The entire operation developed from the basic and the general, to the derivative and the specific. Even though the account is told in seven simple steps, the actual world is infinitely complicated, and the planning involved defies our comprehension.

The third lesson is that creation was an orderly procedure. It is obviously possible to be rational (that is, to think clearly), without being orderly in the execution. Underneath the poetry in Genesis 1, if individual words and phrases have meaning, is a substrate of accountancy: the report of a comptroller, who certifies that the books do indeed balance as planned, that all equipment and personnel are accounted for, that each operation was carried out in a prescribed manner.

The fourth lesson is that the progression, from general to specific, involved moving past the inanimate to the animate, past the animal to the spiritual, past purposelessness to purpose, past emptiness to fulness, past loneliness to companionship. If these five statements are recombined in a different way, we can say that Genesis teaches that man, the culmination of creation, is a self-directed spiritual

creature who has a future potentially enriched with the fellowship of God.

The fifth lesson is that man has been given a management function, including responsibility as well as opportunity and authority. This is sometimes referred to as a stewardship statement, but it is necessary to keep in mind several points outside the purview of the word "stewardship": authority and responsibility over the planet are at the very heart of science, engineering, economics and such currently popular activities as environmental protection.

The sixth lesson is that man operates, in large measure, in a voluntary system. Even though circumscribed by the so-called laws of nature (such as gravity), which he can circumvent if he is able and willing to pay the price, he nevertheless exercises innumerable easy choices, the results of which in turn modify the framework so that tomorrow the available spectrum of options is different.

The seventh lesson is that the creation itself is evidence of God's power and majesty and glory and should be so viewed. The simple retelling of the creation story is, as seen in the Bible, an act of worship.

The eighth lesson is that those aspects of creation which have been omitted—and these are innumerable—are of relatively little importance in the spiritual sphere, and therefore are left to be investigated as man, following the admonition of the Bible, *contemplates* the handwork of the Lord. Do you use the word "contemplate" correctly? It means "to examine with continued attention, to ponder." We have been told to examine the creation with continued attention. Examining the creation *story*, although a worthwhile exercise, is not the same thing as examining the creation itself.

There are other lessons to be learned from the Bible, many of them derivative from those stated above. For example, if man has a future potentially enriched with the fellowship of God, then human life must have a unique valuation. However, these eight are enough to show how the basic teachings of the Bible can be selected for further study.

What Do We *Not* Learn From the Bible?

We do *not* learn the schedule on which God operated. Bishop Ussher developed a date for creation, based on his particular biases, the most important of which is the non-biblical assumption that no moment in time has been omitted from the Bible account. Actually we have no information in the Bible as to the extent to which all days of all time have been recorded there. An equally rational—and probably equally bad—procedure would be to substitute some finite positive number, in place of the zero adopted by Ussher, for the missing days which may have been present. In fact, the first few verses of Genesis describe a situation in which the concept of time, itself, is probably meaningless. Time is apparently, a function of mass, and hence a tenuous proto-universe would operate according to what would appear to us to be an uncertain clock.

We do *not* learn the physical and chemical patterns which underlie the mechanistic universe. The Bible has nothing to say about molecules, atoms, electrons, protons, the other 80 or so micro-beasties that now inhabit the menagerie of sub-atomic particles, and the still smaller and even more elusive entities that in turn may underlie them. These are things that we investigate when we *contemplate* the handwork of the Lord.

We do *not* learn chemical and physical processes, which we do not fully understand even in the world of science, but which we dress in the respectable clothing of carefully-defined terminology such as gravitation, vorticity, surface tension, melting, crystallization, magnetization and radioactive decay.

We do *not* learn the memory devices, developed by man to help him record and recall some of the complicated facts which he discovers by contemplation of nature: things like the periodic table, Linnaean nomenclature, the stratigraphic sequence, tables of integrals, chemical formulae, diagrams of organic molecules and the encoding of meteorological observations.

The rock record presents a consistent and detailed history of a planet that has changed, over incredibly long periods of time, by slow and ordinary processes.

We do *not* learn that the seven days of Genesis were consecutive. Rational and orderly, yes, but not necessarily consecutive. The Genesis account of creation is more like the eye-witness description of a three-ring circus: much more nearly sequential than the circus itself.

We do *not* learn that the seven days of Genesis consisted of 24 hours each. Psalm 90 says that one day on God's time-table is like a thousand years to us, and many commentators feel that the expression, "one thousand," is poetic shorthand for a much larger number. The argument that the word "day" necessarily means 24 hours simply doesn't stand up. The Hebrew word *"yom,"* which appears about 1185 times in the Old Testament, like the English equivalent, had many uses. Prophecies and historical recapitulations, referring to events spread over considerable time, are commonly referred to by the expression "that day" (Isa. 52:6 and Jer. 11:7 are examples). Other places where *"yom"* (= day) refers to an extended or indefinite period of time are: Job 38:23; Psalm 2:7, 50:15; 77:2; 137:7; Eccl. 7:14 (twice), 12:3; Jer. 50:27; Obad. 11, 12; Zech. 12:3, 12:11, 12:12, 14:6-9. The English language preserves the same flexibility, which we exploit when we make statements such as "In Jesus' day there was no TV."

There are other facts, concepts and patterns which we do not learn from the Bible, and which are proper areas of investigation and study. These facts and concepts are the by-products of contemplating the handwork of the Lord. We have every reason to think that tomorrow (and I do not limit myself to 24 hours) men who worship God, either consciously or otherwise in that pursuit we call research, will add significantly to our store of such facts, concepts and patterns.

What Do We Learn From Nature?

The first thing we learn from nature is a set of methods of operating, sometimes wrapped up in the expression "scientific method." It is the "way to do things" in the world of research. Ever since man learned that simple operations—such as adding and subtracting—are repeatable, we have been expanding our methods so that more and more of nature is now open to contemplation. Today, methods are so highly-developed that no one person knows or appreciates any large fraction of them. Except for momentary aberrations and detours, which are themselves corrected by the application of appropriate methods, the basic process has many centuries of solid replicable achievement behind it.

The second thing we learn from nature is a body of facts, some obvious, and some not so obvious but nevertheless subject to testing. Many of these are trivial, which can also be said of the bricks and wires and pipes and tiles out of which houses and buildings are made.

The third thing we learn from nature is that facts can be combined in patterns which in themselves provide new insight. It is elementary that there is a ratio between the altitude and base of a right triangle. The concept of the trigonometric function known as the tangent, however, is much broader than the simple ratio on which it is based. $E = mc^2$ is a commonplace which on the face of it contains only a simple statement, yet it has opened an entire new world, the full extent of which has not been seen yet. The three Eddington numbers are ordinary efforts to summarize the basic physical properties of the universe, but when set equal to each other they have implications so profound that only a few of the consequences have been examined yet, and these in only a cursory fashion.

The fourth thing we learn in our contemplation of nature is that patterns are the bases for hypotheses, some of which will be confirmed, and many of which will be falsified. Those that we essentially confirm are given the name "theory," and, in a few select cases, "law." Because we do not know everything, we cannot be sure at all points concerning theories and laws. However, precisely the same difficulty applies to our interpretation of the Bible. It should be obvious that God has revealed himself in two ways—his Word and his world—and that men make mistakes in interpreting both.

The fifth thing we learn is the *conclusion*, which is derived from the facts, patterns and theories referred to above. Because the present discussion deals with the creation of the universe, and particularly with the creation of the planet Earth, it is worth while to summarize some well-established and pertinent conclusions.

a. Plant-vs-volcano successions. Such successions consist of alternating layers of volcanic material (such as lava or ash) and plant debris (such as tree trunks, in many instances in growth position). Each fossilized forest in the sequence represents the development of a soil and then a climax plant cover, and finally the growth of trees that reached advanced ages, before the next eruption. A single forest layer must indicate centuries or perhaps millenia. A stack of 25 or more forest layers means a history tens or hundreds of thousands of years long. The various stacks of forest layers known around the world have had different initiation and termination dates, as indicated by various stages of fossilization and erosion of the youngest layers. Futhermore, the total stack is many times the 25 or 30 found in single localities.

b. Varves are couplets in the sedimentary sequence: each is a pair of layers which, in almost every case, represents the two main seasons of a single year. Varve chronology has been verified very well in Canada and Europe where other methods of getting the same information are available; the famous argument led by DeGeer hinged on inferred, rather than observed, varves, and should not be cited in connection with the technique itself. Varves have been counted in such a large enough number of beds that it is clear that the entire sequence contains tens of millions. Even if there are a few errors here and there—and there undoubtedly are—they add up to only a tiny fraction of the total. This means

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that the part of earth history recorded in varves, which appears to be a small part of the whole, is nevertheless 10 or more millions of years long.

c. Coal beds. The tree remains found in continental peat, lignite, and coal deposits attest clearly to their origin. The total number of coal beds, in the overall stratigraphic record, is in the thousands; each one of these represents the growth of many successive forests, and hence a span of thousands or tens of thousands of years. The peat-and-coal history of the planet, which again is only a small part of the total history, easily exceeds a million years.

d. The rate of deceleration of the earth's rotation on its own axis is known rather precisely to be about 2 seconds per 100,000 years. Devonian invertebrate fossils have growth lines which show both daily and annual patterns. Careful counts of these lines indicate that there were about 405 days in the Devonian year. There is no reason to think that the year has been changing in length. With a constant year of 405 days, each day would contain about 21.7 hours. The change from a 21.7 hour day to a 24-hour-day is almost exactly 2 seconds per 100,000 years. The verification, using two different methods, places the Devonian period at very roughly 400,000,000 years ago.

e. The rivers of the world are carrying salts into the ocean each day. The amount of chlorine, carried in various compounds, is approximately 6.7×10^{14} g/year. The amount of chlorine in the ocean is about 2.65×10^{22} grams. If we are examining a closed system, the present chlorinity would have been attained in about 40 million years. However, the system is not closed; tremendous quantities of NaCl and other salts have been removed from the ocean, at various times, in evaporite deposits. River deliveries necessary for the supply of known evaporites would require much more than 100 million years. Yet not all of the rock record has been explored in sufficient detail, especially at depth, for us to know what the total volume of evaporites is. The history necessary to supply the salts which have passed through the ocean system must have lasted at least hundreds of millions of years.

There are other evidences which could be recounted here. Radiometric dating has not been mentioned; it gives ages that require very large numbers indeed. But the evidence reviewed here does not depend on radiometric dating. Other similar, non-radiometric information can be adduced. The time necessary to carry various geologic processes to termination is staggering. This conclusion cannot be weakened by appealing to one or a few great catastrophes: the rock record was made in good part during long intervals in which processes operating in a small way achieved impressive results, very slowly. The evidences of true catastrophe are sparse; most of known sediments were deposited in ordinary swamps, along ordinary beaches, on ordinary deltas, in ordinary shallow-water basins. The catastrophist grabs for a few spectacular events—and there are a few—and ignores the tens of millions of cubic miles of strata which were laid down under more-or-less average conditions.

What Do We *Not* Learn From Nature?

We do *not* learn all of the answers, a truism that also applies to the Bible. This is not the year to be egotistical enough to think that we have finally learned everything, or even almost everything. In God's storehouse of knowledge there must be enough untapped riches to satisfy even the most curious, *after* the entire span of human history has been run.

We do *not* learn God's nature. We may look at the marvelous intricacies of the created world, and infer the creator, if we wish; but if we do, this tells us only that there was a master craftsman, not what he is like. His personal characteristics, especially his love and care and deep concern for us, are not to be read from rocks.

We do *not* learn God's purpose, which is stated plainly in the Bible. He made the earth as a place where he could plant mankind, and he made mankind to be "like himself" ("after his own image") so that a divine fellowship could be established. He sent his Son to show us not only how to attain this fellowship, but also the richness that it promises to each one who responds.

We do *not* learn God's wisdom as it applies to our individual lives. Even the study of mankind, from a scientific point of view, does not resolve questions in the realm of values; but God's word teaches us clearly the values which we are to bring as basics to our study of lesser questions.

And there are others which we do not learn from nature. But this is enough to complete the cycle. God has revealed himself in two ways, and we worship him when we study either revelation. The two records must be compatible, because they both reveal the same God. We worship him in a fuller way when we contemplate his wonderful work as revealed in both records (Job 37:14; Psalm 8:3; Eccl. 7:13).

Conclusion

The rock record is reasonably clear. The many gaps which mar it, if filled in, could have only one effect: to extend and fill out the story that is already well confirmed in its basic outline. It is much like a book from which some of the pages have been torn; replacing the missing pages does not remove any of the pages that are still present.

The rock record presents a consistent and detailed history of a planet that has changed, over incredibly long periods of time, by slow and ordinary processes: tens of millions of cubic miles of sediments that represent landscapes and seascapes like those that are familiar to us today.

The rock record, despite diligent search by many men determined to find positive evidence of a brief earth history, has not revealed any such evidence. All of the evidence cited by them has been based on simple misreading of elementary facts. The so-called Precambrian human footprints of North Carolina (which I have examined and which are neither Precambrian nor footprints), the supposed Cretaceous human fetus of Oklahoma (which is

neither human nor a fetus), the reported Noachian deluge deposits of various places (which were neither simultaneous nor catastrophic): all of these are citations by persons who are willing to mis-state the observable and the verifiable facts of geology in order to support what they consider to be a biblical doctrine.

But the Bible does not require a short history. The matter of the duration of geological time is really of no great importance in the Bible account, and hence the Genesis statement permits either long or short history. Furthermore, the Bible was written for men of various environments and degrees of knowledge, spread over many centuries, and no purpose would have been served by putting specific numbers on the time-intervals required by creation. This structure still holds today: facts of nature are to be obtained *by* us, and are not to be dictated *to* us, by God, through an inspired intermediary.

To state that geology *requires* a very long history, and that the Bible *permits* a very long history—possibly even longer than we have yet deduced—does not mean that we now claim to know all the answers. Keep in mind Position No. 5, that God created the entire universe last night or at some other arbitrary time, no matter how much we may dislike the idea. The simplest, best statement of fact, concerning the creation controversy, is: we do not yet know the final word, but the evidence points strongly in the direction of a torturously slow development, as God's purposes have been carried out according to the schedule of his choosing.

Notes on "Science and the Whole Person"—
A Personal Integration of Scientific and Biblical Perspectives

Part 15

Determinism and Free Will
(B) Crime, Punishment and Responsibility

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The increase in crime in this country, not even considering the rest of the world, has reached such proportions that changes in our way of life to compensate are already taking shape. Although we know that violence has been present in every age, and that compared to times in the past and other places in the world today, the violence in the United States is still relatively small, we have a growing awareness of a steadily mounting violence in our society. It is becoming increasingly dangerous to walk the streets of our cities, and even our suburbs, after dark. Murders, robberies and rapes are supplemented with senseless killings and bombings. It seems as if "law and order" have ceased to be the idealized goals of a civilized society, and even this phrase has been perverted so that to most people it has a pejorative ring since it so often amounts to nothing more than ruthless maintenance of the status quo. Nor should we forget that violence need not be physical, but can be psychological and economic as well; the appearance of "law and order" can be only the sign of transformation of open violence into hidden violence.

Christians are not surprised by the presence of crime and violence in the world. It is the optimistic humanist pledged to the innate goodness of human nature who is being refuted by current events. Although the human being is the most highly valued of all creatures, since he/she is made in the image of God and has the potentiality of living as a child of God, still Christians recognize that this same

human being in rebellion against God is capable of the uttermost in inhumanity. Although it is clear that the ultimate resolution of this human problem can be made only when individual men and women regain a restored relationship with God through Jesus Christ, it is not always so clear how Christians are to live and relate to a non-Christian world. In particular, the question of how to regard the law-breaker in society and how to fashion a suitable social reaction to the criminal plumbs deeply into one's perceptions about the significance of determinism and free will in human experience. The last installment attempted to show the limitations on an absolutization of either of these concepts; here we face the very practical question of what guidelines for action our attitudes provide in the context of a very difficult problem.

Testing Attitude Consistency

As an introduction to this topic, I offer a quite non-scientific test to check on the consistency of your own attitudes on the relationship between human responsibility and the form of punishment for crime. On p. 107 there is a box titled, "Freedom of Human Beings;" select the category that comes closest to your own perceptions. On p. 108 there is a box titled, "Attitudes toward Punishment for Crime;" again select the category that you most closely agree with. If you subtract the number of the category that you selected from the first box from the number of the category from the second box (and take the absolute value of the difference), the result will be a measure of your attitude consistency. A difference of 0 indicates complete consistency (which is not to say complete correctness!), whereas a difference of 3 indicates complete inconsistency. A typical maximum inconsistency found in many people (you may wish to try this test on others) is to affirm the complete freedom of individuals to act responsibly in all areas (thereby affirming the commitment of optimistic humanism), while at the same time arguing that all criminals should be treated as if they were sick victims of societal injustice deseving nothing more than proper treatment and cure (thereby affirming the commitment of subjective liberalism.)

The Purpose of Punishment

No one would probably debate the thesis that the best way to deal with crime is to prevent it. There is little doubt that a considerable portion of crimes committed could have been prevented by altering environmental factors in the life of the person involved. There are many for whom the road to a life of crime is paved with poor nutrition, bad education, lack of love, unemployment and social rejection. Yet it cannot be denied that many undergo these handicaps without turning to crime, and that many turn to crime without undergoing these handicaps. Although poor genetics and environment are certainly determining factors, therefore, they do not appear to be *ultimately* determining, nor should we expect that their removal will thereby automatically remove the existence of crime. There is an equally impressive set of statistics that indicates that too much affluence, too little want, too much freedom etc. tend to lead also to a life of crime. But suppose that the crime has been committed. What then is the purpose of the punishment that society imposes? Unless we attempt to be clear about the purpose of punishment, we will be at a complete loss to decide how to handle the punishment problem.

There are at least six ways that we can define the purposes of punishment to illustrate the spectrum of possibilities. In the following we briefly summarize the basis for each approach and then follow by some discussion.

Six possible purposes for punishment: retribution, deterrence, public safety, correction, rehabilitation and treatment.

1. The criminal is punished as *retribution* for the crime he has committed, because retribution is the just recompense for crime. The effect of this punishment on the criminal is not of principal significance. The criminal is punished because he/she deserves it, and because the constitution of the world is such that crime must be punished. The criminal is regarded as acting responsibly; a responsible act that breaks the law must be punished. The biblical record, for example, plainly teaches that one who is guilty of breaking the divine law deserves to be punished; it is this very necessity of punishment of violation of the divine law that provides the basis for the death of Jesus Christ in the place of all those who put their trust in Him. God in His mercy bore the punishment due to us in our place. Since human law is derived from divine law, the same concept of deserved punishment is carried over. It does not matter what the effect is upon the criminal or upon society; it matters only that cosmic justice be satisfied.

2. The criminal is punished as a *deterrence* (a warning) to others in society who may be tempted to commit crime, so that potential criminals will realize that their breaking of the law will be painful for them and thus be intimidated from committing crimes. Again the effect of this kind of punishment on the criminal him/herself is not of principal significance. Since crime is socially undesirable, it must be demonstrated that "crime does not pay" by showing how unpleasant the results of crime can be. If retribution is inclined to seek "the punishment that fits the crime," deterrence is inclined to seek the worst possible punishment, since that will constitute the best possible deterrence. It does not really matter whether the criminal being punished was responsible for his/her actions or not; it matters only that an example be made for others. It is this positive consequence that justifies the punishment.

3. The criminal is punished by removal from society in order to provide *public safety*, to protect society from him in the future. A person who is a danger to public peace and order is prevented from inflicting his anti-social attitudes

and practices on society by being taken out of society and maintained elsewhere. It is important that the freedom of the criminal constitute real danger, otherwise his incarceration constitutes an injustice. The removal from society is not by itself supposed to have any positive effect on the criminal, and how he is cared for is really incidental to the purpose of this mode of treatment.

4. The criminal is punished as a means of *correction*. Correction sometimes requires apparently harsh measures, but these measures are justified by the effects that they have in the life of the criminal. Correction is designed to lead the criminal to see that a life of crime is really less pleasant than a law-abiding life. Just as the true love of a parent for a child requires the parent to be stern and exercises a variety of corrective measures that the child does not consider pleasant at the time, so true concern for the criminal as well as society requires that sufficiently harsh and unpleasant corrective methods be used that the criminal leaves at the end of his sentence with a firm resolve not to repeat his offenses. At the same time the treatment must not be so harsh or inhuman that its principal effect in the life of the criminal is to lead him to seek revenge. Nor should conditions of imprisonment be so inhumane that the criminal is dehumanized and desensitized by his time in prison. Punishment for correction therefore requires a fine balance: the punishment must be sufficiently severe, but the total context must not be negative and destructive.

5. The criminal is removed from society in order to provide an opportunity for *rehabilitation*. It is assumed that the majority of criminals have become involved in crime because of environmental (or heredity related) factors, and that education and an opportunity for a new beginning will enable them to return to society as contributing members. The criminal is treated as a person who is confused, but who is capable of responding to the offer of new opportunities. He is not punished because he is guilty of a moral failure, nor is he corrected to condition him against further involvement in crime; rather he is helped to see the error of his ways and is put back on the road to a productive life. The restoration of the criminal to society is the goal of this approach, and removal from society for a time is a means to an end rather than an end in itself.

Freedom of Human Beings

1. *Human beings are completely free to make responsible choices in almost all relevant situations.*
2. *Restraints exist on the freedom of human beings to make responsible choices in some areas, but they are free in all moral or ethical questions.*
3. *In most areas of life human beings are conditioned by genetics or environment without realizing it so that to speak of free choice is meaningless, but it is still possible for them to make responsible choices in the major moral questions of life.*
4. *Human beings are so determined by genetic and environmental factors that free responsible choices really do not exist.*

6. The criminal is removed from society so that his sickness can be *cured*. It is assumed that the criminal is sick and therefore in need of a doctor, not of punishment, correction or rehabilitation. The criminal is so overcome by environmental and genetic factors that he cannot be considered responsible for what he has done, nor capable of simply taking charge of his life after recognizing the error of his ways. The criminal is not only confused; he is basically incapable of helping himself. He is as much a victim of life as the ones against whom his crime was committed. The sciences of biochemistry and psychology must be brought to bear to help restore him to health. The healing of the criminal's illness is the goal of this type of approach, and removal from society is the hospitalization necessary to achieve this goal. The criminal returns to society, not when he has paid the price of his crime, nor when he feels ready to take charge of his life, but when his doctors pronounce him cured.

Evaluation of Types of Punishment

In the summaries given above of the six possible approaches to punishment, the first three are not concerned with the effects on the criminal, whereas the last three are concerned in different ways. These are evidently not six mutually exclusive categories, but several purposes for punishment are frequently simultaneously active.

In proceeding from the first to the sixth of these approaches, there is more or less continuous shift in emphasis from regarding the criminal as a morally responsible, intelligent human being, to regarding him as an unfortunate and incapable victim of social sickness. It is a paradox that, although this progression seems at first view to be characterizable as a progression from less to more humane, deeper reflection raises the question as to whether it is more supportive of human dignity to regard human beings as morally responsible individuals capable of paying the penalty for a crime and then returning freely to social life, or as sick and irresponsible victims of society who commit crimes

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Attitudes toward Punishment for Crime

1. *A law-breaker is punished as retribution for the crime since punishment is the just retribution for breaking the law.*
2. *A law-breaker is punished primarily for correction and instruction in the moral error of criminal activity.*
3. *A law-breaker is punished primarily for rehabilitation and preparation for useful life in society.*
4. *A law-breaker is punished so that his socially unacceptable perceptions of life engendered by unfortunate genetic and environmental factors may be psychologically and medically cured.*

because they cannot help themselves. A person who breaks the law, is punished in some definite way and for a definite time for it, and then emerges as the same responsible person can command respect and provide limits to the degree of compulsion directed against him. The creature who breaks the law irresponsibly because of a presumed physical or mental deficiency, is at the mercy of his physicians who may compel him to any length deemed desirable.

C.S. Lewis comments pointedly on this possibility,

> According to the Humanitarian theory, to punish a man because he deserves it, and as much as he deserves, is mere revenge, and, therefore, barbarous and immoral. It is maintained that the only legitimate motives for punishing are the desire to deter others by example or to mend the criminal. When this theory is combined, as frequently happens, with the belief that all crime is more or less pathological, the idea of mending tails off into that of healing or curing, and punishment becomes therapeutic. Thus it appears at first sight that we have passed from the harsh and self-righteous notion of giving the wicked their deserts to the charitable and enlightened one of tending the psychologically sick. What could be more amiable? One little point which is taken for granted in this theory needs, however, to be made explicit. The things done to the criminal, even if they are called cures, will be just as complusory as they were in the old days when we called them punishments.[1]

Lewis then goes on to point out that punishment as retribution is the closest link with justice; we can understand justice as the administration of punishment according to what a person deserves, but if each criminal is a "case" for the physician, justice ceases to have meaning in connection with the application of the law. "Even as in ordinary medicine there were painful operations and fatal operations, so in this. But because they are 'treatment,' not punishment, they can be criticized only by fellow-experts and on technical grounds, never by men as men and on grounds of justice."[1] In a sense, therefore, to forsake the concept of punishment as deserved retribution for the other pole of punishment as medical treatment for sickness, is to open the door for uncontrolled persecution of any minority in the name of medical cure. If our news reports are reliable, such an approach has become a standard part of the policy in many countries of the world today who cannot understand dissent from the official ideology in any terms except mental illness. It seems clear that our concept of punishment for crime cannot completely forsake the principle that in some sense at least punishment is received as a result of and in a measure commensurate with the crime itself.

These views of Lewis have been echoed and amplified by other Christian commentators on the scene, as they reflect on the consequences of deterministic worldviews for the administration of society. Van Leeuwen, for example, points out that

> One result of the ascendency of a behaviorist view of crime has been the unquestioned assumption that it is only environments, not people, that can be held accountable for crime. Consequently, the state whose penal system rests on such an assumption may violate the biblical imperative in two serious ways: . . . it assumes that persons are not *born* prone to evil, but are merely *tabulae rasae* ("blank slates") on which the environment alone writes the program of our subsequent behavioral tendencies. . . In the second place, in refusing to exercise its retributive mandate against the wrongdoer, the behaviorist-leaning penal system, and the state which condones it, have failed to strike the balance between justice and mercy demanded by biblical norms for society.[2]

She also cites the fact that since the introduction of rehabilitative, behavior modification prison programs in California, the median term served by "felony first releases" has risen to twice the national average, incorporating the evils of an "indefinite sentence" system as a natural outgrowth of this perspective. This aspect is treated by Professor Rodes of Notre Dame Law School,

> If the object of punishment is to assert just over unjust power, a short, strict, and definite restraint would seem to serve the purpose better than indeterminate sentence or a period of probation. . . .the punishment of wrongdoers is not a mere social expedient, it is a basic human need.[3]

A further elaboration on the same theme is given by Ashey, who casts the whole issue of crime and punishment into a Narnian situation and puts the following words into the mouth of Aslan:

> As for your assertion that knowledge of the causes 'determining' crime inhibits our implementation of retribution, or that it stands in the way of our discovering techniques for social control, may I remind you that regardless of the causes of crime, man is responsible for his behavior. You must overcome your sentimentalism and accept the paradox of the coexistence of soft determinism and moral responsibility. Beyond this, there are some positive aspects of retribution. Retribution contains and reinforces both deterrence and rehabilitation: deterrence insofar as a belief in retribution is the deepest and most effective form of deterrent, and rehabilitation insofar as the first decisive step towards genuine reformation comes when a man acknowledges that his punishment is deserved. And above all, retribution witnesses to the righteousness of God, to a character of unyielding justice and incomparable love, which demands that transgressors receive their just deserts.[4]

This conclusion still leaves open the *form* of punishment, which we consider in the next section.

The above perspective is essential for any perspective on the relationship between determinism/free will and crime/punishment. At the same time, the administration of justice in the real world calls for some additional restraints, perhaps not directly dictated by the ideal situation. Any theory of punishment that neglects completely the consequences for the criminal must be carefully inspected.

Retribution alone may be an appropriate consequence of the breaking of human and divine law, but in a world of lawbreakers with fallible judges and legal systems that consistently favor the rich and powerful over the poor and helpless, to argue for retribution alone as a basis for punishment must often foster only injustice. In some broader sense as well, the Christian sees the punishment for sin borne by Jesus Christ on our behalf on the cross of Calvary; insofar as retribution for crime is seen as punishment for sin, the extraction of retribution alone overlooks what Christ has already done.

Punishment as deterrence alone must be rejected: an innocent person will serve as well as a deterrent as a guilty one. The protection of society by removal and restraint of the confirmed criminal is a necessary aspect of life in our present world, but to be so callous in our removal and restraint that we pay no attention at all to the effect on the criminal can hardly be defended.

Maximum inconsistency is found in affirming the complete freedom of individuals to act responsibly, while arguing that all criminals should be treated as if they were sick.

In some ways punishment as correction combines the best features of considering the criminal as a responsible human being and attempting to produce positive results as a result of his punishment. This approach is supported by our experience as parents; the goal of parental punishment of children is correction. What we tend to forget, however, is that parental punishment is effective as correction only when it is coupled with a sustained atmosphere of love, and when it is carefully measured to be consistent with the offense being corrected. Such conditions are in general totally absent in our present prison system. Punishment as correction is transformed into oppression in an atmosphere of fear and hatred, so that it is only in the unusual situation that a person emerges from a prison term without having had his anti-social tendencies hardened by experience. Although punishment as correction might well be high on the list of desired interpretations of punishment, therefore, we need to examine carefully whether our current system really operates in this way.

One way to increase the positive outcome of a system regarding correction as one of its prime goals is to truly consider rehabilitation as another. Again it appears that genuine efforts at rehabilitation are the exception rather than the rule in our present prison system. One's consideration of a criminal as a responsible human being need not be decreased by recognizing that there are a number of actual societal factors in producing a life of crime, not least of which is simply the inability to make a living in any other way. As in other matters, we tend to go to extremes: either a person must be totally responsible for all that he does so that no mitigating circumstances can be allowed to have any weight in determining his punishment, or a man must be totally irresponsible for all that he does so that no claim can be laid to his responsible choice of a better way. There are, to be sure, genuine cases where the criminal should be treated as a basically sick person; to claim that there are no such cases is as foolish as it is to claim that all criminals fall into this category. Needed is that great luxury that prisons have little time or facilities to develop: attention to individual cases according to individual circumstances.

The Form of Punishment

To inquire about the form of punishment for crime may seem to be a curious approach when the answer is presumably well known to all: a sentence to prison. Yet this answer that we take for granted may be a major part of the problem; it may well be that prison sentences are inherently unable to fulfil the goals we would like to set for punishment.

We would do well to remember that prison sentences were not always the mode of punishment given to criminals. Bonhoeffer makes the following statement,

> I have been thinking out an alternative penal system on the principle of making the punishment fit the crime; e.g., for absence without leave, the cancelling of leave; for unauthorized wearing of medals, longer service at the front; for robbing other soldiers, the temporary labelling of a man as a thief; for dealing in the black market, a reduction of rations; and so on. Why does the Old Testament law never punish anyone by depriving him of his freedom?[5]

A consideration of the Old Testament law reminds us that confinement to prison was totally absent. The only practice even remotely related is the establishment of cities of refuge to which accidental killers of human beings could flee to be protected from the relatives of the victim as long as the refugee stayed within the walls of the city of refuge; but this is as much a vehicle of mercy as it is of justice. In many ways the Old Testament law was stricter than present practices to be sure; e.g., the death penalty was decreed for striking father or mother, stealing a man, cursing father or mother, adultery, intercourse with animals, or idolatry. There were certain offenses that could not be tolerated among the people of Israel if they were to be preserved as the people of God in the midst of heathen abominations. But also implicit in the Old Testament in many places is the principle of *restitution* as punishment,[6] i.e., let the punishment in some direct way help recompense for the injury done. The man who injures another man in a quarrel is responsible for paying the injured man for the loss of his time and for seeing that he is thoroughly healed. If a master caused a slave to lose eye or tooth by striking him, he was to let the slave go free. If a man's livestock fell into the pit dug by another, the one who dug the pit had to buy the dead animal from its owner. A man who stole an ox or a sheep was required to pay back fivefold if he had killed the animal, or twofold if he were caught with the animal still alive. A man whose livestock grazed on another man's field

was required to pay for the injury from the best of his own harvest.

It is this principle of restitution as punishment that we totally neglect in most instances today, which has the potentiality for providing punishment with the possibilities of both correction and rehabilitation. Except for the rare case where a person is a constant danger to others and himself, in which case his humane confinement is a necessity, efforts to involve the offender in acts of restitution are likely to be far more beneficial than seeking retribution alone by locking him up in prison. One could conceive of a choice being offered on many occasions, so that the guilty offender himself could choose whether he would prefer the opportunity for service as a responsible free person in acts of restitution, or whether he would prefer the loss of his freedom in prison.

Any alternative to prison seems desirable. Menninger[7] describes prisons as branding a person as hopeless, as a leper, and as destroying what good judgment and common sense and sanity he may have had. Instead of education and training to pave the way for a law-abiding life, prisons all too often offer only bitterness, loneliness, hate, vengeance, sexual frustration and abuse, sexual perversion, and futility.

Capital Punishment

In few cases does the dilemma of the form of punishment become more acute than in the case of capital punishment. The taking of human life is a unique situation that demands a unique punishment; adequate restitution is difficult to conceive. As mentioned above, there is certainly ample evidence from the Old Testament that capital punishment was invoked for a variety of offenses, and the New Testament seems to continue with the approval of capital punishment at least for the crime of murder.[8] Furthermore it can be argued that true regard for the value of human life causes one to place the taking of it in murder as a crime deserving the ultimate punishment; if the taking of human life in murder can be tolerated at all, the basic value of human life has been diminished for that society. The argument that imprisonment for many years or for life is a more humane treatment than capital punishment can be questioned directly on its own merits, and it is suggested that those who see lifelong imprisonment as far preferable to capital punishment do so because they see life exclusively as limited to the present existence.

Although a strong case can be made, therefore, for the retention of capital punishment as part of the penal system in extreme situations, such a case must be severely tempered by the realization of likely inequities in any real situation in this world. It is for this reason that I find myself curiously arguing in favor of allowing capital punishment in a society that has turned its back on the intrinsic value of human life and responsibility, but arguing against capital punishment in a society that see all things as black or white and will use capital punishment as one of several devices to achieve a particular political ideology. It seems far better to forbid all capital punishment on principle, than to put the power for capital punishment into the hands of men for a variety of reasons. If capital punishment is retained it must be only under the strictest definition of the offenses to which it applies. As nuclear weaponry becomes an effective deterrent against world war only as long as it is not used but everyone believes it would be, so in some ways capital punishment serves a meaningful social function only so long as it is not inflicted but everyone believes that it will be. Not to have it, cheapens human life and opens the door to societal disintegration and degradation; to use it regularly and indiscriminately has exactly the same ultimate effect. We know empirically from the historical record that by far the majority of those who have suffered the death penalty have been the poor, the persecuted minority, the uneducated; those with sufficient money and power seem able to hire lawyers with sufficient skill at delaying and manipulating the system that the death penalty is seldom if ever finally executed. We need to hedge the death penalty, therefore, to such an extent that it will not be unfairly invoked against only those in disadvantaged economic, political and social groups.

Efforts to involve the offender in acts of restitution are likely to be far more beneficial than seeking retribution alone by locking him up in prison.

The facile assumption that imprisonment for life is more humane than capital punishment is questioned by Wenham,

> Long imprisonment is a living death. A man is separated from his wife and family (often causing them prolonged, unmerited hardship), he is put in a single-sex institution where a normal sex-life is impossible, his companions are criminals, he is shut up to his own bad conscience, but in conditions ill-defined to effect repentance and reformation and with slender hopes of satisfactory rehabilitation after release. . .It is a poor defence of long-term imprisonment to say that it is merely substituting one dehumanizing process for another.[9]

The decision is not a simple one that yields directly to sentimental inquiry. In a world of crime and sin, there are no easy solutions; yet the Christian is called upon to work constantly for the bettering of every situation with which he is confronted. The substitution of lifelong imprisonment over capital punishment guarantees no greater compassion unless major changes are made in our concepts of imprisonment.

Justice vs Mercy

We usually want justice for others when they are in the wrong, but mercy for ourselves when we are in the wrong. Former President Nixon, for example, did little more than reflect the common reaction when he adamantly opposed amnesty for those who had refused to fight in the Viet Nam war, but quickly and gratefully accepted pardon for himself. It has been the traditional stance that governments

acting on law are to administer justice and not mercy; yet, it seems that we do encounter circumstances where justice seems unjust and mercy seems required. To insist on justice in such chases leads to little more than a depreciation of law and a disdain for justice.

Justice and mercy are complementary and cannot both be exhibited simultaneously unless we change our definitions of them to suit the case. The common assertion that the substitutionary death of Jesus Christ is a case illustrating both the satisfaction of God's justice and the exercise of God's mercy, is better restated as a case illustrating both the demands of God's holiness and the demonstration of God's mercy. God's holiness requires that sin be punished and God's mercy provides the way in which the Son of God bears this punishment on behalf of men; to claim that justice is obtained through the punishment of the innocent is to obscure the way in which these terms are ordinarily used. In the operation of our legal system, therefore, we cannot expect to obtain both justice and mercy, but this ought not to desensitize us to those cases where mercy is more humane (and certainly more Christian) than justice.

Consider the extreme hypothetical case, for example, of a young man in his twenties who is involved in a robbery (we will not belabor possible extenuating circumstances) and sentenced to 10 years in prison. After 2 years he escapes from prison, changes identity and starts a new life. When his true identity is rediscovered some 20 years later, he is the mayor of his town, happily married with a wife and children, and with no trace of lawlessness in his public-spirited behavior for the past 20 years. Justice, i.e., the requirement that a crime must be paid for by the criminal, requires that this man be removed from society and made to spend a number of years in prison to complete his original sentence and pay for his jailbreak. An appreciation for the goals of punishment, however, would lead to the conclusion that his man has already been corrected and rehabilitated from his crime, i.e., the goals of punishment have already been achieved, particularly if the man exhibits genuine repentance for his youthful crime and is living in daily restitution for it. Certainly this is a case where the further pursuit of justice becomes injustice, and where mercy for his past mistakes is appropriate.

As justice without mercy becomes unjust, so mercy without justice becomes merciless.

On the other hand, this plea for a tempering of justice by mercy cannot neglect the fact that mercy cannot be forced on someone; mercy must be accepted (like forgiveness) if it is to be effective. Confirmed criminals with no regard for human value of life, committed revolutionaries whose goal is to the spread of terror regardless of the consequences to the victims of that terror—these are examples of individuals for whom mercy has neither meaning nor value. Again C. S. Lewis has instructive words,

> The Humanitarian theory wants simply to abolish justice and substitute mercy for it. This means that you start being 'kind' to people before you have considered their rights, and then force upon them supposed kindnesses which they in fact had a right to refuse, and finally kindnesses which no one but you will recognize as kindnesses and which the recipient will feel as abominable cruelties. ...Mercy, detached from justice, grows unmerciful.[10]

As justice without mercy becomes unjust, so mercy without justice becomes merciless. How many people have been tortured in how many different situations through the years of history *for their own good?*

Should Sin Be Made Crime?

As a final facet of this present discussion of crime, punishment and human responsibility, let us consider how to relate the moral convictions of minorities to public policy in a pluralistic society.

There are two types of question that might be asked: (1) If Christians were in the majority, should they impose their moral values upon minority non-Christians through the legal system? (2) Since Christians are in the minority, what specific approaches does life in a pluralistic society require?

Even if Christians were in the majority, it would clearly be inappropriate to attempt to legislate in matters of personal belief. It is just as inappropriate for non-Christians in the majority to attempt to legislate in matters of personal belief. Acceptance of beliefs, if they are to have any value, must not be coerced. For Christians in the minority to attempt to legislate beliefs is not only inappropriate but also foolhardy, for it gives approval to all other conflicting minorities to proceed in the same way. It is sometimes difficult to affirm that we should protect the freedom of speech of all, no matter how offensive, obscene, or disruptive, but it is much easier to defend the free speech of all on grounds that Christians are included in that "all." The subtle ways in which "freedom of belief" may be in fact circumscribed when there is an "official belief" are revealed in the section on Religion and the Church in the Novosti Press Agency Year Book of the USSR,

> Any citizen may belong to any denomination or to none at all. Most Soviet citizens are atheists, with a materialistic world outlook. . .The principle of the freedom of conscience, as specified in the Constitution of the USSR, implies not only the right to espouse any religion, but also the right to voice atheistic convictions, in short, to conduct anti-religious propaganda. Scientific atheism helps the belivers to rid themselves of superstitions and develop the right materialistic outlook on the world and what takes place in it.[11]

There is such a short distance between the Inquisition and this Soviet attitude! So-called scientific materialistic atheism is in fact the "religion" of the USSR political elite. While criticizing the USSR for its indirect and often direct infringement upon the freedom of "religion," the Christian must be careful not to act in a similar way.

At the other extreme are those clear issues such as murder and stealing where it is fairly clear that the human conse-

quences of these actions are harmful to society. The Christian recognizes that it is not only the human consequences that are of importance, but that such actions also involve violations of divine law. Christian and non-Christians will generally agree, however, that regardless of whether the basis for the law is human only or human and divine, laws against murder and stealing are necesary for humane living.

The difficult issues are those that fall in the middle ground, where the Christian believes that there is not only divine law at stake but also the quality of human life because of the manifestation of divine law in human life, but where the non-Christian sees no moral or ethical issue at all. Such issues include, for example, legalized gambling and prostitution, legal sanctions against the use of "mind-expanding" drugs, divorce and abortion. Fortunately these issues do not split strictly along religious/non-religious lines, and there is some foundation of awareness in general that at least aspects of these practices may have ultimately deleterious effects for mankind. The course for the Christian in a pluralistic society seems to be the following: if he chooses to argue for legal expression of his convictions, in a political sense he must base this argument on the level of human needs and responses, and not on the level of his Christian convictions alone. This is no great limitation, for the faithful application of Christian convictions must lead in God's ordered providence to the meeting of human needs. If a Christian, for example, chooses to press for legal sanctions against abortion, it must be on the basis of consequences to the fetus and to society, and not on the basis of his own religious faith. After all, making all abortions legal does not in itself force the Christian into actions contrary to his religious convictions (unless of course his involvement in the medical profession is the focus of tension), no matter how unfortunate may be the ultimate effects of such a policy on society. It would be totally different if a law were proposed that made abortion mandatory under generally prescribed conditions; such a law would be a fundamental violation of the conscience of every Christian and many other sensitive persons in society, and would deserve to be strenuously resisted with every means available.

Summary

> We get what we do; not what we intend, not what we wish, not what we hope, but simply what we do. . . you would think that after six thousand years of socially organized violence (war) and the present state of the world, it would be perfectly clear. But, alas, it is not. Not yet.[12]

The truth of these words needs to be taken with deep seriousness as we consider questions of crime, punishment and violence. Yet, if we take the position that all evil will disappear if only we forsake violence in every form, we are again mistaken; we have committed the other great error of mistaking the ideal for the real.

Six purposes of punishment for crime may be formulated: as retribution, deterrence, protection of society, correction, rehabilitation and treatment. In recognizing that there are genuine environmental and genetic causes of crime in many cases, we must be careful not to overlook the close connection between punishment as retribution and the administration of justice, and the close connection between treating the criminal as a responsible human being who deserves punishment and the recognition and upholding of the intrinsic dignity of the human person. No punishment can be allowed to be totally indifferent to the effect on the criminal himself, and our present prison system has major shortcomings in both principle and practice. The recovery of the concept and practice of restitution as a way of achieving both correction and rehabilitation within a positive framework seems one positive possibility for change.

Justice and mercy are both essential to a humane society. They are complementary, and any attempt to concentrate exclusively on one or the other is destructive. The effort to achieve only justice will ultimate produce injustice; the effort to administer mercy without justice soon becomes merciless.

Cogent theoretical argument can be adduced both for and against capital punishment. The intrinsic value of human life makes the wanton taking of human life a unique crime deserving an extreme punishment. But the inequities of justice in the real world make the most stringent restraints on capital punishment necessary. On the other hand, the belief that lifelong imprisonment is more compassionate than capital punishment needs to be reexamined.

In establishing legal requirements in a pluralistic society, no group can be allowed to make its beliefs into law, so that dissent becomes crime. Laws must be guided by the consensus on the effect of actions on society, and not on particular belief or religious systems. Such laws must be permissive and not restrictive in form; those things that are not allowed to certain individuals because of their belief system must not be arbitarily imposed upon them by law. Such conclusions, however, do not contradict the basic conviction that Christians will have insights into those requirement that should be incorporated into human law because of the needs of society, since it is exactly these needs which are the concern of divine law.

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[5]D. Bonhoeffer, *Letters and Papers from Prison,* Macmillan (1967), p. 78

[6]See, for example, Exodus 21 and 22.

[7]K. Menninger, *The Crime of Punishment*, Viking (1969)

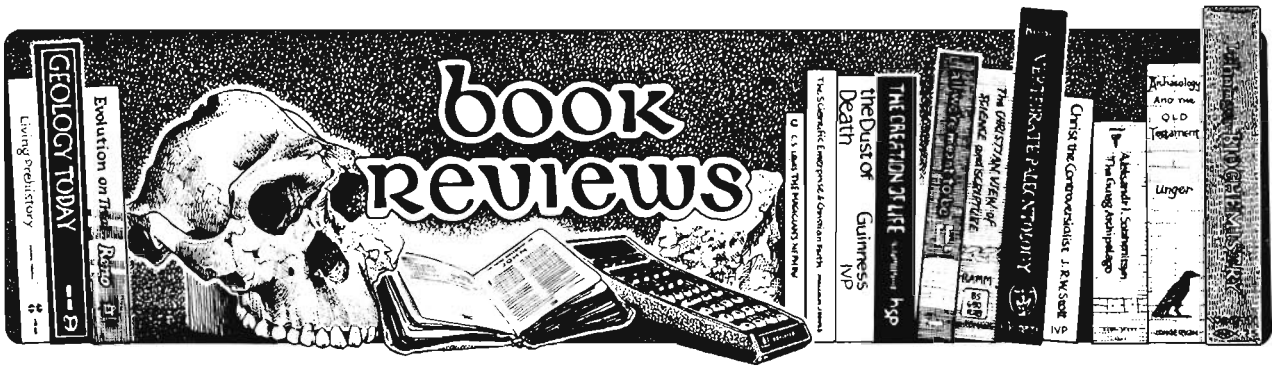
[8]See, for example, Matthew 26:52, Romans 13:4, Revelation 13:10.

[9]J. W. Wenham, *The Goodness of God*, InterVarsity (1974), p. 104.

[10]See Reference 1.

[11]*USSR 72*, Novosti Press Agency Year Book, Moscow (1972), pp. 332, 335.

[12]I. Sandperl, *A Little Kinder*, Science and Behavior Books (1974).



PRINCIPLES OF BIOMEDICAL ETHICS, by Tom L. Beauchamp and James F. Childress. Oxford University Press, New York, 1979. 314 + xvi pages. $13.95; $7.95.

It has been my privilege to use this book, both as a student and as a teacher. It is certainly one of several viable options as a text in a bio- and/or medical ethics course. One of the things I learned as a student was that the last names of the authors are pronounced "*Beech*am" and "*Chill*dress." Another was that they are of different philosophical persuasions, and the book is thus a compromise. This is a strong feature, as the area is a fertile ground for controversy, and books authored by one person may be idiosyncratic, or take one of a number of possible sides.

Principles of Biomedical Ethics is clearly printed. The binding of the paperback version is sufficiently substantial. There is no glossary, but an adequate index. Bibliography exists both in notes at the end of the chapters, and a general classified list of suggested readings at the end of the book. There are eight chapters, as follows: Morality and Ethical Theory; Utilitarianism and Deontological Theories; The Principle of Autonomy; The Principle of Nonmalefience; The Principle of Beneficence; The Principle of Justice; The Professional and Patient Relationship; Ideals, Virtues and Integrity. There are two Appendices that are strong selling points. The first is 29 cases, all apparently drawn from real life, preserving the facts as a springboard for discussion. Slightly less than a page is given to each case. The second Appendix is nine Codes of Ethics related to health related matters, ranging from the Hippocratic Oath to the 1978 DHEW "Regulations on the Protection of Human Subjects."

The authors avoid simplistic definitions, but attempt to present concepts not as collected beetles, fixed and pinned, but more as electrons with a bit of haziness, moving, and somewhat tenuous.

The emphasis is the *person*. Who is able to make decisions about treatment recommended by health personnel, etc., is the most important question, rather than determining what principles should determine our actions, or what seems to be the greatest good for the greatest number. Both of these aspects are also dealt with, as is apparent to an informed reader from the table of contents.

The book deserves consideration as an upper-division or graduate text, would be useful as an introduction to biomedical ethics for health professionals, and as a library holding or office reference.

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THE LURE OF THE CULTS by Ronald Enroth, Christian Herald Books, Chappaqua, New York, 1979 Paperback. 139 pp. $4.50.

Professor Enroth introduces his discussion of the cults against the backdrop of the tragic events in Guyana, but his interest in aberrational religious groups goes back much further than Jonestown. *Lure of the Cults* is the third book in which he deals with cultic groups.[1] Approaching the subject as a sociologist and an evangelical Christian, Enroth examines the characteristics of the new cults; discloses the principles by which they operate; analyzes the "lure of the cultic groups"; and discusses "the significance of such phenomena for the individual, the family, the church, and the society."

Enroth uses a sociological definition of cult that stresses its socially deviant qualities and then adds a theological definition that stresses deviance from orthodox biblical truth. Combining these definitions does not serve to educate the reader about the social nature of cults. A cult is not simply any exotic group holding different beliefs and practices than evangelical Christians. It has its own structural characteristics that distinguish it from more stable, legitimate (even if theologically erroneous) sect-like groups. The larger issue of theological orthodoxy should be applied to mainline denominations as well as to sectarian and cult-like groups. Nevertheless, Enroth's concern is the cult-like groups, and his description of them is both accurate and helpful. Cults are placed in categories as follows: Eastern Mystical, Aberrational Christian, Psycho-spiritual or Self-Improvement, Eclectic-Syncretistic and Psychic-Occult-Astral.

Why were the cults so numerous in America during the 1970's? Enroth answers,

> Many young people during the decade of the sixties were leading lives of ease and emptiness. Disenchanted with the establishment, disoriented by the drug culture, and disillusioned with the failure of radical politics, the time was right for the emergence of the new religious movements. In the midst of uncertainty and a massive confusion of values, new-age religion provided a form of security and an unerring map for youthful searches (pp. 44-45). [The cults have become] escapist alternatives to the complexity of contemporary life, avoidance mechanisms for those unable to cope with their feelings of anxiety, insecurity, and isolation (p. 48).

Cult leaders are motivated to form groups around themselves because of their ability to exercise power over people; because of monetary gain and because sometimes they actually believe what they preach. In order to maintain the loyalty of group members, cult leaders employ control mechanisms such as sensory deprivation, social and geographic isolation, indoctrination, intimidation: "these are the ties that bind the spirit and cripple the soul" (p.74).

Moving from sociological to theological critique of the cults, Enroth points out that new religious movements often distort or even displace the Bible. They proclaim a false religion characterized by esotericism, the corruption and distortion of human sexuality and even evidences of supernatural power. But Christians "must be careful to discern true spiritual power from Satan's counterfeit" (p. 87).

What is a family to do when one of its members joins a cult? The Christian response should be "patience and prayer combined with a hopeful and sustained love" (p. 95). Parents should approach deprogramming with tremendous caution. Cultivating supportive, flexible and loving relationships that encourage the development of " positive self-image and a healthy sense of autonomy," will help family members resist the lure of the cults.

Christian families need support from the church. Enroth urges the church to recognize the real threat to the Body of Christ posed by the cults; to educate its members about new religious movements; and above all to remember that "its primary task is not to counter the cults but to proclaim the gospel" (p. 106).

Cults negatively affect the whole society. They financially exploit the public and threaten to undermine the American tradition of separation of church and state. They hinder the maturation process of their members, potentially creating an entirely new category of "institutionally dependent" people. "The need for solidly financed and soundly administered programs to rehabilitate ex-cult members represents a tremendous opportunity for the Christian community" (p. 112).

Lure of the Cults provides a well-reasoned and helpful approach to the problem of emerging aberrational religious groups. It is an excellent resource for the general reading audience interested in developing an intelligent Christian opinion of the cults.

'*The Jesus People: Old-Time Religion in the Age of Aquarius* by Ronald Enroth, E. Ericson & C. B. Peters, Eerdmans Publishing Co., Grand Rapids, MI, 1972.

Youth, Brainwashing and the Extremist Cults by Ronald Enroth, Zondervan Publishing House, Grand Rapids, MI, 1977.

Reviewed by John W. Hazzard, Department of Sociology, The King's College, Briarcliff Manor, New York 10510.

SENTENCED TO DIE: ***The People, the Crimes and the Controversy,*** by Stephen H. Gettinger, New York: Macmillan, 1979. 269 pages, $9.95.

This is an eminently readable, sensitive, and surprisingly balanced contribution to the current discussion about the appropriateness of death as a punishment for certain kinds of criminal behavior. The author, a journalist, presents eight profiles of persons who have been convicted of murder and "sentenced to die." These profiles are used to introduce and to illustrate the discussions of theories of punishment and the various moral and legal arguments used for and against capital punishment. These profiles do not always fit the argument that follows, but the author is properly cautious not to sentimentalize the issue nor to draw too general conclusions from so few examples. Gettinger does acknowledge that he was more disposed to favor capital punishment after doing the research for this book than he was before, but on balance he is still of the opinion that justice can better be served if capital punishment is prohibited.

The central issue is, in Gettinger's view, the matter of justice. While there is no profound philosophical treatment of the idea of justice, his insistence that punishment must be based on the idea of each person getting his just deserts is refreshing. Similarly, his recognition that justice is severely compromised by the pervasive racism and classism of our society and its criminal justice system is powerfully appropriate. The seventh chapter is essential reading for anyone who doubts this indictment of American criminal justice. It is the racial and social status of the victim that virtually determines whether a death sentence will be imposed.

Christian readers will find the overall perspective of the book to be humanistic. For example, Gettinger thinks all moral judgments to be necessarily relative and subjective, and thus inadequate warrants for punishment of any sort. Further, in a fleeting reference to the problem of evil the author argues that if man were evil he would be less than human. To so trivialize the problem of evil, not to speak of sin, is clear evidence of the author's optimistic humanism.

Reviewed by M. Howard Rienstra, Department of History, Calvin College, Grand Rapids, Michigan.

ETHICAL ISSUES RELATING TO LIFE AND DEATH, John Ladd, editor, Oxford University Press, New York (1979), 214 pp., $12.95 cloth, $6.95 paperback.

On the evening of January 21, 1980, I watched the television program "Death is Easy, Dying is Hard." The program was a real-life film record of the final ten years in the life of a woman with ovarian cancer. Her struggles were graphically illustrated as her condition worsened, the pain mounted and death was inevitable. One question began to be raised by this family, voiced not in learned tones, but in pain and fear: "Why can't I be left alone to die? Why can't this suffering be stopped?" The program was a moving, true illustration of the issues raised in the book *Ethical Issues Relating to Life and Death*.

The authors of the nine chapters are six philosophers and one physician. The philosophical specialties are all in the area of ethics, with many of the group being involved one way or another with questions of biomedical ethics. The lone physician, a pediatrician, wrote a landmark article entitled "Moral and Ethical Dilemmas in the Special Care Nursery" that was published in the prestigious *New England Journal of Medicine* in 1973.

The discussions center around the general question of euthanasia, either active or passive. The arguments derive from specific philosophical constructs, usually stated at the beginning of each article. One observation is readily apparent to the Christian reader: there is no room for God in the considerations and no reliance on Scripture for guidelines. Several of the writers are quite outspoken in their belief that there is no God; this possibility (that God exists) is immediately rejected. Others at least recognize the existence of some Christian principles, although these principles are not developed as part of the position on euthanasia.

Conclusions vary from author to author, but there appears to be almost unanimous acceptance of "passive euthanasia" allowing a patient to die of "natural causes" or by removal of life support systems when the illness is irreversible. Less certain is the position on "active euthanasia," the willful taking of a life to eliminate suffering and/or the intolerable burden of expense when nothing can be done to restore the health of the patient. There is guarded acceptance of "active euthanasia," generally stated as "if one (passive euthanasia) is acceptable on philosophical grounds, the other should be acceptable in some situations."

A major shortcoming of the book is that it has been written primarily by individuals who are not part of the health care team. The examples cited seem unrealistic and contrived. The information provided about specific cases is very incomplete. The only chapter with a ring of authority is the last one, coauthored by a physician. No consideration is given to other alternatives that alleviate suffering, decrease expense and make the ultimate reality of death a shared, less fearful experience. The recent rise of the hospice movement necessitates a re-evaluation of several of the statements and examples.

Books Received and Available for Review

(Please contact the Book Review Editor if you would like to review one of these books.)

Abrecht, A. (editor) *Faith and Science in an Unjust World, Vol. 2,* Fortress.

Bromiley, G.W., *God and Marriage*, Eerdmans.

Buell and Hyder, *Jesus: God, Ghost or Guru*, Zondervan/Probe.

Cosgrove, M.P. *The Essence of Human Nature*, Zondervan/Probe.

Cosgrove and Mallory, *Mental Health: A Christian Approach*, Zondervan/Probe.

Curran and McCormick (editors), *Readings in Moral Theology No. 2: The Distinctiveness of Christian Ethics*, Paulist.

Custance, A.C., *The Mysterious Matter of Mind*, Zondervan/Probe.

Geisler, N., *The Roots of Evil*, Zondervan/Probe.

Haughey, J.C. (editor), *The Faith that Does Justice*, Paulist.

Hess, J.D., *From the Other's Point of View*, Herald Press.

Hobbard, D.A., *Right Living in a World Gone Wrong*, IVP.

Jones, D.G., *Our Fragile Brains: A Christian Perspective on Brain Research*, IVP.

Leroy, P., *Letters from My Friend Teilhard De Chardin*, Paulist.

Lockerbie, D.B., *Asking Questions: A Classroom Model for Teaching the Bible.*

Maier, J. and Tollers, V. (editors), *The Bible in its Literary Milieu*, Eerdmans.

Mason, C.W., *The Value-Philosophy of Alfred Edward Taylor: A Study in Theistic Implication*, U. Press of America.

Mollenkott, V.R., *Speech, Silence, Action*, Abingdon.

Perkins, P., *The Gnostic Dialogue (The Early Church and the Crisis of Gnosticism)*, Paulist.

Roberts, J.D. *Roots of A Black Future: Family and Church*, Westminster.

Schuurman, E., *Technology and the Future: A Philosophical Challenge*, Wedge.

Shelly, J.A. *Dilemma: A Nurse's Guide for Making Ethical Decisions*, IVP.

Shinn, R. (editor) *Faith and Science in an Unjust World, Vol. I*, Fortress.

Sider, R.J. (editor), *Cry Justice: The Bible on Hunger and Poverty*, Paulist.

Silk, J., *The Big Bang: The Creation and Evolution of the Universe*, Freeman.

Skillen, J.W. *Christians Organizing for Political Service*, Association for Public Justice Education Fund.

Stafley, M.D., *Time and Again* (A Systematic Analysis of the Foundation of Physics), Wedge.

Steck, *World and Environment*, Abingdon.

Swanstrom, R., *History in the Making*, IVP.

Talbot, M., *Mysticism and the New Physics*, Bantam.

Torrance, T.F., *The Ground and Grammar of Theology*, U. Virginia Press.

Van Scoyoc, N.J., *Women, Change and the Church*, Abingdon.

Waldenfels, H. *Absolute Nothingness: Foundations for a Buddhist - Christian Dialogue*, Paulist.

Wessel, M.R., *Science and Conscience*, Columbia University Press.

Woodfin, Y., *With All Your Mind: A Christian Philosophy*, Abingdon.

The writers illustrate the dilemma of making moral decisions in the absence of a fundamental code of ethics and concept of life. The book is valuable because it raises the question "What is a person?" and because it outlines details of positions and questions that demand answers from a Christian perspective. Those of us in the health care professions should be especially challenged to examine the issues and provide a sound biblical response.

Reviewed by Donald F. Calbreath, Division of Clinical Chemistry, Department of Laboratory Medicine, Durham County General Hospital, Durham, North Carolina 27704.

A HOSPICE HANDBOOK: A NEW WAY TO CARE FOR THE DYING edited by Michael Hamilton and Helen Reid, Wm. B. Eerdmans Publishing Co., Grand Rapids, Mich., 1980. Pp. 196 + xii. $4.95.

Like most books of readings, some chapters in this book are considerably more readable and compelling than others. However, on the whole, this is a very successful introduction to the objectives and history of the hospice movement. A hospice is an institution devoted to the care of terminally ill people. The operations of the hospice are distinguished from normal medical care in the following ways:

(1) major emphasis is given to pain reduction;
(2) the psychological and social needs of the patient are given particular attention;
(3) the environment is designed to be "home-like," decorated with the belongings of patients, and perhaps including a family pet.

A recent report to the U. S. Congress from the General Accounting Office (March, 1979) indicates that about 60 hospices were in operation in the U. S. and almost 75 more were in the planning stages.

The hospice idea originated in the service of religious orders in the Middle Ages but came to fruition in England about 10 years ago. The best known hospice in the world today is probably St. Christopher's Hospice in London founded by Dr. Cicely Saunders. The regimen of treatment there has provided a prototype for many hospices founded elsewhere.

Several of the brief thirteen chapters are quite moving, including Chapter 2 in which a mother decribes the death of her daughter. This is a touching, painful account and yet a satisfying one in the sense that one gains appreciation for the kind, responsive environment that aided in the death experience for both the mother and the child. The family follow-up program of many hospices following a death fulfills a need seldom adequately addressed by the church and other social institutions.

Perhaps the best illustration of the entire process of hospice care is provided in Chapter 9, which is a complete case history of a middle-aged woman who died of cancer in a Montreal hospice.

This is an excellent short introduction to the hospice movement, one all social service agencies and those in "people helping" professions should have available to them.

Those seeking information on the operation of hospices in their home state should contact the National Hospice Organization at Tower Suite 506, 301 Maple Avenue West, Vienna, Virginia 22180. Another worthwhile book that is available is *The Hospice Movement: A Better Way of Caring for the Dying*, Vintage Books, 1978, by Sandol Stoddard.

Reviewed by Craig E. Seaton, Ph.D., Vice President and Associate Professor of Sociology and Pyschology, Trinity Western College, Langley, British Columbia, Canada, V3A 4R9.

CREATION: THE FACTS OF LIFE, by Gary E. Parker, C.L.P. Publisher, San Diego (1980), 163pp, paper $5.95.

Having taught at the same Christian college with Gary Parker almost 15 years ago I, to some extent, shared in his struggles with the question of origins. I developed respect for Gary as a scientist and as an objective thinker. When he felt unable to examine the evidences for origins he returned to graduate school, studying disciplines that would specifically aid in his personal quest. It is from this perspective that I read his latest book *Creation: The Facts of Life*. While I find points on which we still disagree, I was pleased with the attitude and spirit in which this book was written. The essential point made by Dr. Parker is, let's look at the evidence. Did life result from "time, chance, and natural processes, or plan, purpose, and special creation?" Which view best fits the scientific evidence available to us today? Rather than simply accepting evolution as scientific fact as almost everyone does, why not examine the evidence and think about it?

The book is written in a rather informal style and directed to an audience not very familiar with the evidence for evolution or creation. While the author argues in several instances for a two-model approach to origins, this book presents arguments for scientific creation and against evolution. The material is divided into four chapters: (1) Evidence for Creation, (2) What About Darwin, (3) The Fossil Evidence and (4) Science, Faith and Facts. The book has 33 illustrations, some of which are quite effective. I find the book well written and the arguments clearly presented. One area in which I have a problem is when only two possibilities for origins are permitted: scientific creation or all other possibilities considered the same as atheistic evolution. Progressive creation, and atheistic evolution are treated as the same theory, the result of time, chance and

natural processes. The whole question of time and age of the universe is not specifically addressed. While this does not affect the arguments presented, it is an importent area that needs attention.

In conclusion I heartily support the essential point of the book, to examine the evidence for origins, and to think about it. In the authors words,

> we owe it to each other as fellow human beings to examine the evidence honestly and to constantly check our assumptions against all of the information available. We must finally live by faith—but let it be a faith that looks at the world with eyes wide open. . . and a heart that listens to the other fellow.

Reviewed by B.J. Piersma, Department of Chemistry, Houghton College, Houghton, New York 14744

THE EARTH, THE STARS, AND THE BIBLE by Paul M. Steidl, Grand Rapids, Michigan: Baker Book House, 1979, 250 pp., $5.95.

The theme of this paperback is summed up in Psalm 19:1, "The heavens are telling the glory of God and the firmament proclaims his handiwork". This book represents Steidl's efforts to "discern the hand of God in the heavens" and to give "a deeper understanding of and appreciation for the marvels of His creation in the heavens" (p. vii). More specifically, most of the book is devoted to a defence of *fiat* creation of the entire universe a few thousand years ago. It is a mixture of elementary astronomy, the author's exegesis of the Scriptures, and an argument for a young universe. Steidl interprets the first chapter of Genesis as requiring a recent creation (less than 10,000 years ago) of the entire universe in six 24 hour days. Since he accepts no other interpretation, he then proceeds to look for evidences in astronomy that support this particular interpretation.

Much of the book is devoted to evidence against evolutionary theories of the origin of the universe and he points out weaknesses of various cosmological theories. Since none of the current cosmological theories can explain all the data, he concludes that God is the only explanation. "The only solution would be creation *ex nihilo* by the Lord God Himself" (p. 218). In my opinion, this is a *non sequitur*. No amount of evidence against a slowly evolving universe is evidence for creation. Steidl obviously rejects the possibility that God may have created the universe reather slowly.

The intended audience of the book is not entirely clear. If it is intended for students of astronomy, then the inclusion of much of the elementary astronomy seems rather unnecessary. However, if as it appears to me, the intended audience is those who know little or no astronomy, then the book has a serious weakness in failing to present a balanced analysis of arguments for and against a young universe. The author has deliberately presented only one side of the argument, "In short, we shall look at the evidence against the accepted theories. We do not apologize for not countering this with the evidence in favour of the accepted theories. All this is presented elsewhere . . ." (p. 98). Unfortunately, providing the reader with a rebuttal to the "accepted theories" is of very little use unless one knows the details of the argument against which the rebuttal is to be applied. Steidl's stated lack of objectivity also tended to decrease my confidence in his arguments and conclusions.

Steidl seems to have a very deprecating attitude towards scientists and astronomers and seems to feel that their main objective is to discredit the Bible and to find an excuse for rejecting God, e.g. ". . . the steady state theory . . . stands as a warning to us of the lengths to which godless science will go to leave out the Creator" (p. 196).

Although this book may be of some use to students of astronomy who are particularly interested in arguments for a young universe, it is not one that I would recommend to most people.

Reviewed by Steven R. Scadding, Department of Zoology, University of Guelph, Guelph, Ontario, Canada N1G 2W1.

BRAINS, MACHINES AND PERSONS by Donald MacKay, Wm. B. Eerdmans Publishing Co., Grand Rapids, Michigan (1980). Paperback. 114 pages. $3.95.

This little book is based on the Henry Drummond Lectures given at the University of Stirling in 1975 under the title, "What is Man?" It covers material that overlaps with two other recent books by Dr. MacKay, *Science, Chance and Providence* and *Human Science and Human Dignity*. Since Dr. MacKay is Research Professor of Communication and Neuroscience at the University of Keele, concern with the brain and increasing information about brain mechanisms covers both his professional and Christian perspectives.

In addition to providing some good insight into modern understanding of the working of the brain and of the potentialities and limitations of computing machines in layman's language, MacKay's principal concern is to argue that the story of human activity told from the "outside" —the O-story, is complementary to the story of human activity told from the "inside"—the I-story. Not only are these two modes of description not mutually exclusive, nor can one fully replace the other, but both descriptions are necessary for a total picture.

In developing the view that he calls, "Comprehensive Realism," MacKay rejects both interactionism - in which mind and brain are distinctively different entities in interaction, and materialism - in which only brain events are real and mind events are an illusion. He effectively uses the

analogy of "viewing distance" to illustrate the meaning of different levels of description, and a figure showing the word EXIT, in which the letters are made up of newspaper clippings, at various degrees of magnification is dramatic.

As in other writings, here also MacKay is willing to admit the *possibility* of a completely deterministic description of brain processes, and yet believes that such a possibility would in no way compromise the basic biblical view of the human being. He consistently explores this possibility and is even willing to grant that artifically constructed machines *might* have consciousness. In a final chapter MacKay again goes over his arguments about determinism and inevitability, arguing that inevitability in an O-story does not mean inevitability in an I-story, i.e., something that I would be correct to believe if only I knew it.

This is a useful summary of MacKay's basic perspective. Most of it has been published elsewhere before, but the direct application to brain mechanisms and computer developments is instructive.

Reviewed by Richard H. Bube, Department of Materials Science and Engineering, Stanford University, Stanford, California 94305.

I BELIEVE IN THE CREATOR by James M. Houston, Wm. B. Eerdmans Publishing Co., Grand Rapids, Michigan (1980). Paperback. 287 pages.

This book will bring little comfort to the person who believes that the title implies a discussion of the creation/evolution controversy on its historical battleground, and even less to the person who believes that to believe in the Creator means to believe in special *fiat* creationism. This is, in fact, not an ordinary book at all. It is as much poetry as prose, as much literary holism as analysis - more an expression of the author's complete trust in God, than an orderly systematic argument. These comments are not meant in any sense to be negative; we need a book like this on this subject!

James M. Houston, holder of a Fellowship at Hertford College, Oxford, and teaching geography in the University, left all this behind when he heard the Creator call him to come to Vancouver, British Columbia, and found Regent College, a graduate center for Christian studies affiliated nowadays with the University of British Columbia. At Regent Dr. Houston has taught a course for many years on the subject of creation and the Creator. This book is the fruit of that labor.

The book is divided into nine main sections: the world we live in, the God who creates, after the seventh day, understanding the Creator, this is my Father's world, culture and civilization before the Creator, living wisely before the Creator, the enjoyment of God's world, and living hopefully before the Creator. Within this framework Houston touches on nature, harmony, obstacles to belief, providence, Jesus Christ: the Living Word, a critique of culture, wisdom, child-like acceptance, awareness, worship, and the New Creation. Over a dozen acknowledgements of reprinted poetry are included, as Houston weaves the tapestry of his perspective.

The book is accurately described in a Preface by Michael Green,

> There are plenty of books that argue the theistic hypothesis of cosmic origins against other views. There are plenty of academic treatises on the existence of a Supreme Being. Jim Houston has not written a book of that nature. His book is like a powerful, fast-moving river, composed of three streams. ... Here is a man who knows the God he writes about. I cannot imagine anyone coming away from this book unrewarded. (p. 9)

To answer the curiosity of those who wish to know how Houston stands on the classical creation/evolution controversy, the following quotes are illustrative:

> A misconception of creation for many Christians is that it is a rival theory to those of the geological and biological sciences, especially on the issue of the origins of the earth. ... This is a tragic misunderstanding, for it tends to fragment the faith of the believer into three pieces: creation, which deals with the past; redemption, which is one's major preoccupation in the present; and the *eschaton* in the future, about which wild speculations may be encouraged. ... creation has much less to do with origins than with the language of dependence. (p. 98)

In such a wide-ranging free spirited book, it is not surprising that a few curious statements have crept in. The first of these occurs in the Preface and must be charged to Canon Green and not to Dr. Houston. Green lists a series of catastrophe-threatening world events, such as "the food scarcity, the shortage of non-renewable resources, the population explosion, the social and marital breakdown, the nuclear threat, the silicone (sic!) chip, the emptiness of belief and purpose." Perhaps it is simply because your reviewer works close to "Silicon Valley" that the inclusion of the silicon chip in this list of threats seems out of place!

One of the briefest histories of the origin of socialism ever written appears early in the book:

> What is frightening is that this man (Thomas Carlyle) influenced profoundly a young girl, Beatrice Webb, who lost her faith in Christianity, finding his mystical creed satisfying. Thus was socialism founded. (p. 24)

Perhaps Houston's liberal arts perspective makes itself known when he writes, "(man) further discovers that to intoxicate his mind with logic and mathematics, he must empty his head of truth," (p. 97), or again "That is why some timid souls may prefer to excel in mathematics, because they cannot cope with real people." (p. 183) I was a little shocked to read, "Humour is a rightful exercise in this world, for in heaven it will no longer be proper." (p. 221)

But all such fault-finding is no more than that, looking for small blemishes on a beautiful facade of marble. This is a thoughtful, profound, joyful book springing from the heart of a man, who knows from experience what it means

to walk with God, his Creator.

Reviewed by Richard H. Bube, Department of Materials Science and Engineering, Stanford University, Stanford, California 94305.

CHRISTIAN HEALING REDISCOVERED by Roy Lawrence, InterVarsity Press, Downers Grove, Illinois 60515 (1980). Paperback. 138 pages. $3.95.

I must confess that this little book on Christian healing took me by surprise. I have long been skeptical about the dramatic display of healing that has characterized so much of the traditional framework; trusted friends have reported that "cures" were short-lived and interpretable by-and-large as temporary emotional "highs." Not that I doubted God's ability to heal - just that I was skeptical as to whether it was indeed His will to heal as much and in the ways usually advanced. Roy Lawrence is vicar of St. Stephen's in Prenton, England, and a recognized authority on healing in the Anglican Church. The way Vicar Lawrence presents the case for Christian healing, I am surprisingly attracted and expectant.

In twenty brief chapters, Vicar Lawrence discusses his approach to healing and attempts to answer some of the objections raised in this area. When healing is placed in his context of total dependence upon the biblical record of Christ's healing ministry, of complete absence of publicity and hoopla, of profound humility, of the recognition that healing is not just something we need for our bodies but also for our whole beings, and of expectant waiting upon the Lord for His gracious work, the whole subject seems infused with new authenticity. Lack of physical healing can be accepted and not blamed upon too little faith. Physical healing is not seen as some kind of ultimate goal in itself, but the same kind of fruit that was a blessing to human beings when Jesus Himself was here on earth. It is recognized that there is at least one time in each person's life when death must come — and then God's healing *for* death rather than *from* death is also part of the same pattern. I recommend the book for reflection for all Chrisitans, especially those called to positions of leadership in the church.

Reviewed by Richard H. Bube, Department of Materials Science and Engineering, Stanford University, Stanford, California 94305.

THE FORCE OF KNOWLEDGE by John Ziman (Cambridge: Cambridge University Press, 1976), ix + 374 pp., paper, $8.95.

This very interesting book is subtitled, "The Scientific Dimension of Society," and seeks to establish the historical development of the link between scientific endeavor and the public weal. As such *The Force of Knowledge*, at least for this lay reader, was something of a disappointment. However, this is not to negate totally the value of the book, for the author provides a clear and highly thought-provoking study of the origins and development of the modern scientific community.

One of the major themes traced throughout the text is that of society's increasing involvement in and dependence upon scientific endeavor, especially as manifested in programs of government support for the sciences. Initially the scientific enterprise was limited to individual scientists working on personal theories or projects, often against the tide of public opinion. Men such as Galileo and others found little acceptance of their studies and findings during their day. However, as more and more individuals—such as Robert Boyle, Marcello Malpighi, John Ray, Christian Huygens, Isaac Newton, and more besides—began to investigate the broad spectrum of knowledge in a scientific way, a new era of science began to blossom. This was the era that saw the development of the scientific academy.

The author sees the scientific academy—the learned fellowship of individual scientists—as a catalyst and bridge to the modern era. Scientific academies were organized in the seventeenth, eighteenth, and nineteenth centuries to be a source of communication, accreditation, and encouragement for scientific activity. In this they were highly successful. It is also at this point that governments first began to become involved in the scientific enterprise, some continental academies becoming in effect prototypes of modern government research institutions.

With the development of the academy and the beginnings of state support for science there came a great increase in scientific research, publication, and productivity. Separate chapters are devoted to these first two areas while the large bulk of the book (beginning with chapter seven) seems to be reserved for the last. The author analyzes the rapid development of modern science along a broad spectrum, in one chapter discussing the development of the zipper, the jet engine, penicillin, and nylon. All these are presented merely as examples of the growth of science into the modern era.

The modern era of science is called by the author "Big Science," a title which seems altogether appropriate. This is the age of the massive private laboratories for research; the organization of large-scale, team-oriented research; heavy government involvement (especially as pertains to war materials); and unprecedented success. In these last sections of the book the author comes closest to fulfilling the claim of the subtitle. Here we are introduced to the impact of science upon agriculture, national defense, and the study of man in society. Yet these areas alone only skim the surface of the socio-cultural impact of science, for when we consider the universal influence of evolutionism upon every facet of human life and the writings of such popular authors as Vance Packard (*The People Shapers*) and Francis Schaeffer (*Back to Freedom and Dignity*) we realize that much more could have been said, not all of it positive.

Ziman's book is well-written and lavishly illustrated. It was a delight and a challenge to read. Two additional objections, however, must be raised.

First of all, as an introduction to the development of science the book fails to deal much with the theological or philosophical temperament of any of the ages of science. What stimulus did orthodox Christianity provide to early science? What impact did the Enlightenment make? What has been the effect of Darwinism upon science, especially upon its darker side? These and many other similar questions are not directly considered. (One may find some interesting discussions of this first question in W. Stanford Reid's *Christianity and Scholarship* and Eugene M. Klaaren's *Religious Origins of Modern Science*.)

Second, the author seems to take a developmental view of science—which is the traditional way of viewing the history of science—that is, one era building on the knowledge and experience gained by the previous era. He seems altogether unconcerned with the hypothesis set forth by Thomas Kuhn that the growth of science has been through a series of revolutions in which the paradigm or scientific world-view of one era is replaced by an altogether new way of thinking about science. One might have expected at least a passing response to this important study.

Nevertheless, this is a valuable book. It is especially helpful for those readers interested in bridging the span of years from the medieval times to the present along a variety of lines.

Reviewed by T. M. Moore, President, The National Institute of Biblical Studies, Pompano Beach, Florida 33064.

THE SOCIOLOGY OF SCIENCE: THEORETICAL AND EMPIRICAL INVESTIGATIONS by Robert K. Merton, Chicago: University of Chicago Press, 1979, 605 pp., $8.95.

This book is a collection of papers by Robert K. Merton previously published between 1939 and 1972. It is, in fact, not new but a paperback edition of the book originally published in 1973. Since Merton is clearly one of the leading thinkers in the sociological study of science this collection provides an excellent basis for either an introduction to this branch of sociology or as a review of the main streams of thought in the field. The papers have been selected and edited by Norman W. Storer. They are arranged topically rather than chronologically with introductory notes by Storer. The arrangement of papers and the introductory notes help to bond the individual papers together into a more coherent whole than one usually finds in a collection of reprinted essays. The papers vary somewhat in quality but typically give a clear and incisive analysis of various aspects of the sociology of science. Topics include: the sociology of scientific knowledge, the normative structure of science, the reward systems and evaluative systems in science.

Merton is clearly a master in his field. The essays range over the entire scope of the history and sociology of science, and often include detailed comment and analysis of the works of others. Merton is a proponent of the view that the rise of modern science can be closely linked to 17th century Puritanism in England and to the "Protestant ethic" more generally. (Chapter 11 - The Puritan Spur to Science.) Puritanism provided a rational for science: since God is revealed in his handiwork, nature is thus one means of appreciating the wisdom and glory of God in creation. Further, since social welfare, the good of many, is a dominant tenet in the Puritan ethos, science was to be fostered and nurtured as it leads to an improvement in man's lot on earth by facilitating technological developments.

Overall, this is a very useful volume, highly recommended to those with an interest in the sociology of science.

Reviewed by Steven R. Scadding, Department of Zoology, University of Guelph, Guelph, Ontario, Canada N1G 2W1.

TRIUMPHS OF THE IMAGINATION: *Literature in Christian Perspective,* by Leland Ryken, InterVarsity Press, Downers Grove, 1979. 262 pp. $5.95.

"For the glory of God and for fun." These are the reasons Ryken gives for reading literature. Why does he give these reasons? Because Christians throughout history have denigrated the reading of literature. Witness Jerome's dream where Christ reproaches him because "You are not a Christian, you are a Ciceronian," and Tertullian's cry of "What has Athens to do with Jerusalem?"

Ryken retorts that the Bible is not anti-literary. Indeed, the Bible is a work of literature and to understand it properly one must understand literature. He then goes on to examine some fascinating areas of current literary thought. Along the way he stops to ask several cogent questions: What exactly is Christian literature? What should one avoid reading?

To his lasting credit Ryken suggests guidelines rather than hard and fast rules to answer these questions. There are shades of gray here, and Ryken sees them. He realizes, for instance, that the same book may spiritually harm one person and yet benefit another. We are tempted differently.

The major strength of the book lies in its reliance upon the Bible. It is the one sourcebook held in common by all Christians whatever their view of its authority. Ryken finds the origin of literature, for example, in the doctrines of the early chapters of Genesis. God creates; and since we are made in His image we also create. To make a literary world is to exercise the image of God within us. It is a spiritual duty. Again, when answering the question of whether one may read non-Christian literature, Ryken turns to the Bible. There he finds Paul quoting several pagan poets in Acts 17. This is a consistent trait of the book and one that the reviewer finds satisfying.

The author also makes a survey of the usefulness of literature and includes an annotated bibliography (Ch. 9) that is most helpful to the beginning student in religion and literature.

There is much more that cannot be covered in a short review. The book is well written and provides a competent introduction to Christian literary thought. For those who would like to get behind Narnia to the subject matter of literature I would recommend this book.

Reviewed by Louis K. Combs III, Graduate Student, University of Minnesota, Minneapolis, Minnesota 55414.

PARENTS IN PAIN, by John White. Downers Grove, Illinois: InterVarsity Press, 1979, 245 pp., $4.95.

Reviewed by Richard Ruble, Department of Psychology, John Brown University, Siloam Springs, Arkansas 72761.

This book has an uncommon amount of common sense. While the author is a Christian, he is also a parent who has learned something about his role in the school of experience. In addition to common sense, White also looks at the findings of science although he relies mostly on the Bible.

White believes that many parents get hurt because they find false hope in the Bible by reading it through magic spectacles. Further, Christians by the ferocity of their faith can unconsciously try to use God to solve their problems. Most tragic of all are those Christians who seek to use praise of God as a crude instrument to bring God around to meet their need.

In this book parents in pain are addressed. There is no panacea of healing offered. Rather there is a sharing of pain with little advice on child rearing. White writes as a Christian psychiatrist and father. His discussion deals with the complications of child rearing, the place of professional aid and the need for Christian integrity.

According to White, the godliest and wisest parents can never guarantee these virtues in their children. The best parents sometime produce monsters while the breakers of every rule may produce a family of responsible, adjusted little angels.

On the other hand many well intentioned parents know all the rules but fail to keep them. The problem is less one of ignorance than incompetence. White suggests that the crucial question may not be how to rear successful children but how to become a good parent.

Hopefully, this brief review will encourage the reader to get a copy of this book and read it. Parents will surely identify with White's description of the pain they feel: rage, guilt, shame and self-pity. But more importantly, White's description of what it means to be a center of peace will provide some encouragement and assistance in the quest not only to be a good parent but a good Christian. As White describes it: "To be a center of peace in your family is to accept the fact that trouble is bound to come but that the trouble does not necessarily mean you have failed as a parent. . .To be a center of peace means to have the capacity to take disturbing traits and behavior in other family members without being inwardly upset."

Reviewed by Richard H. Bube, Department of Materials Science and Engineering, Stanford University, Stanford, California 94305.

REDUCING ENERGY COSTS IN RELIGIOUS BUILDINGS by the Massachusetts Energy Office; Xenergy, Inc.; and The Center for Information Sharing, 77 North Washington St., Boston, Massachusetts 02114 (1978). 8½x11 paperback. 52 pages. Graded price scale from 2 for $4.90 to 100 for $98.00.

This is a manual developed as part of the program of the Massachusetts Energy Office to help carry out that state's comprehensive energy plan, which sought a 5% reduction in energy consumption by 1980. The Center for Information Sharing, Boston, edited, designed, illustrated and produced the manual. It is intended to be a practical manual providing guidelines that should produce a 20% reduction in energy consumption in the typical church establishment.

The book gives helpful guidelines and suggestions for how to handle the major areas of heating, hot water, air conditioning, the building, and lighting, with special sections on artifacts and pipe organs, maintenance, and fuels and fuel rates. Since energy conservation is not only good church economy but also an expression of Christian stewardship, every Board of Trustees would do well to take a look at this manual.

Reviewed by Richard H. Bube, Department of Materials Science and Engineering, Stanford University, Stanford, California 94305.

FEELINGS: OUR VITAL SIGNS by Willard Gaylin, Harper & Row, New York, 1979. 241 pp. $10.00; Ballantine, New York, 1979. Paperback $2.50.

SHOULD YOU EVER FEEL GUILTY? by Frank J. McNulty and Edward Wakin, Paulist Press, New York, 1978. 91 pp. $2.95.

Guilt feelings have been assaulted from a variety of sources: from popular psychological prescriptions which tell us that guilt is a useless and pathological emotion to serious philosophical treatises which argue that guilt is irrational in all occurrences. These two books remarkably swim against this tide.

Among paperback psychologists, the reason why guilt feelings have been so frequently criticized is that they are seen as the artifacts of arbitrary taboos, prescriptions and rules laid down by authority figures and authorities—such as the Church. McNulty and Wakin are Catholics caught between two extremes. On one hand, they concede to the critics of guilt that the Catholic Church has in the past been excessively legalistic and has engendered an unhealthy and excessive liability to "inappropriate" guilt. But on the other hand they are sensitive to the effects of the new moral theology which was intended as a corrective to this liability to "inappropriate" guilt. They share the concern of Catholic parents who look at the younger generation of Catholics and wonder if it has any sense of sin at all. As a consequence McNulty and Wakin set out to establish the proper place of guilt in the Christian's moral life. They correctly note the relation guilt has to conscience and why it is therefore an important emotion to vindicate. The issue is both practical and deeply philosophical, but to my mind their solution is unsatisfying on both counts.

Practical advice is the primary aim of their book, but they answer the question in such a way and such a level as to largely defeat this aim. This is a problem which attends and threatens any *via media* that defines the position by rejecting extremes. To say, "too much guilt is bad and so is too little" we arrive at a truth, but one which grants little specific direction. What we desire to know is when and by what criterion conscience is an accurate indicator of moral failing. McNulty and Wakin attempt to provide such a criterion by distinguishing superego guilt and moral guilt. This distinction, however, evades the central philosophical question because this distinction locates the *source* of guilt but says nothing about its *validity*. For example, suppose I feel guilty about using a contraceptive and upon reflection I discover that I do not think their use is wrong but I fear the disapproval of the Church. This means that my guilt, according to this distinction, is not true moral guilt but superego guilt. But what does this say about the morality of the use of contraceptives and whether I should feel quilty about their use? Nothing, unless one is willing to claim that right and wrong is relative to self-directed consciences. This, of course, would make morality subjective and as far as I can tell this is not the authors' intent.

Gaylin, president of the Hasting Center's Institute for Society, Ethics and the Life Sciences, presents a phenomenological study of the subjective experience of a number of emotions and moods including feeling: anxious, guilty, ashamed, proud, upset, tired, bored, envious, used, touched, moved, and good. He argues that although these feelings have been misunderstood and neglected by both psychiatry and psychology, they all have significant functions. Largely, he vindicates them by pointing out their survival value. For example, he says:

> The conscience mechanisms and the emotions that serve them (guilt, shame, remorse, etc.) are testament to the fact that for *Homo Sapiens* community is not an ideal but a biological necessity (p. 53).

Moral and social emotions, then, are what humanizes and binds us to others on whom we depend for our social survival.

What is interesting about this line of defense is that it will not work for all emotions. What, for instance, is the survival value of being aesthetically moved by a landscape or piece of music? A second problem with this defense is that it leaves to one side the deeper philosophical question of the validity of these emotions. Do these feelings tell us merely about ourselves or does the very capacity to have them tell us something about reality as well? Are our emotions culturally relative or is there something transcultural and innate about them? But even if there is something constitutional about our liabilities to these emotions, may we not suggest that perhaps evolution has made a mistake? Gaylin's position invites these questions but does not answer them. His claim that "...it is the purpose of feelings not just to facilitate survival but to celebrate the sense of purpose and goodness of that survival" (p. 210) seems to beg these very questions. It can be admitted that some emotions make no sense unless life indeed is meaningful and good, but the existence of these emotions does not prove straight away that life is indeed meaningful and good. This is so for the simple reason that although they may aid survival, survival, nevertheless, may be futile and serves no larger purpose.

Although neither book satisfactorily answers the philosophical questions raised by the existence of certain emotions, both are provocative and fascinating; they are replete with literary illustrations of tremendous evocative power. However, Gaylin's book is superior because of it s breadth of scope and its attempt to found his remarks on a wider theory of emotions. He does tend to confuse moods with emotions, incorrectly distinguishes guilt and shame, mistakes the philosopher R. S. Peters for a psychologist, and preserves the unfortunate dichotomy between reason and emotion. These on the whole, however, are minor imperfections which should not obscure the fact that this is an important contribution to a subject which has vital practical importance and goes to the heart of one of the most basic philosophical quandries—What is Man?

Reviewed by Terry Pence, Assistant Professor of Philosophy, Northern Kentucky University, Highland Heights, Kentucky 41076.

KING OF CREATION by Henry M. Morris, CLP Publishers, San Diego (1980), 239 pp. $5.95, paper.

After forty years on the battle-line, Dr. Morris has issued in *King of Creation* a call to the faithful to enter the conflict. In his words, "This book has been addressed primarily to Christian people, seeking to enlist them as active participants in the great battle for creation." Having decided myself after years of study that the theory of evolution was not scientifically established fact but very much a faith proposition, I was determined to read *King of Creation* with an open mind. I soon found myself in the position of wanting

to argue with Morris as much as wanting to agree with him. Statements such as the following illustrate my point:

> The doctrine of the special creation of all things by the one true God, . . ., is the most important doctrine in the Scriptures because all other doctrines ultimately depend on it.
>
> The Scriptures. . .unequivocally teach that the universe itself is only a few thousand years old and that God the creator began and finished His work of creating and making all things in six natural days.
>
> Christians who believe in "the gap theory, the day-age theory, the local flood theory, theistic evolution, progressive creation and so on" do not really believe the Bible.
>
> One can be a Christian and an evolutionist just as one can be a Christian thief, or a Christian adulterer, or a Christian liar. It is absolutely impossible for those who profess to believe the Bible and to follow Christ to embrace evolutionism.
>
> The only remaining alternative to creationism is revolutionary evolutionism (rapid evolution) with its magical apparatus of hopeful monsters, big bangs, black holes, dissipative structures, and Marxian dialetics.

Morris forcefully maintains that there are only two ways to view origins: special creationism which is the biblical way, and all other views which are considered identical with atheistic evolutionism and which, of course, is Satan's way. All who do not accept special creation have been blinded by Satan. The book has five chapters with the first two essentially presenting the biblical arguments for special creation and against evolution. Chapter three discusses the world's reaction to creationism. Here, the recent books by Wonderly, Thurman, Eckelman and Newman, and Young are identified as "Christian attacks on true creationism." In chapter four Morris finally gets down to the business of showing that evolution contradicts true science and creation explains true science. In his words:

> the most up-to-date data of the key sciences of thermodynamics, statistics, biochemistry, geology, paleontology, biology and linguistics have been applied to the study of origins. These *facts* of science, as distinct from the speculations of scientists, are in full agreement with the Genesis record.

The reviewer will refrain from comments here, which could be extensive, and recommends that the reader investigate the material and form his own conclusions. Morris concludes with chapter five, a call to preach the true gospel of creationism.

I found *King of Creation* worth reading, even though it put me in the mood to disagree. I find myself no more convinced to accept the young earth model with six 24-hour days of creation than I was before reading the book. I did find several concepts new to me that are worth thinking about.

In summary, *King of Creation* will be well received by those Christians who believe special creationism, and will not be so well received by all those Christians who are not conviced that belief in the Bible demands acceptance of special creationism. I was disappointed by the tone of the author condeming all who are not in his camp; however, this might be expected from one who has spent his life in the battle against evolution. I was also disappointed that II Peter 3:8 was not among the many biblical references.

Reviewed by B.J. Piersma, Department of Chemistry, Houghton College, Houghton, New York 14744.

THE END OF CHRISTENDOM by Malcom Muggeridge, Eerdmans, Grand Rapids, Mich, 62 pages, $2.50.

This little book presents two lectures given by Muggeridge in 1978 as the inaugural addresses of the *Pascal Lectures on Christianity and the University* at the University of Waterloo. The lectures, *The End of Christendom* and *But Not of Christ* are followed by discussion. As we expect of Muggeridge, we find profound truths mixed with British wit and strong opinions. To stimulate your interest permit me to quote several examples:

> By some infallible process media people always manage to miss the most important thing.
>
> The strange and mysterious and highly amusing thing is that probably you would have very great difficulty in finding a single Marxist in the U.S.S.R. You would only find Marxists among left-wing Jesuits in the faculties of universities in the West, which is one of God's little jokes.
>
> I myself am convinced that the theory of evolution, especially the extent to which it's been applied, will be one of the great jokes in the history books in the future. Posterity will marvel that so very flimsy and dubious an hypothesis could be accepted with the incredible credulity that it has..."
>
> You know, there are many pleasures in being old and gaga. One of the greatest of them is to realize that history is largely nonsensical... So you have the pleasure of knowing that you need not bother in any way about history.

These examples, however, do not represent the main thrust of the book. The theme of the first lecture is that Christendom is something quite different from the Christianity of Christ, that "it bears the same relation to the everlasting truth of the Christian revelation as, say, laws do to justice, or morality to goodness, or carnality to love . . ." "You might even say that Christ himself abolished Christendom before it began by stating that his kingdom was not of this world—one of the most far reaching and important of all his statements." Muggeridge cites several factors leading to the fall of Christendom: "a sort of death wish. . . in what we call liberalism" ("Christendom has dreamed up its own dissolution in the minds of its own intellectual elite."), "our excessive, obsessive televiewing," the abandonment of Christian morals" ("A dying civilization on a swiftly moving, ebbing tide, clutches at any novelty in art and literature, ready to accept and then almost at once reject whatever is now no matter how perverse or abnormal").

In the second lecture Muggeridge completes his thesis that though Christendom is coming to an end, it is not he end of Christ. He finds, "the best example of the incarnate presence of Christ to withstand worldly power in Solzhenitsyn". For Muggeridge the most extraordinary single fact of the twentieth century is "the amazing renewal of the Christian faith in its purest possible form in, of all places, the countries that have been most drastically subjected to the oppression and brain washing and general influence of the first overtly atheistic and materialistic regime to exist on earth."

> We become forgetful that Jesus is the prophet of the losers' not the victors' camp ... Let us then as Christians rejoice that we see around us on every hand the decay of institutions and instruments of power... For it is in precisely when every earthly hope has been explored and found wanting... when in the shivering cold the last fag-

> got has been thrown on the fire and in the gathering darkness every glimmer of light has finally flickered out, it's then that Christ's hand reaches out sure and firm. ... then his light shines brightest, abolishing the darkness forever.

Reviewed by B.J. Piersma, Department of Chemistry, Houghton College, Houghton, New York 14744.

REASON ENOUGH by Clark H. Pinnock. InterVarsity Press, Downers Grove, Illinois 60515, 1980. $3.50. 126 pages.

Reason Enough will be shared with my twenty year old, college-going son and with my thirty-one year old, busy boss at social work. Short and sound for educated people in North America, I will not show it to dropouts nor to anyone in the "third world."

After misnaming the ethical sixties, Pinnock underlines five circles of evidence for the trustworthiness of the Good News about Jesus Christ. His approach, showing practical evidence first, the evidence of experience second, the cosmic evidence third, historical evidence fourth, and the evidence from community caring fifth, is worthy, even though he is not rigorous with words like "reason," "truth," and "fact."

Pinnock's reworking of words substitutes "meaning" for "self-affirmation" or "importance." Thus the pragmatic circle concerns why we dare to think of ourselves as significant. Clearly this is better backed by the Christian than by the humanist perspective. (The author's picking apart of the atheistic approach is better summarized in *Blues for Mr. Charley*, by James Baldwin, where the youth says, "I don't believe in God." The Grandmother responds, "Your breath do!" To which the youth asks, "What you mean, old woman?" She finishes: "Just you try to stop breathing!")

Religious experience, the second circle, gives real insight into the history and modern relevance of this inner light. Disarmingly honest, Pinnock writes,

> ...I find myself in an embarrassing position...I have presented the Christian message as the fulfillment of two basic human drives: the drive toward meaning and the drive toward transcendence. I have seen the gospel as making us happy and fulfilling our needs, as giving us pleasure and satisfaction...Is Holiness really fun? Yes, I think it is.

The cosmic circle, of course, has to do with the basic question, "Why is there something rather than nothing?" In some ways, Madeleine L'Engle has wrestled more imaginatively with this question in her *A Wrinkle in Time* and *The Wind in the Door*. But for those who read plain prose more than they relish fiction, quotes from Robert Jastrow of Goddard Institute for Space Studies suffice.

The heart of the book is the historical circle. here the argument is sure, with good phrases gracing it: "By placing oneself in relation to Christ by faith, a person is caught up in the saving process." (p. 75) "He did not say, 'Thus says the Lord' as the Old Testament prophets did, but 'verily, I say unto you.' He did not say 'the word of our God endures forever' as Isaiah did...but 'my words will never pass away.' " (p. 81) Pinnock's comments on God promoting women's liberation by allowing them to be the first to witness the resurrection are stimulating. (p. 86)

It is a delight to see an Intervarsity book with a section on the social impact of the Gospel, recognizing the prophetic role of Marxism. While the author's criticism of the church is too light, his picture of the church as the community that practices love is fetching. If our churches lived in the way he outlines—based on Jesus and Paul—such books as *Reason Enough* would not be necessary. Since this one has appeared, I can honestly say that there is reason enough for reading it.

Reviewed by Harvey Bates, 600 South 3rd St., # 12, Grand Forks, ND 58201. Director, Yourth Community Conservation and Improvement Project. Pulpit Supply, Cooperstown and Sharon (ND) Presbyterian Churches.

PERSON/PLANET: ***The Creative Disintegration of Industrial Society*** by Theodore Roszak, Garden City, NY: Anchor Press/Doubleday, 1979. 347 pp. $5.95.

It is now fashionable among academic and "popular" writers alike to attack the impersonality, wastefulness, and sheer bigness of modern industrial life. Most of them call for some new ethic and social order that harmonizes better with the "true nature" of humanity and with the resources and rhythms of the physical environment. *Person/Planet* joins these works, but with perhaps closer attention to some basic human values that underlie the counter-culture advocated.

Roszak develops a personalist view of man—an autonomous, unique being who has the right to develop and live in accordance with his or her inner personality and destiny. This person is not to be defined by any social institution or imposed mystical identity. Rather he or she must be seen as basically innocent, freed of the sense of guilt and sin that Christian culture has imposed on us for not living up to our assigned roles.

Coupled with this, Roszak argues for the "rights of the planet" to respect for its native dignity and life-sustaining integrity. His is an ecology that personalizes the earth to some degree and integrates its values with those of the free person.

These values of Man and Earth are gravely threatened today by bigness—political and economic systems whose lust for growth violates the humanity of persons and the integrity of the planet. This is particularly evident in city life, which not only pollutes the environment and overloads us with controlling institutions, but also expands our material appetites beyond what can be reasonably supported.

The answer to this is "creative disintegration," a kind of anarchism that strikes down the oppressive structures. Roszak calls on us to withdraw our allegiance from them and turn to those which have a truly personal scale. For example, we should seek a family life that rears children by good example rather than by rules that force artificial personalities on them. Our vocations should enable us to feel responsible for our work, both for what we produce and how well we do it. Our cities should be "deurbanized" by reducing them to a scale that is large enought to meet our material and cultural needs but not so large as to be an imperialistic parasite on the planet.

What message is there here for Christians? Not a few evangelicals have taken up the cause of ecological balance, simple life styles, and personality-affirming communities. Roszak pictures a future that could be quite in harmony with their values. Yet we must be more radical than Roszak in one dimension, since his theology is clearly inadequate for the moral and social order he portrays. We have a theology of sin *and* regeneration, of God as well as man at work in the world. Evangelicals do well to consider such humanistic works as a challenge to build their own sense of hope and vision with which to respond to a confused world.

Reviewed by William C. Johnson, Professor of Political Science, Bethel College, St. Paul, Minnesota 55112.

GENESIS AND DEVELOPMENT OF A SCIENTIFIC FACT by Ludwig Fleck (Edited by Thaddeus J. Trenn and Robert K. Merton, Translated by Fred Bradley and Thaddeus J. Trenn), The University of Chicago Press, Chicago, 1979. xxv + 145 pp. + commentary and Annotation, $17.50.

Ludwig Fleck, a physician and research microbiologist, uses the Wassermann reaction and its role as a test for syphilis in a case study to illustrate the way in which most of our scientific facts develop from tentative, ancestral preideas. This book, first published in German in 1935, received favorable reviews in medical journals. However, its thesis on the importance of sociological principles was several decades ahead of time for wide acceptance. This first translation into English includes a foreword by Thomas S. Kuhn, a 5-page biographical sketch of Fleck, and 12 pages of descriptive analysis by the editors.

In replacing the mystical-ethical concept of syphilis (bad blood) with one based on natural science and pathogenesis, Fleck points out the limited significance of the individual scientist. The individual's orginal contribution becomes transformed a little each time it is shared with and acted upon by other individuals in the "thought collective" (*Denkkollektiv*), a community of persons mutually exchanging ideas and linked by a common thought style. Discovery in science is a complex, socially conditioned result of collective, not individual effort. The resultant concept belongs not to the originator, who may hardly recognize it anymore, but to the collective. Even specialized knowledge "does not simply increase but also basically changes."

Fleck challenges the common concept of objective, "bare" facts. He states that facts are collectively created, not objectively given. Any fact is possible if it fits the currently accepted thought style, which he defines as the readiness for directed perception with corresponding mental and objective assimilation of the perception. Fixed or "proven" facts exist only in *vademecum* (handbook) and popular science. This involves selection from a collection of fragmentary, somewhat personal, and often contradictory journal articles and subsequent critical synopsis in an organized system. Although many investigators later rationalize and idealize their meandering research process into a straight, goal-directed path, many important discoveries, including the Wassermann reaction, initially involve false assumptions and irreproducible experiments. The specific cautions and personal, tentative nature of journal science are lost in the conversion to the more certain, impersonal facts of *vademecum* science. The resulting concepts become dominant and binding even on the expert. It is this constraint of thought that determines what is ignored, unthinkable, or needing more investigation. This also fosters a tendency to see only additional substantiating evidence and to miss, ignore, or conceal contradictions. Even some of the early anatomical illustrations conformed to the current stereotyped opinion (concepts) rather than to nature.

The ability to perceive scientifically, i.e., observing given facts purely objectively, is acquired only slowly through conscious effort to overcome the social bondage of a sometimes rigid thought style. The individual, however, is hardly conscious of the "compulsive force" of the collective upon his thinking. Even the expert has problems because he is "a specially molded individual who can no longer escape the bonds of tradition and of the collective; otherwise he would not be an expert."

Fleck believes that truth in science is neither objective and absolute nor relative and subjective but is determined by the particular style of thinking currently accepted by the though collectives. Thus truth can vary with time and culture. Changes in thought style or participation in several different thought collectives allows for the development of new truths or facts. The breadth of a liberal arts education is important in enhancing creativity because of the effect of different thought collectives on individual experiences.

This book will be welcomed by anyone interested in the history and philosophy of science. It contributes valuable insights and perspective so badly needed in analyzing nature and scientific accounts of it.

Reviewed by L. Duane Thurman, Department of Natural Science, Oral Roberts University, Tulsa, Oklahoma.

THE EMERGING ORDER: GOD IN THE AGE OF SCARCITY by Jeremy Rifkin with Ted Howard, G. P. Putnam's Sons, New York 1979.

It is a fascinating experience for a Christian to read *The Emerging Order*, realizing that at least one of the authors (Rifkin) is Jewish. For someone who is evidently not well-informed (as will be seen later) about some of the Reformational roots of what is known to historians as "Western civilization", the authors have produced a thought-provoker! And for all of us who are witnessing the fragmentation of our civilization, to read that we need a "new Covenant vision" leading to a "newly defined creation doctrine" and that "the evangelicals have the structural base that is necessary to carry out (the) conceptualization and implementation" of this vision (p. 232), is heady stuff! So when Christians read Rifkin and Howard, they definitely have our attention, especially when they make such sweeping and assured projections for the future, and seem to back them up with weighty arguments. Much of what they propose is very attractive to the Christian. One could almost say that reading their book is an exercise in "Christian futurology".

Sadly, however, the book is seriously flawed. Disappointingly so, since it promises so much and then falls so short, so that reading it becomes an exercise in "Christian frustration" instead. So many of their perceptions concerning the Reformation roots of our culture are correct, but because their interpretation is faulty, it renders suspect their subsequent analysis. And, several of their perceptions are *not* correct, outstandingly their unfortunate concept of the Reformation teaching of John Calvin regarding assurance of salvation, which has been modified to the point of non-recognition. And this is no small mistake. This misperception is repeated again and again throughout the book, and obviously plays a large part in the authors' conclusion that we have come to the end of the "age of expansion."

Now, what did Calvin actually teach concerning election and the source of the believer's assurance of his salvation? "Christ, then, is the mirror in which we ought, and in which, without deception, we may contemplate our election..." And how do we know that we belong to the Lord? "...if we are in communion with Christ, we have proof sufficiently clear and strong that we are written in the Book of Life." (*Institutes of the Christian Religion*, Book 3, Ch. 24, par. 5).

But, how do Rifkin and Howard perceive this?

> Calvin asserted that *unceasing physical work* (emphasis mine) was the individual's only 'sign' or possible proof of election. This notion led directly to the idea of unlimited material accumulation, expansionary growth, efficiency, technique, and exploitation of physical and human resources. The Reformation person's...only way of assuring himself that he had been chosen for passage to the other world was to keep on producing in this one. The more he produced the more he was able to overcome his anxiety about election and develop a sense of confidence and faith in the Reformation's worldview...

This rather gross misperception is repeated again and again throughout the book so often that it brings into question the validity of their analysis of today's cultural crisis, and particularly their proposed remedy. This distortion of Calvin blinds them to the possibility that the Reformation worldview still might provide the basis for leading us out of our crisis.

All of the above is too bad. It's too bad that their book is so flawed, because the Christian believer is attracted to much of their thesis. For example, they come very near to recognizing the primacy of theology in shaping culture. (Well...almost. They say that the media is really primary, since, according to them, the printing press modified Reformation theology, and television will modify the theology of the "emerging order." And they make several statements to the effect that the economic climate was a primary factor in producing the first Reformation, and will similarly be foremost in forming a second one...shades of Chas. Beard's *Economic History of the U.S.*). They also perceive the place of "covenant" in our history, and the importance of it for the future. They have a firm grasp on the fact that man cannot separate religion and his religious beliefs from the political, social, and economic fabric of any societal entity, and thus many of their critiques of post-Reformation Western civilization are perceptively pertinent. They can see the cracks. It is when they attempt to trace them to their supposed Calvinistic roots that they go astray.

Some of Rifkin and Howard's analyses suffer from groping through the fog of evolutionary hypotheses. It would not appear so shocking to them to observe the modification of the ecological "gene pool" over the past few hundred years if they were able to set this observation against the biblical background of several millennia of purposeful creation, rather than drowning it in the subjective hunches of humanistic scientists, who project hundreds of millions of years of gradual development.

Again, we read in their book that today's science and technology have tried to play God. And we agree. The authors properly critique the resulting "built in" waste factor (p. 219). And again, we agree. . .with this significant modification. . .that God could be allowing humanistic science and technology to run their course in order to demonstrate their impotence as a satisfactory repository of anyone's "final faith." God in His timing has been revealing that humanistic science is paying some ecological and sociological dividends that are turning to ashes. But now that it is coming to the end of this pretense, ceasing its preposterous posturing as the Savior of the World, and finally abandoning its arbitrarily chosen role as the rebellious Prodigal proposing to "go it alone" without its Creator, perhaps we have finally arrived at the time when science will be truly free to return to the fold of the Faith that founded it. In this return, it will fulfill its proper place as servant to the Laws of God. (cf. Robert Jastrow's *God and the Astronomers*.) Thus, contrary to the authors thesis, this return could aid and enhance "progress," rather than leading to a vague condition of "steady-state" non-development!

But, because of their misperceptions of the Reformation roots of our progress, Rifkin and Howard "lock us in" to only two alternatives for the future. According to them, we

have only to choose between the "liberal" view of "dialectic progress," on the one hand, or the "ecology" view of "steady state balance" on the other. And this second state must not be interfered with by man. In positing a condition of "steady state balance," they seem to be advocating a "pure nature" theory where man is viewed as a destructive intruder, instead of a progressive "dominion taker" under mandate from his Creator.

And though they seem to demonstrate the encouraging tendency to take the scriptural view of man seriously, yet they do not offer us the biblical third alternative for the future, namely, the "stewardship view," in which man bows to his Creator by progressively taking dominion of the earth, all the while exercising careful accountability.

Some rather large assumptions are made in the book without proof, for example, the earth as a "closed system." The authors seems to *say* that it is...but *is* the earth's ecology *really* a "closed system"? The sun is daily pouring energy down into the earth in formidable amounts. Could a growing and dominion-oriented technology not find new ways of harnessing this for man's advancement? Not if the authors' thesis is followed. The possibility of harnessing the sun's energy in new ways, in keeping with man's dominion status under his Creator, is fairly remote, if we accept their statement that the age of progress and growth in technology has come to an end. If man opts for their "steady state" ideas, he certainly will not look skyward to develop the harnessing of more energy, since this would be "breaking the covenant." And since there is no such thing as "steady state" in real life (we're either moving forward or backward)...we would find civilization going backward to the hoe, and scythe, and the shovel, with a resulting worldwide famine potential that is truly awesome!

The authors seem to identify today's faulty "traditional approach to nature" with Reformation Christianity. But is this justified? One would have a difficult time deriving this "traditional approach" from Calvin, if we successfully avoid their gross caricature of Calvin's doctrine of assurance.

Indeed, why are we forced to choose a "steady state" view as the only alternative to the wasteful corruptions of the "traditional approach"? When man was told to "take dominion" (Gen. 1:28), was he really supposed to leave the creation "fixed"? "Fixed" in what state? The original state before the Fall? But that no longer exists. The Bible says that nature is *fallen*. Furthermore, now that Christ has come, a "redeemed nature" follows in the wake of a "redeemed man," who takes dominion in obedience to the original mandate (Genesis 1). "Fallen man" has been redeemed in the midst of a "fallen nature," and now that man has been redeemed, nature itself is also redeemed (Romans 8), through the increasing obedience of redeemed man to the original creation mandate. This does not fit in very well with "steady state" theorizing!

Agreed, that "dominion does not mean the right to exploit nature" (p. 246). A true "dominion person" does not want to exploit anything...rather...he wants to *obey*! And, man indeed breaks the covenant when using nature for his own ends (p. 247), but is a "dominion person," when using science and technology *for God's glory*, forced into the authors' view that "Science and technology only serve to speed up the process of decay" (p. 249)? Irving Kristol, professor at the New York University Graduate School of Business, offers a perceptive thought in the September 19, 1980, Wall Street Journal. He says, "Yes, it is very possible—if you wish, even likely—that one of these days both the sun and the Earth may be dead. According to astronomers, that would be many millions of years from now. The idea that we must all live so as to delay that eventuality by perhaps a couple of hundred years is obviously preposterous..."

The authors seem to disparage profit. But does the "profit motive" necessarily and inevitably lead to "getting more energy out of the worker"? In the hands of "dominion persons," the "human equation" could be inserted and still preserve the profit motive. Francis Schaeffer proposes "Capitalism with Compassion", and suggests that it can operate *without* the "human equation" (poorly), or *with* the "human equation" (well). Thankfully, we are not yet forced to opt for the destruction of capitalism, to replace it with we know not what, Modification...yes. Destruction...no.

As noted earlier, it is too bad that this book is so flawed. Another sad example is their statement that Frederick Taylor (in his *Principles of Scientific Management*, Harper & Bros., 1911) did more than any other man to change the American worker's lifestyle. But again, to propose, as they do, that Taylor's ideas are nearly totally responsible for modern industrial management policies and practices is similar to describing the automotive industry solely in terms of a 1920's sweatshop assembly line producing Model "T" Fords. Much has happened since then to modify the original, of which Rifkin and Howard apparently are not aware.

In the case of Taylor, he did indeed focus on reducing the worker's motions to their simplest possible movements, and then optimizing these movements until their production had reached its peak. But Taylor also made the employee's work easier by these methods so that a man could produce more and be less tired at night. Thus, in some cases, job satisfaction went up, not down.

But Taylor's recommendations were significantly modified later by the impact of the Hawthorne Studies of 1927-1932, which focussed on the worker's environment, attempting to make it more meaningful and pleasant. And later, Abraham Maslow's "hierarchy of needs" further supplemented industry's efforts to help the worker to enjoy his work. Thus it appears that our authors' view of industrial engineering as consisting primarily of time and motion studies with the goal of optimizing the work effort in order to raise the standard of living of the consumer, and all this at the expense of the worker, is nearly as distorted as their concept of Calvin's doctrine of assurance.

As a matter of fact, it is a high priority with industrial engineers to deal with the productive worker as a human being, attempting to learn what it is that motivates him, satisfies him, and keeps him happy. Not that they are always successful in this, but the Hawthorne Studies in Chicago indicated that there was much more to worker job satisfaction than money. And Maslow further showed that workers need affection, association with others, and social approval, and to realize their own potentialities and capacities by achieving some specific goal. Again, the authors' faulty evaluations turn into another straw man which they use in constructing a supposed need for future "steady-state" economics.

But to return to Calvin. The book's distortions of Calvin's doctrine of assurance are really much closer to what Karl Marx actually taught about the nature of man, namely, that man is most accurately viewed as an economically producing animal, than Calvin's teachings (Cf. Reinhold Niebuhr, *The Nature and Destiny of Man* Vol. I *Human Nature*, NY, Chas. Scribner's Sons, 1943, p. 33). It may well be that their reliance on secondary, rather than primary, sources (e.g., Martin Marty) is responsible for their error.

In conclusion, the authors' summary of the characteristics of the supposedly past "age of expansion" is worth noting (p. 264). They are, (1) private ownership of resources, (2) increased centralization of power, (3) elimination of diversity, (4) greater reliance on science/technology, (5) refusal to set limits on production/consumption, (6) fragmentation of human labor into separate spheres of operation, (7) the reductionist approach, and (8) the concept of progress as continually transforming the world into a more valuable and human ordered environment. These are opposed (they say) to the principles of ecology, the "steady-state" economic framework, and the newly defined creation doctrine. "Progress" is to be replaced by "maintenance", "ownership" by "stewardship", and "engineering" by "nurturing". There are biological limits to both production and consumption.

To repeat...it is too bad that this book is so flawed. Yet, it may still represent a landmark, in the sense that it is evidence of a growing awakening on the part of the non-Christian world to the molding influence of religion...especially the Christian religion...even more specifically, Calvinistic Christianity...in the formation of Western civilization. Our need is to go back to our biblical moorings, in order to move forward in "taking dominion," to the glory of our God!

Reviewed by Ray Joseph, Pastor, Reformed Presbyterian Church, West Lafayette, Indiana 47906.

Association for Public Justice

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In January 1981 the Board of Directors of the Association for Public Justice appointed James W. Skillen to become its first Executive Director. Skillen will assume the new post in late summer and gradually consolidate the Association's administrative office in the Washington, D.C. area by the summer of 1982.

Presently Associate Professor of Political Science and Head of the Department at Dordt College in Sioux Center, Iowa, Skillen held earlier positions in political science at Gordon College, Wenham, Massachusetts (1975-1978) and at Messiah College, Grantham, Pensylvania (1973-1975). He completed his Ph.D. at Duke University in 1974 after receiving his B.D. from Westminster Theological Seminary (1969) and his B.A. from Wheaton College (1966). He pursued graduate study in Europe in 1969-1970.

APJ is a growing movement of Christian citizens whose aim is to nurture responsible, active citizenship in accord with biblical principles of justice. In contrast to the major political parties, which are not organized to carry out principled programs in government, APJ is seeking to address the full range of political issues on the basis of a comprehensive political perspective. Unlike the major pressure (or lobby) groups, APJ is concerned with more than one or two issues. Though it seeks to influence legislation, it does so in the context of a larger program of political education and leadership development. The Association plans to enlarge its work at local, state, and federal levels as the number of its local chapters, regional coordinators, and national staff continue to grow.

According to Skillen, this is both an opportune and a difficult time for APJ to take a major step forward. Happily, at this moment in the U.S. and in many parts of the world, Christians are reconsidering the meaning of their public responsibilities *as Christians*. The old myth about a neutral and secular politics is largely discredited, and many Christians are seeking new ways to live integral lives reflecting their commitment to Christ in all areas of life.

At the same time, however, the road to Christian political service is not entirely clear and smooth. New groups, such as the Moral Majority, are challenging the traditional approaches of more liberal Christians in the political arena. Confusion and disagreement among Christians is as serious as it has ever been. APJ faces a major challenge in trying to demonstrate how a basic commitment to biblical revelation can provide guidance for the shaping of public life so that justice can be done to all citizens.
A major part of the work that must be done in American politics is political education. For this purpose the APJ Education Fund was established several years ago, and Skillen will also become its Executive Director this summer. The Fund functions within IRS restrictions as an educational and research organization. It has undertaken policy research, sponsored conferences, and published books and other materials. It will continue this work and enlarge its efforts under Skillen's direction. He has edited the Fund's PUBLIC JUSTICE REPORT (formerly NEWSLETTER) from its first issue in 1977. It appears ten times a year. In 1980 the APJ Education Fund published its first book—a study guide written by Dr. Skillen, entitled, *Christians Organizing for Political Service.*

APJ and the APJ Education Fund will continue to build cooperative relationships with schools, colleges, churches, labor and business groups, social action organizations, policy study centers, and other political groups in order to enlarge and strengthen the dialogue among both Christians and non-Christians about the nature of human responsibility in the public arena. As a political activist and academician Skillen is well prepared to direct the wide-ranging program of these organizations. As soon as it become possible, additional senior staff people will be added in areas of educational outreach, government relations, policy research, and program development.

Founded in 1941 out of a concern for the relationship between science and Christian faith, the **American Scientific Affiliation** is an association of men and women who have made a personal commitment of themselves and their lives to Jesus Christ as Lord and Savior, and who have made a personal commitment of themselves and their lives to a scientific description of the world. The purpose of the Affiliation is to explore any and every area relating Christian faith and science. The *Journal ASA* is one of the means by which the results of such exploration are made known for the benefit and criticism of the Christian community and of the scientific community.

A closely affiliated organization, the **Canadian Christian and Scientific Affiliation,** was formed in 1973 with a distinctively Canadian orientation. The **CSCA** and the **ASA** share sponsorship of the publication. **CSCA** subscribes to the same statement of faith as the **ASA** and has the same general structure. However, it has its own governing body with a separate annual meeting in Canada.

Members of both organizations endorse the following statement of faith: (1) *The Holy Scriptures are the inspired Word of God, the only unerring guide of faith and conduct.* (2) *Jesus Christ is the Son of God and through His Atonement is the one and only Mediator between God and man.* (3) *God is the Creator of the physical universe. Certain laws are discernible in the manner in which God upholds the universe. The scientific approach is capable of giving reliable information about the natural world.*

Associate Membership is open to anyone with an active interest in their purposes. *Members* hold a degree from a university or college in one of the natural or social sciences, and are currently engaged in scientific work. *Fellows* have a doctoral degree in one of the natural or social sciences, are currently engaged in scientific work, and are elected by the membership. *Dues:* Associate $18.00, Member $24.00, and Fellow $32 per year. A member in any of these three categories can take the *special student rate* of $8.00 per year as long as he is a full time student.

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LOCAL SECTIONS of the American Scientific Affiliation and the Canadian Christian and Scientific Affiliation have been organized to hold meetings and provide an interchange of ideas at the regional level. Membership application forms, publications and other information may be obtained by writing to: AMERICAN SCIENTIFIC AFFILIATION, P.O. Box J, Ipswich, Massachusetts 01938, or CANADIAN CHRISTIAN AND SCIENTIFIC AFFILIATION, P.O. Box 386, Fergus, Ontario, N1M, 3E2.

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"Upholding the Universe by His Word of Power" Hebrews 1:3

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