

SCIENCE AND GOD'S REVELATION IN NATURE

CARL F. H. HENRY, PH.D., TH.D.

Editor: CHRISTIANITY TODAY

The twentieth century lives, thinks and moves beneath the canopy of science, whose bold venturesomeness has turned "thick-coming fancies" into common-place realities of our era. Whoever stutters while stressing this debt to science, too little senses the changed conditions under which the human species exists in modern times.

Scientific *knowledge* fascinates us as the radiant mirror of the vexing behavior of our complex universe. In the dimension of *power*, science now rules space and time with commanding dominion. Its task seemingly scarce begun, science shapes one swift transformation after another of our mode of human life.

No Christian observer can view this vivid setting for day-to-day survival, however, without a feeling of dark anxiety as well as of deep appreciation. Science has now wrested from nature a sovereignty whose abuse could lead virtually to destruction of the physical world, heretofore considered the exclusive prerogative of Deity. Not only is science preoccupied with power, virtually usurping the throne of omnipotence, but many scientists more and more obscure Jesus Christ as Truth. No Christian century since the first has assumed more obviously than our scientific age the irrelevance of Jesus Christ to the space-time world. No strata of society binds its spirit to agnosticism more insistently than the scientific community. Nowhere have the assertive words of Jesus, "All power is given unto *me*," and "*I* am the Truth," fallen upon ears so unresponsive as among men of scientific pursuits. Could this exiling of Jesus Christ by men of science contribute to the growing misuse of truth and power by anti-Christ in the modern struggle between the nations of the world?

Now many scholars detect in some scientific circles a quite opposite tendency—if not a revival of spiritual faith and a return to supernatural religion, at least a decline of naturalistic dogmatism and a new openness to the theistic vision of the universe. Writing on "Science and Religion" in *Contemporary Evangelical Thought*, I noted this gratifying turn in contemporary philosophy of science. The existence of American Scientific Affiliation, composed of qualified scientists actively committed to a theistic world-view, is one of several considerations precluding any dismissal of the whole scientific enterprise as essentially anti-Christ. In the recent volume *The Evidence of God in an Expanding Universe* (John Clover Monsma, editor), 40 American scientists of varying prominence declare affirmative views on religion. Yet it is difficult to read Dr. Monsma's compilation without three distinct impressions. The evangelical scholar will approve its recognition in our scientific age of the legitimacy of supernatural religion—although not all the testimonials stand within the framework of biblical religion. Alongside this an uneasiness emerges over the divergent grounds by which these many contributors support their belief, and a feeling that at this level not a few participants cancel each other out. Finally, one is distressed that so few scientists sense that the scientific attitude today often carries a deadly threat to revealed redemptive religion which, unmet and unchallenged, may betray the new pliancy to a fixed agnosticism that strips scientific relevance and respectability from religious affirmation. So I propose to speak of this disturbing mood in science, and of its disposition to stiffen into a fixed disinterest in the Christian doctrine of nature, and propose to assess this mood from the standpoint of Christian theology.

I

Whoever views the scientific enterprise today must note several features especially characteristic of contemporary research.

1. The search for *things* has been replaced by the search for *structure*, a course already charted by some ancient Greek philosophers. Whether or not skepticism about the existence of “things” (by those who stress that we know “only form and structure”) is justifiable the “disappearance of matter” in the researches of physicists now involves their tacit recognition that matter is not the ultimate entity. The center of scientific interest has shifted to structural properties and logical relationships.

2. The older ground for certainty—the Law of Causality (which the nineteenth century postulated with sufficient dogmatism to outlaw the biblical miracles)—is now set aside. No longer do scientists predicate the absolute uniformity of nature. From the seventeenth to the early twentieth centuries the mechanical and causal view of events was championed as a legitimate generalization from experiment. But now it is widely admitted that not scientific evidence but a metaphysical bent, or least an emotional urge underlays this old confidence in a law of universal causality.

3. While the contemporary experimenter still assumes that his scientific colleagues will observe the same facts under the same conditions (research would otherwise be senseless), he no longer openly projects this assumed uniformity into a formal law sanctioning universal scientific inductions, nor does he seek universal and absolute results. Abandoning the “pretense” of knowing things and their behavior, he professes to borrow only personal incentive and comfort from this assumed constancy of nature.

4. The task of science is now widely envisioned as the mere arrangement of experimental facts in symbols whose mechanical significance is unknown and unsought. The claim of provable knowledge or truth is restricted simply to the framework or logical structure of scientific thought, that is, to a daily altering set of logical relationships, whose purpose is the control or reconstruction of physical entities.

II

In enlarging the areas of uncertainty, this widening agnosticism involves scientific explanation in a reorientation of truth, and its special way of connecting science and truth provokes our concern. Some time ago I read the British scholar Martin Johnson's *Science and the Meanings of Truth* (London, Faber and Faber, 1946). I recall it here especially for its reminder that truth today has many meanings. One cannot read Dr. Johnson's book, nor other volumes of a similar kind, without sensing how fully the notions of truth prevalent in scientific studies imply and in fact require the irrelevance of Jesus Christ. The theories I have in mind close the cycle of knowledge and fill the deplorable gap between science and religion by sifting the meaning of all domains of existence through the scientific sieve, and measuring truth of every kind by applying its restricted criteria to all of reality. The scientific spirit is asserted to require not only a particular stance toward the physical world, but its extension to all spheres of knowledge—to require, in Philip Frank's words, “the habit [on the part of the student of science] of looking at social and religious problems from the interior of his own field” (*Modern Science and Its Philosophy*, Harvard University Press, 1949, p. 281.) Since the science of physics in our century has achieved the most spectacular “break-through,” physicists espe-

cially are tempted to regard the notion of truth internal to their science as alone competent to establish validity, and to think that every other proposed avenue of knowledge is illegitimate. What truth means in physics thereby wields a revisionary influence on the totality of knowledge.

Inasmuch as our present concern is with the revelation of God in nature, we need not at length sketch the case against seeking truth in theology and ethics by the same mode and means the scientist applies to nature. Universal extension of so-called “logico-empirical” analysis presupposes, of course, the very bias that it presumes to vindicate, that knowledge consists of statements about observable phenomena, and that all else is symbolic language loaded with emotion. Let it simply be said that this very definition cannot be validated by the criteria it proposes, and that the actual emotive basis of this claim should astonish scientists who propound and promulgate it.

We shall deal more fully with the meaning of truth now widely current in physics, that is, the limitation of knowledge to communicable propositions about the relation and structure of events. An earlier view validated truth in physics by a different canon of validity and, in fact, sought a different dimension of truth based, as we have noted, on mechanical treatment of motion and causality, and on the assumed uniformity of nature. In the absence of explanation and verification by such mechanical and causal determinism, the modern work plan simply groups the generalizations from the observable sequences of many variables arranged in functional dependence. The exclusiveness of causal mechanics, not necessarily its utility, is now doubted. Nature is said not to be mechanically intelligible. The modern theory of scientific truth, Johnson reminds us, “leaves us agnostic as to any universal premiss of induction or any deification of a universal law to be called Causality” (p. 109). The criterion of truthfulness, dislodged from the need to track a causal mechanism, in view of the inaccessibility of causal sequences, is associated merely with structural pattern. The search for causes gives way to the search for equations to represent space-time events—and this communicable equation is knowledge or truth.

This shift by physicists in defining the nature of truth followed partly from the difficulties encountered in their explanation of the electron, which defied construction of a law of nature out of a selection of mechanical hypotheses. Having properties of both matter and radiation, the electron vacillates between particle laws and wave laws, each of which has a mechanical meaning independent of the other. This situation contributed to the physicist's indecisiveness over “truth” and blurred the borderline between hypothesis and law. At different stages of science, it was said, different methods are useful in assigning meaning to truth, therefore much that was essential to earlier scientific method is now dispensable.

In this way communicable patterns of relations now furnish the content of scientific truth, in contrast with natural law attested by mechanism and causal sequence. No longer does the physicist seek a sharp line transition between the tentative and the final, or the conversion of hypotheses into laws of nature. Rather, the aim is scientific enthusiasm for “probable conclusions” resting on a probable premise. Such probability never reaches certainty. But it leads to the solution of problems and, highly important, is productive of inventions and gadgets, and it yields self-congratulation that the widest transformations for the equations are “progressively more comprehensive” over all physical events and that experiments verify “a probability tending toward unity. Alongside utility as the test for truth, some scientists are prone to stress the coherence of the logical structures coordinating observed quantities. To borrow a definition from *Science and the Meanings of Truth*, truth is “a coherence

between functional dependences rendering communicable the structure of relations observed between measureable and especially temporal qualities" (p. 141). Yet it is soon evident that the workability of propositions alone establishes their coherence, so that utility becomes the real test of knowledge. Not only has the physicist's interest shifted from truth as propositions beyond need of revision, so that he does not seek to transcend the hypothetical character of propositions, but he equates truth with "forms and structures" which he constructs to express a merely functional dependence. "If the differential equations and the appropriate transformations provide predictions quantitatively checked in experiment, we have the degree of understanding which is desired for those aspects of Nature interesting to physics" (*ibid.*, p. 60).

This coherence of alterable patterns or structures, it is then affirmed, alone screens the physicist from complete agnosticism about the external world of nature. The dual limitation of scientific knowledge—that is, to qualified assertions about the future behavior of nature, and to merely functional statements about nature—is depicted as in every sense a gain for science. It strips away dogmatic assertion that only predictable interactions will be encountered in experience. This larger agnosticism, moreover, is widely hailed as disallowing a materialistic metaphysics (the view that mind, value, spirit are simply manifestations of the atoms and fields with which science deals); since science must confine its comments to the world for which its methods were devised, physics "imposes no materialism upon the most general interpretation of total experience" (*ibid.*, p. 109). The same requirement of agnosticism equally deprives physics of any relevance for a theological interpretation of nature. As Dr. Johnson puts it, physics "has no more of a positive than a negative attitude to the mental or the spiritual."

Now if the scientist's only knowledge of the external world is his experimental procedure for control of nature, the Christian view of the world is seriously compromised. For the biblical view is that the universe itself is to be comprehended as a revelation of the glory and power and will of God. If therefore nature is not "truly" grasped in terms of mechanical and impersonal causal determinism, neither is it "truly" grasped in terms of revisable mathematical constructs functionally serviceable only to facilitate man's control of the world. The contemporary emphasis on this latter index to the world as exclusively authentic involves the scientist in more than agnosticism; we shall see that it involves him also in idolatry.

This idolatry is apparent from the physicist's attitude both toward nature and toward the supernatural. In the Anglo-Saxon world, at least, most physicists seem not to deny (though many do) the existence of non-physical entities, nor do they insist that their method has exclusive rights, nor that only experiences measureable and describable in physical terms are significant. But by vocation the physicist prizes quantitative measurement as the only *objective* fact or truth. He fights shy—and, in fact, prides himself upon its avoidance—of any philosophy designed to cover the whole of experience, in order to protect the priority of quantitative measurement in physics. He assumes that if this method does not give us "the truth" about the universe, only nonscientific and antiscientific explanations remain. Thus he often comes perilously near the logical positivist view—even when he would disclaim it—that all scientific propositions, or propositions with a claim to objective truth, must contain only perception terms as predicates. For no questions can be addressed to science except those that can be answered by a system of symbols in designation of our experiences, or by statements of pointer readings. Only perceptive experiences are taken for granted, and abstract symbols become the means of relating these. He may readily admit the reality of other realms—memory and imagination, aesthetics,

morals and religion—but none of these is allowed a significant role in deciphering the external structure of nature.

Reluctant though he may be to venture illegitimate conclusions about non-physical verities, the physicist is prone nonetheless to dismiss every non-quantitative conviction as *subjective*. A scientific theory of knowledge, keyed to quantitative judgment about the *objective* world of nature, can say nothing about the *subjective* world of values. As Dr. Johnson would have it, "Only concerning the QUANTITATIVE can statements be made on which there is any decision as to whether two scientists agree or disagree. Contrast with physics, for example, the impossibility of agreement between two art critics, or between two followers of different religions, because their judgments, although very important, are essentially QUALITATIVE and not expressible in terms of verifiable measurement" (Johnson, *op cit.*, p. 55). In fact, the limitations of physical theory are made to justify a skeptical view of knowledge, surrendering both the search for finality and for consistency and comprehensiveness of explanation. "In a philosophy of science we may well learn caution from physics itself . . . to recognize that more than one self-consistent explanation may co-exist, for instance the wave-theory and the particle-theory both simultaneously applicable to limited aspects of the nature of electrons and the nature of radiation. Each is 'truthful' by a coherence test, within the domain in which the appropriate concepts have experimental significance. The caution is worthy of extension—in very few arguments is one theory 'right and therefore all others wrong'" (*ibid.*, p. 140).

Given this approach, the exposition of a theology of all that exists quite understandably becomes an impossible task, an insatiable craving for a "neat and tidy" universe foredoomed as a pursuit of overcomprehensiveness. Embarrassed by their own past dogmatisms, scientists of this stamp are now prone to reject all comprehensiveness and finality, dismissing such larger explanations as efforts to bolster some personal *credo* that the expositor thinks necessary to the wellbeing of mankind (and without self-application of this same rule by the scientist to his own standpoint). The attempt to "systematize" the universe under a single term, not alone as a venture of speculative metaphysics, but as a task of theology also, is viewed as finite man's sacrifice to an inordinate urge for imagining we can see all that exists, including ourselves, as products of one kind of thing" (*ibid.*, p. 113). The biblical view that "all things were made by" the Logos, and that "in him all things consist," is waved aside, being assimilated to the speculative traditions to which Samuel Alexander, J.M.E. McTaggart or Edgar S. Brightman in our own century are viewed as supplying a last bold conclusion. No transfers whatever are permitted, on the trunkline of truth, from physics to metaphysics (naturalistic or spiritualistic), because the logic of physics assertedly precludes this. Thus pure science is regarded as destructive of a comprehensive world-life view, whether the ultimate explanatory principle be theological or philosophical. "There is not to be a science of theology," Dr. Johnson insists, "in the sense in which I have been investigating the possible meanings of scientific truth" (*ibid.*, p. 176).

One is therefore not surprised in the least when Dr. Johnson later invokes his quantitative preoccupation as the basis for a subtle attack upon larger theories of knowledge. We are informed that permanent and universal truth is inadmissible; in Dr. Johnson's words, "There is no permanent truth covering all situations" (*ibid.*, p. 93).

Most physicists readily admit that quantitative language is not the dialect for expressing moral and religious judgments, and with this Dr. Johnson agrees. Man does not live by sensations alone. Moral judgments are not meaningless because of

the impossibility of expressing them in wave lengths. But qualitative judgments of theology, ethics, and aesthetics are cushioned with a covering of agnosticism surpassing the physicist's agnostic approach to nature. Subjective constructs may be dignified by noting, even emphasizing, that science for its own existence requires mental constructs seeking to picture physical reality in mathematical and logical forms. "The subjective . . . only presents itself to metaphysical speculation with the status of an imaginative construct" (*ibid.*, p. 159). But physicists should have the honesty "to recognize that the ultimate conceptual objects of physics, and even much which underlies common perception, have logically no firmer status" (*ibid.*, p. 160). So it is that science becomes exact—at least, so scientific relativism assumes—as it succeeds in rejecting an objective truth basis for the spiritual. "Any pictured external world is an erection containing much that is beyond logical verification, or that could claim the scientists' criterion of truth." Science therefore is itself involved in an internal, subjective world. But at this level we are engaged in "a venture of faith and not of science . . . There may be a personal response from our universe for those who discipline themselves to hear it . . . There is nothing whatever in . . . scientific truthfulness . . . to conflict with such a faith—but the latter must not demand the former's support, only its strict neutrality. Faith no longer needs to face logic's hostility, so long as it does not trespass in the latter's territory; for a disciplined and controlled imagination is not so much a contradiction of the scientific attitude of mind as complementary to it." (*ibid.*, p. 175).

The premise of God's irrelevancy is actually made a condition of scientific fidelity, and physics is hailed for its emancipatory role in releasing men from prejudices about the supernatural. Explanation that looks beyond the quantitative relation and structure of events to a supernatural mind and will is said to jeopardize scientific truth. "We cannot insert value judgments, moral or aesthetic, into physics without destroying its impartiality" (*ibid.* p. 12). "Mind is the one topic irrelevant to the scientific truthfulness of accounts of a closed External Nature . . . Within a philosophy of science there is no need to postulate an underlying . . . mental factor to explain further the logical structures which are knowledge" (*ibid.*, p. 144). Whether one examines the newer anti-materialist or anti-idealist views of nature, no less than the older mechanist conception of the world, the exclusion of the spiritualistic element from physical theory is not only a persistent tendency, but is now even made a specific requirement. The appeal to a transcendent spiritual or rational factor is viewed as an obstacle to "the task of fitting physics into a self-consistent picture of the processes of the whole of nature" (Frank, *op. cit.*, p. 130). On this premise the physicist is required in his vocation to wave aside as irrelevant the Hebrew-Christian revelation that God created and sustains the universe as a rational, moral and purposive order, and that nature mirrors his eternal power and deity. The demand for spiritualistic elements is said to arise from wholly "outside" physics.

The obvious and highly debatable presuppositions of this so-called scientific philosophy are that no theory of truth can validate spiritual and moral beliefs with the same competence as claims about the physical world, that qualitative judgments gain their force from subjective rather than objective considerations, and that judgments of faith and value are alien to study of the physical world. These premises really flow from an arbitrary assimilation of spirit and values to subjective experience, and an arbitrary narrowing of interest in the space-time universe to that "closed world of nature" to which the scientist addresses his abstractions. The restriction of technical scientific knowledge in physics to statements of quantitative relations and measurements of course has its justification; qualitative methods had produced almost no results, in contrast with the progress that has come through mathematics. The juris-

diction of these restricted premises over the whole of reality rules out the rational integration of all of life's experiences and, instead of actually remedying the cleft between science and religion, requires man to compartmentalize his life and thought. To compensate for the loss of unitary knowledge of the spiritual and physical, some modern physicists seek comfort from the psychology of multiple personality. Instead of radically revising their controlling epistemological premises, in the interest of unity of the self and its experiences, they perpetuate a theory of a knowledge promotive of a cleft in the human personality and as fully inadequate to account for the data of physics as for spiritual and moral experience.

III.

The approach to nature here depicted assumes certain things about the scientist's intellectual conscience. The scientist is presumed to be professionally accountable only for accurate observation and recording of sense measurements by a skilled technique that assures correspondence between recorded experience of fact and description of fact. He is presumed to be vulnerable to failure only if training or technique is defective. It is granted, of course, that the formulation of hypotheses is hardly a mere recording of measurements. The question of truth arises in respect to systematized description and interpretation, but beyond answerability to sense verification the scientist is assumed to have no other obligation to truth in his vocational task.

Now while this statement of the situation acknowledges the gap between the scientist's sense experiences and the mental constructs he bases on these, and thus concedes that no purely inductive or purely deductive natural science exists, it does not sufficiently reflect the decisive relevance of the physicist's mental and volitional processes in postulating the logical structure of nature. The scientist's mental attitude toward nature includes much more than the detailed steps of his formal argument, and the fact that the scientist often anticipates his theory by insinuating his opinions into the arrangement of data.

(1) *What the scientist consciously pursues is simply an abstraction from nature and experience.* By the physicist's initial approach to nature the Logos is in fact already eliminated as irrelevant. Impersonal invariance becomes the one important consideration; nature is searched with a view to mathematical formulae only. The intelligibility of nature means simply that the physicist's measurements can be exhibited as regularities, and that abstractions from these regularities can then be delineated in logical and mathematical form.

What the physicist means by nature is so shorn of content as to furnish a mere phantom for metaphysical debate. His own impoverishment of reality provides the only shade of justification for arguing that physical theory can contribute neither to the confirmation nor contradiction of metaphysical views, nor to the creation of new views. The admissible element, for example, in Dr. Frank's emphasis that no proof exists whereby the physicist is "forced" to the acceptance of a given metaphysics of nature—if we may forget for the moment that conclusions about the natural are not "forced" either—stems from the fact that the physicist reduces nature in precise terms, to an unknown environment manipulable by revisable constructs. He is interested in the control of reality and he discards whatever proves useless for that control. If all the physicist manipulates, as he defines his agnostic situation, is a series of functional equations of his own devising, which he applies to his environment with caution and reserve, it is difficult indeed to climb simply by these tentative formulas to any sure reality other than the physicist himself—and even in this re-

spect the demand exists that psychology be pared to the limits of physics. With the content of science thus arbitrarily restricted, the argument no longer proceeds to nature's Beyond from nature itself, but from and to the scientist's tentative correlations of his carefully circumscribed curiosities—which may in fact disclose more about the essential character of the scientist than about nature and nature's God.

(2) *The scientist thinks of untruth in his experiments simply as error, and not as falsehood. The idea of a misrepresentation of nature, or of a revolt against the Logos revealed in nature, is sidestepped by definition.* In his reaction to the external world there may be a false start, but not a falsehood, let alone a false god. Whatever coordinates separate explanations into a connected theory is approved as advancing his aesthetic satisfaction or facilitating the control of nature—and that is “good” rather than “true” or “false.” The concern of science is only with “problematic truths” of enlarging generality. The idea of science as a *pursuit of truth* is on the wane. The idea of “truthfulness” finds an awkward tenure in scientific experiment, since a growing flux is evident in scientific circles as to what “truthful explanation” means. Yet the scientist cannot really separate his judgments of form from judgments of fact embodied in true or false propositions, unless he surrenders all connection between his judgments and the objective world of reality.

Doubtless the control of nature can be hastened through a mere concern for form and pattern, without demanding any verdict of truth or falsity on declarations about the constitution or cognizability of the real world. But both the rationality of physical science and the rationality of culture, let alone of the scientist himself, seem threatened if the inquiry into reality is permanently compressed to these limits. Much as the scientist may wish to emphasize his creative contribution to progress, his own research seems foredoomed. The revisionary character of his projections about nature, of course, carries always an inert demand for replacement. The more the logic of science is integrated with the psychology of the scientist's mind, moreover, the more insistently the question of inherent rationality asserts itself. Are the physicist's patterns merely transcripts of his own mentality, something shaped only by the mind's activity and in no sense *given*, or do they have something in common with the external world? Is reality a universe of unknowable relations, so that science is faced by uncertainty except for whatever structure or order or system the scientist himself imposes? Is this coherence of abstract propositions a mere projection of inquiring minds, or is it in some respects drawn from a world of logical forms? Is the abstract structure of relations between logical terms simply a coordination on the knower's part or does it mirror a universe of mathematical properties? Since different mathematical properties can be used in different experiments, must we not view science as simply a series of guesses as to what might work?

The mere communication of truth-claims already implies that truth is not simply a property of knowledge possessed by one individual, since it elevates truth-claims beyond chaotic individualism to an awareness of other minds. Beyond communicability, moreover, the demand for coherence remains as the essential test of truth. Although many physicists emphasize that the nature of the external world is unsure, they seem sure nonetheless that the mind apprehends its order in particular patterns and forms, that is, that Nature is Intelligible. Can the scientist's sheer postulation of intelligibility really clarify the meaning of knowledge and truth? The lack of interest in the logical status of the laws of nature represents not merely their flight from reason to experience, but their indifference to the Logos, and it makes genuine progress impossible. Unless this search for knowable structures and patterns — distilled from the unknowable actions of unknowable things — strengthens the confidence that nature and life are ultimately intelligible, does any point remain

in seeking to make sense of our observations of the external world? To answer “yes — it produces *jet travel* and *curbs cancer!*” evades the real issue. For modern science has shaped our technological materialistic age with its pursuit of gadgets and survival alongside indifference to truth and goodness, and without objective standards of morality civilization swiftly disintegrates.

(3) *The physicist often expresses an attitude toward the world that is not simply restricted and arbitrary, but wrong and even wicked.* Whenever his outlook toward nature, in his role as scientist, at the same time dictates a way of life, scientism becomes destructive of objective values and promotive of relativism. He recognizes in nature simply a challenge to his own sovereignty, rather than a mirror in which the Creator publishes his divine sovereignty over the universe. Science is removed from the sovereignty of God and only the scientist's creative capacity is emphasized. In our technological and military age the consuming passion is to master observable phenomena and to put nature into our service. In this way the ministry of nature is joined to the whims of immoral man and sundered from moral accountability and its spiritual intention by creation. Since the answerability of science — and hence of scientists and their inventions to the moral order and to the sphere of truth is muffled, the passion for control becomes serviceable to the totalitarian ambition for sovereign control over both men and things.

(4) *The scientist's supposed humility in the presence of nature involves him not simply in agnosticism, but in costly spiritual rebellion.* In the climate of eighteenth century deism, scornful of the biblical miracles, science trusted mechanistic theory to supply answers to all questions. The collapse of mechanical science precipitated some decline of faith in scientific method. Contemporary science stresses the revisionary character, and functional rather than ontological significance, of its index to nature. But the factor that inevitably will contribute most to a decline of faith in scientific methodology is the detachment of science from ultimate considerations and, in fact, the scorning of these. The real crises in science, or in the scientific conception of nature, exists at this level. The limitation of human knowledge to “useful fictions,” or the reduction of the idea of revelation to functional rather than objectively rational categories, provides a professional “justification” for both scientific and spiritual agnosticism. The lesson of modern science is that the loss of God as the source and support of the universe more and more obscures the external connection between events and encourages their subjective interpretation along arbitrary lines. The determination to resist any “insinuation of spiritual factors” into science is forged from the standpoint of an unnatural exclusion of the spiritual. The extension of this attitude to the whole scientific enterprise is not required by the scientific ideal of simplicity of explanation and, moreover, not only promotes tension between science and the Spirit, but by the same token sets science in needless conflict with truth, morality and the soul.

Contemporary science will need to take larger account of the influence of the physicist's mind and will, and to recognize inadequacies in the psychology of his attitude toward his environment.

(5) *The influence of the scientist's subjective preferences is seen in the myth-making tendency that co-exists alongside his biased statement of the meaning of truth and his truncated view of nature.* By way of consolation for his lack of omnipotence touching the physical world, he exacts a sort of vengeance from the spiritual world by placing it beyond reason's accessibility and hence science's answerability. Yet alongside the agnosticism he affirms about the objects of perception, he speaks of unverifiable concepts of values, mind, spirit, God. These he dis-

cusses as the ultimate insight of poetic vision. Profess incompetence though he may to delineate religious and moral ultimates, the scientist despite this asserted agnosticism often betrays a propensity for postulating some absolute to which he relates the processes of nature. The absolutizing of the Law of Causality was a striking example of this inner demand for a cosmic god. The Ether of the nineteenth century, or Samuel Alexander's Space-Time in the twentieth, and other abstractions not directly perceived, appeared as alternatives wedged into the vacuum left by the overthrow of the Causality postulate. Some scientists now import a kind of "Free Will" ascribed to electrons in interpretation of Heisenberg's physics.

In his preoccupation with form and structure, instead of settling for an abstract logical neutrality—which the scientist never really attains—he exaggerates his own creative contribution. Concealing the true scientific task of "thinking God's thoughts after Him," even scorning "the error of importing Mind" into physics, he is none-the-less prone to the subtle self-creation of ultimate entities. Impelled by a secret recognition — some scientists in fact adopt it openly and insist on it — that the universe of reality is broader than the abstractions of physical theory, the scientist himself exceeds the arbitrary restriction of his truth-claim to functional structures, and projects an artificial spiritual order by way of compensation for his earlier denial of the concrete Logos. In view of divergent metaphysical assertions by scientists, one can understand this bridge-building from unpredictability to "Free Will," from mathematics to "Mind," and so on, and can sympathize with warnings against "seduction to metaphysical theory." While the exasperated positivists protest this religiously-tinted metaphysics in the name of "purely scientific considerations" as barriers to the progress of physics, the evangelical scholar will find here a reflection of the corruptible dispositions of man who, having evaded his response to the revelation of the Logos in nature, now compensates for his divestment of reality by fashioning autonomous alternatives to the self-revealing God. Having mentally shorn nature of its givenness, he becomes boldly creative touching supernature and, self assured that at this stage human reason is the only extra-scientific factor, he glories in the originating role of the human mind. Since the creativity of human reason is already postulated as the primary factor in science, whose symbols are the products of man's ingenuity, the whole of reality is faced with a reliance on human imagination and inventiveness that impairs receptivity to revelation. Denying the concrete Logos, he yields to mystical misunderstandings of the ultimate, even utilizing the language of physics without its actual support for his imaginative constructs. These aesthetic projections then are made a basis for demeaning the Logos to the same category, until even the Christian exhibition of the inner unity of the worlds of reality and experience is pictured as a poetic exercise lacking significance as truth. All this strikes the evangelical observer as actually a form of revolt against the Logos revealed in nature.

(6) *The scientist's fragmented approach to nature perpetuates the lost unity of nature, society, and culture.* This situation poses no challenge to the popular fallacies that the unification of science is to be achieved only by the elimination of metaphysics, and that only functional connections contribute to that unification. And it allows the Communist philosophy to make one-sided headway on materialistic premises, with the emphasis that the laws of physics are derived ultimately from the same source as the laws of society. Recognizing that a single explanatory principle assures the rational integration of life's experiences, Communist speculation wrongly derives everything from the dialectical principle that quantitative changes eventually become qualitative changes. The lack of a coherent exposition of the evangelical alternative by default bequeaths unchallenged influence to the Communist claim. It

is incumbent upon the evangelical scientist, in his vocation as scientist, to show that science ultimately derives its right to life from the same common principle to which religion and culture are answerable.

IV.

What is specially disconcerting is that the identical assumption, that metaphysical backgrounds have no relevance for science proper, is today often reflected in professedly evangelical writings. Not simply neo-Kantian and neo-Thomist expositors of nature, but the treatment of the scientific sphere by some evangelical interpreters also, shows little if any reason for distinguishing them from the neopositivists. Scholars of this class do not object to an iron curtain between theology and physics, or the other sciences, and they virtually grant that objective truth is restricted to similarities between sense impressions. Instead of challenging the demotion of metaphysical affirmations from statements that may be considered "true" or "false," they simply gloss over this restriction, without explicitly challenging the idea that a coherent world-view is impossible, being content to add a private testimonial to religious faith. There is no direct confrontation of the Soviet view that scientists are arbitrary if they speak of creation by spirit, and that "truth" must be judged only by its observable and practical social consequences. Thus they unwittingly aid and abet the illusion that to attack the positivistic interpretation of science is tantamount to rejection of the scientific viewpoint itself. To the positivists, who have rejected biblical supernaturalism, is left the task of a coherent world conception, shaped on their own premises. On this basis the "advancement of science" and of "the unity of science" inevitably spells the doom of any theological view of nature.

The evangelical task touching the physical world is twofold: (1) to contribute to the advance of scientific knowledge, that is, to nature's ministry to man as the crown of creation; (2) to contribute to the integration of twentieth century science into the larger framework of truth and knowledge, that is, to articulate the Christian view of God and the world with lively relevance to our scientific age. Such a task necessarily involves an evangelical critique of the newer metaphysics built upon contemporary science no less than a critique of the metaphysics of earlier modern philosophy. And this task falls necessarily upon evangelical scientists as fully as upon evangelical theologians, for if the meshing of God and science is imperative, their detachment must be justified to guard its legitimacy.

An evangelical philosophy of science is called upon to show, from within the data of science, that all the evidence for order and intelligibility in the universe is also evidence for a transcendent and immanent Creator and Sustainer, for the Logos who has become incarnate in Jesus Christ. For that reason I am impelled to repeat some convictions set forth in *Contemporary Evangelical Thought* (pp. 273 ff.): "If the physical universe is not to be comprehended exhaustively in terms of weight, measurement and mathematical formulas, but rather as a commentary on the Logos, the implications of this must be spelled out. This is a task which the science and philosophy departments of our Christian colleges neglect at great disservice to the evangelical enterprise The Christian contribution to science cannot be narrowed to the shadowland idealistic observations that space-time realities constitute a cosmos, that the universe yields verifiable results to sustained investigation, that the marks of intelligence are inscribed upon all its processes—although biblical theology indubitably sustains these emphases

"The unqualified thrust of Old and New Testament alike is that the Living God is revealed in nature, not merely above it Nowhere does the Bible soften

its stress that the space-time world confronts the scientist continually with evidence sufficient for the acknowledgment of the Living God

“The revelation in nature therefore includes much more than is disclosed by laboratory experiments The cosmic Christ already confronts the scientist in his day-to-day interaction with the created universe.

“The general revelation, moreover, does not stop with this divine confrontation of man (the scientist included) in external nature. The scientist is faced not only by light from the outside, but by an inner light; the Logos is manifested in the conscience and mind of man, not simply in nature and history. And this inner and outer revelation interact and agitate each other constantly, supplying the silent background of all human thought and action. Even before the scientist comes to decision about nature . . . he is enmeshed in inner spiritual tension as a responsible moral agent. No scientist ever reaches his verdict about nature and nature’s God without a previous spiritual case history—indeed, a history of moral revolt against God. The scientist is a sinner in revolt against light, both the interior and exterior light of the Logos

“The scientist’s verdict passed upon nature, therefore, is no mere logical-rational verdict; it is a religious, an ethico-spiritual verdict, which he passes equally upon himself. For he is constantly bracketed, even in the twentieth century, by multiple evidences—for an almighty mind and will, in nature; for a sovereign good, in conscience; for a gracious Redeemer, in the Bible; and for a divine renewer of the souls of fallen men, in the living witness of the regenerate. If he turns aside from these—from the witness of conscience which hales men constantly to moral judgment, and from the anthem of the stars in their courses and of the earth and its movements of life, then the twentieth century scientist will stand inevitably in an adverse relationship to nature and to nature’s God

“That the final cause of redemption is also the final cause of nature, that the universe is a revelation of the righteousness and love of God as well as of the power and wisdom of God, indeed that the meaning of creation which manifests the invisible Logos is inseparable from the manifestation-in-flesh of the Logos as Redeemer of fallen man—these great Christian beliefs maintain their vital relevance to our confused century. They bear relentless testimony to a unitary principle of creation, of redemption, of sanctification, of judgement.”
