Modern Science And Values

Carl F. H. Henry

There is a very efficient device for bruising the intimate feelings of a scientist. If one were to advise him that science is a valueless pursuit, and that his laboratory techniques are good for nothing, the scientist would be quickly propelled out of that state of depersonalized objectivity which he so prizes in experimentation. The reason for so spirited a reaction is plain enough. About the value of science the scientist has no doubt at all, however indifferent he may be to the broader question of objective values. He will not yield to the notion that the scientific endeavor is without worth. In an atomic age the one valuable thing, he may even think, is the pursuit of scientific inquiry; whether there are eternal and unchangeable moral norms or values may be a matter for cloistered dispute, but the value of science is indisputable.

And yet it was precisely modern science which at the beginning of our generation insisted in uncompromised terms that it has no dealings with an eternal, unchanging moral and spiritual order. Almost all standard scientific works were marked, as a characteristic feature, by the absence of reference to values or ends for the sake of which reality exists or ought to exist. They assumed either that no such realm of purpose and value exists, or that, if it does, the scientist knows nothing about it. One could gaze through a microscope into Herbert Spencer’s tightly-printed books, but he would search in vain for interactions with the sphere of the good and of the holy. The adaptations, cohesions and integrations which interested Spencer were not of a moral and spiritual kind. Julian Huxley expressed the dominant mood pithily when he wrote that science is “morally and spiritually neutral” (in Science and Religion, p 18).

But no scientist has a right to assume the value of science unless he becomes explicit about the science of values. Huxley merely begged the question when he remarked that “the only value which it (science) recognizes is that of truth and knowledge” (ibid., p. 18) For during military combat the science of censorship has demonstrated that truth may often be less valuable than falsehood, and the value of knowledge can hardly be demonstrated within the limited scope of empirical tentativity, with its constant demand for revising all conclusions. The value of science depends upon the science of values. If there is no objective good then science is not objectively good for anything. If there are no abiding values, then science has no abiding value. If good and evil are artificial or tentative distinctions, then whenever men declare that science is “good for” something they may equally well assert it to be “bad for” the same thing. Science is a valueless and worthless endeavor if it operates in a sphere in which value and worth are without a home. We must either admit values, and talk of science, or debar values, and cease to assume the value of science.

The scientist has an immediate retort to this kind of argument. Science can have value and can be good for much, he contends, without any necessary commitment to an eternal and abiding moral and spiritual realm. The real value of science, he says, is that it helps us to make an effective adjustment.

It should be noted that the scientist has no right at this point to any qualifying adjective suggestive of ethical distinctions; he must not, that is, speak of a lesser or higher or proper adjustment, because these all imply a scale of values. But then, why is it good that we be aided
in making an effective adjustment? If the evolutionary process really moves on from simple to increasingly complex forms, why may it not involve the production of a supra-human species, destined to surpass man as man has surpassed the amoe- ba? What is the good of an adjustment in the interest of longevity? Or, what do we want to live longer for? Or, if the most effective adjustment in the interest of Soviet perpetuity should involve our sudden demolition, does not such an application of science fulfill the value of facilitating human adjustment?

Sometimes it is assumed that, rather than eternal and changeless values, all that is necessary for an ethical civilization is a continuity of meaning for a generation at a time. The false optimism which underlies this sort of thought is easily unmasked. When does the generation begin and where does it end? Usually it is assumed by such theorists that the generation of which they speak begins with their birthdate and ends with their demise—a convenient personal mode of dating to the neat chronology of which the prevailing ideologies do not readily accommodate themselves. It remains that if what is good today may become evil tomorrow the door is ajar to the ethical relativism which openly declares that might is right. No ideology which makes value to mean simply what is most pleasant or most powerful, i. e., effective, can protest against naturalistic power politics.

The problem of values has been propelled into the laboratories of modern scientists by the international events of our times. It is crystal clear now that science can be combined with a naturalistic as well as an idealistic or a theistic outlook on life, and that atomic energy can be employed to make men slaves or to make them free. On the one hand, we are told by supernaturlasts that national fitness to survive is in terms of values integral to Christian culture, in contrast with the older civilizations of China, India and the Middle East, or of the Soviet. P. A. Sorokin warns us that ethical relativism has reached its maximum in our times, and that the reduction of value to individual fancy is a sign of "mental and moral anarchy" which, if not halted, can lead only to "complete disintegration or mummification." On the other hand, naturalists like Harry Elmer Barnes condemn supernaturalistic ethics, equating its chief interest with a puritanical sex life and an auspicious entry into the hereafter. The moral code necessary for survival, Barnes contends, must be founded not upon religion and revelation, but upon the natural and social sciences.

Here, clearly, are two vastly different views. In the one case, values are assumed to be eternal and unchanging; the good is not something made in Japan, nor Russia, nor even in the United States. In the other case, it is assumed that no supernatural realm exists, but that values are simply ideals, subject to revision, projected by man in his continuing effort to master his environment.

Modern science has vacillated between these alternatives. Nineteenth and twentieth century science exhibit a most remarkable contrast in their respective attitudes toward the objectivity of values.

Nineteenth century physics, except in its higher agnostic moments, was committed to a view of the universe which assigned to moral, aesthetic and religious values only a subjective status, to a view which denied an objectively real moral and religious consciousness as illusory. The reason advanced by nineteenth century physics for this attitude is well known even to vast multitudes not skilled in the subtleties of philosophy. To be real, asserted the physics of two generations ago, an object had to be visible and tangible; all else belonged to the realm of phantasy and goblin, or was at best a matter of faith without a knowledge basis. The content of knowledge was limited to the data of sense perception. The only reality known to science, we were told, is phenomenal, and is subject to mechanical causation which tolerates no exceptions; all else—God, moral norms, the religious obligation or postu-
lational, as the spiritual was rebaptised by contemporary naturalism. Physics was wedded to the naturalistic bias with all the authority that many influential scientists could muster. The impression was carried in academic centers that one had to take his choice either be scientific or religious, but not both—until the cleavage between religion and science had been made all but absolute.

The case for that sort of a universe, in which any God, or any soul, or any moral norm, had to have a subjective reality, was never proved by nineteenth century physics, else more recent thought would not have found it so repugnant. The science of the end of the century had not demonstrated that the spiritual is unreal, any more than it proved that reality must be seeable and touchable; it had no method for dealing with any realities other than the natural, and consequently was incompetent to deliver a judgment with regard to them. The physics of the day assumed - under the sway of phenomenalism - that reality must be sensate, and in consequence of this assumption, it denied the reality of the spiritual and moral.

Revolutionary changes in thought have carried contemporary science a long distance from that mechanical, block-type universe of the nineteenth century. Today physicists on every hand insist that the most real things are invisible. The space-time universe has undergone transsubstantiation. The real world is not, we are told, the familiar world of persons and places, neither the chairs on which we sit, nor the floor on which we stand, nor the things we see and touch. Rather, the real world is invisible, a world of atoms and electrons eluding the human eye, and not subject to that strict mechanical causal uniformity upon which the physics of the past generation insisted. The nature of the real world is not visible and touchable; the scientist turns metaphysician, and invisible and touchable are not as ultimately reason for assigning to real as the invisible and untouchable. The real world is permeated not with strict causal continuity, but - as far as we know - a liberal discontinuity. Since there is an objectively real world, which is invisible, twentieth century physics does not arbitrarily rule out the possibility of an ultimate moral and spiritual order; neither God, nor values, nor the dictates of the religious and ethical spiritual order need be explained away as illusory. So we hear much of the new tolerance of science for religion and morality.

In fact, philosophical physicists like Sir Arthur Eddington and Sir James Jeans assert that the universe known to twentieth century physics finds its best explanation in the view that reality is the thought of a divine Mind. They emphasize that the scientific method does not reach far enough to rule upon this issue; no thinker can say, as a scientist, that there is no objective moral and spiritual order, for his methodology is too limited to make a pronouncement in this realm. Since the scientific method carries us not to reality, but only to that point from which the ultimate, invisible reality is inferred, these scientists hold that the correct inference is to an objective Mind, rather than to mere non-mental events, or to the mechanical block universe of a half-century ago. The invisible real world, they contend, is not merely a scheme of symbols connected by mathematical formulae, but rather, is a mathematical Thinker.

It would be short-sighted indeed to regard men like Eddington and Jeans as essentially in the Christian tradition because of their proclamations here. For, since the scientific method does not reach to ultimate reality, these scholars do not speak as scientists when they declare for an ultimate Mind, any more than other scientists speak as scientists when they declare against theism in favor of naturalism. The very point of departure is the confession of the inability of the scientific method to pronounce on the issue of theism and of objective morality. Just because a scientist turns metaphysician, there is no reason for assigning to his works a veneer of scientific detachment greater than that due the works of a metaphysic alert to scientific discoveries. Scientists have sometimes declared for an it, at least - with liberal discontinuity, an objective, spiritual and moral order in a profoundly non-Christian sense, and that
in the very name of Christianity. The new emphasis that matter and spirit may not be as foreign to each other as once thought, should not obscure the Christian conviction that the being of the universe is not the being of God, any more than the indeterminacy of the atom should obscure the Biblical doctrine of the particular providence of God. That a man is a specialist in science does not give him any special qualification for pronouncing on the nature of ultimate reality. He displays the true scientific spirit when he emphasizes that his methodology cannot possibly settle the issue one way or the other, not when, in the name of science, he comes out for or against an objective moral or spiritual order. The issue is not determined by the scientific method, and the consequences must be applied in both directions. The declarations of Eddington and Jeans in the interest of an idealistic interpretation of the universe, insisting that the proper inference from the data of science is to a creative Mind and not simply to an objective mathematical order, are not to be worshipped because they come from physicists, for they are among the first to remind us that physics is impotent to determine the question. The merit of their insistence upon a supreme creative Mind and upon the objectivity of values turns on other factors, and on these factors scientists have no monopoly. Indeed, if anything, science in recent generations has disclosed a poverty of interest in the crucial and relevant facts which are determinative in this regard.

Within the restrictions of modern science, the scientist cannot say that there is an objective moral and spiritual order; he can say only that he cannot declare that these are merely subjective. That is not to say that the scientist needs to be, not that he should be, agnostic about spiritual verities. The testimony of scientists to the objectivity of values is not important because they are scientists, but because they combine intellectual and super-scientific thought about the world. When a scientist declares for an objectively real super-natural order, he provides evidence that a scientist who scores one hundred in physics need not on that account score zero in metaphysics.

Curiously, while indoctrinating the academic world in the unrivaled effectiveness of scientific methodology to deliver us from mythology and superstition, much of the science of yesterday placed itself at the service-erroneously, as admitted today-of a most specious sort of mythology. By converting its methodology into a metaphysics, it ended up with a block universe without any possibility of an objective moral and spiritual order. That was a fictitious world, even if proffered in the name of science. A methodology which requires the *a priori* dismissal of God as only a projection of fancy, and of all ethical codes as the mere voice of tradition, discloses more about its own limitations, than it does about the nature of religion and morality.

Contemporary thought is coming now to see that because Bertrand Russell is a genius in the realm of mathematics, he has no right to reduce sex to sheer mathematical rhythm, that because Robert Millikan is an illustrious physicist, his view of human nature need not be considered profound when he declares that war has survived simply because it has survival value; that because Albert Einstein is a brilliant physicist, he is not on that account an authority when he declares that ethical behavior requires no support from religion.

The great turning point in modern scientific attitudes is the recognition that the scientific method does not afford us the exclusive access to truth. The great ages of philosophy entertained hardly a doubt about the serious limitations of a sensory methodology. The classic Greek outlook, the medieval world view, and the rationalistic philosophers from Descartes to Hegel were agreed that, were knowledge a product of sensation alone, the whole quest for truth must be abandoned. Even the early modern empirical philosophers, Locke and Berkeley, believed in much more than they saw. But nineteenth century physics held that the scientific
method provided the sole avenue to truth, and by so doing reduced reality in intent to the world of nature. The upheaval due to the newer physics is so remarkable, in contrast with the naturalism of two generations ago, that C. E. M. Joad does not hesitate to declare that “so far an English and American scientists are concerned, the leaders seem almost unanimously to disown any exclusive claim on the part of science to give us information about the nature of reality”.

If the scientific method then gives us but an abstracted view of reality, so that by necessity it does not deal with such realities as God and the moral order, the question arises, why a paper on “Modern Science and Values”? The reply is simple. This is a gathering, in the main, of scientists, and it is one thing to hold that the scientific method has proper limitations, and another thing to say that a scientist is a man who limits himself so as to have nothing to do with deity and morality.

Precisely at this juncture the science of yesterday contributed disastrously to the moral paralysis of our times. It was not from the scientist of that day that we got much hint of the reality of the supernatural; it was not from the scientist that we got much encouragement for the belief in the objectivity of values; it was not by the scientist that we were taught that man is essentially more than an animal. Whether the scientist’s silence was due to unbelief, or due to the inability of his restricted methodology to deal with these issues, did not affect the general outcome, which was the impression that a man who specializes in scientific things has to be indifferent to religion and morality. The scientific mood seemed to be that, simply because he concentrates within an abstracted method, the scientist has to cut himself off in his thought and life and pronouncement from anything outside that method and by so doing, the scientist of recent generations nourished the false dogma that the scientific method is the avenue to truth, and that the world of nature is the ultimate real. The undisputed fact that major discoveries are made by the scientific method came to mean, in such an atmosphere, that nothing significant is to be learned by divine revelation. That the scientific method was agnostic about values came to imply that the scientist must be, at most, agnostic about them.

Because of this failure to insist upon the objective reality of a spiritual and moral order, the average scientist has become one of the most curious figures of the mid-twentieth century. Indicating by his personal example that a truly scientific attitude involves silence about spiritual and moral realities, the scientist, confronted in an atom bomb age by world peril due to the “might is right” relativism of the Soviet, suddenly pleads for an alertness to the moral implications of scientific discoveries. Yet, in company with other influences, it was scientism that discouraged alertness to an objective morality; it was scientism which encouraged indifference to religion and ethics, by a preoccupation with the world of nature, to which man was absorbed. This engrossment with nature helped to substitute a false means of salvation for the salvation which the prophets and apostles and Jesus Christ proclaimed. The deepest reason for the modern man’s hope became evolution, or scientific methodology, or some other alternative to Biblical redemption. In contrast to the Scriptural ideal of man’s dominion over nature, impossible of proper actualization apart from the redemptive work of God, modern science held forth the ideal of a conquest of nature without any reference to man’s moral and spiritual regeneration. Thus it obscured ends in the quest for means.

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microscopes and telescopes, or rather, the inference from such data, and often quite fallacious inferences at that. Spiritual and moral factors were lost in the search for quantitative techniques. Modern science came to espouse a false soteriology and thus widened the gulf between the twentieth century and Biblical Christianity. The divorce from the Hebrew-Christian revelation hastened the modern descent to relativity in morals. The whole naturalistic movement from the Renaissance to our times has issued in a naturalistic ethics which has been the undermining of all ethics.

The challenge to the contemporary scientist is that he declares, as unequivocally as he proclaims the relevance of the scientific method, the relevance of some super-scientific method, and that he consider himself under a supreme obligation to pursue super-scientific truth as devotedly as he pursues restricted scientific truth. No accumulation of ethical seminars by distinguished scientists touches the problem, while the rupture with the sufficiency of scientific method is half-hearted. Atomic physics may refine sense perception, teaching us that reality is uncritically manifested to sensation, but it is no wedge at all for the admission of value areas which cannot be manifested—even uncritically—in the stuff with which laboratories deal; the reality of values turns on the acknowledgment of a method competent to deal with them. The open-mindedness which cheerfully grants that the scientific method cannot rule out the possibility of God and eternal values, might as significantly grant the possibility of transparent ghost writers and two-headed snarks on the other side of Mars. Open-mindedness on such issues means nothing, while there is no clear cut statement of the right of another method to deal with the spiritual and moral aspects of reality. No plea merely for the priority of the social sciences over the physical sciences is adequate, for social psychology, economics and sociology can be used for evil as well as for good ends. What we need is a method which deals with ends, with values, with an *ought*. If there is no such method, then scientific agnosticism is the last word. If there is, then to stop with scientific agnosticism is a crime against humanity, for the worth of man turns upon the validity of certain values quite apart from subjective preference and opinion.

The scientific method, as the moderns define it, is not a method to deal with the *ought*; it is an abstracted device for dealing with the *is*, and, indeed, for dealing only with the phenomenal *is*. Great traditions in world thought prior to modern sensationalism considered it a tragic mistake to think only of a science of phenomenal realities. They spoke of the science of nature; they recognized the existence of normative, no less than of descriptive sciences. No merely descriptive observation of nature and man will ever carry one beyond the *is* to the *ought*. Therefore the scientist who pleads for a renewed interest in morality, but who remains in bondage to scientism, will never get beyond the affirmation that a certain course of action is preferable because it is most pleasant or because it appears to work. He will never rise to the requirement of a true morality, with its insistence that the good must be done because it is objectively good.

It is not insisted that the scientist must, in the midst of every scientific investigation, raise the question of ultimate values—as though he has no right to peer through his telescope until he has exhausted the ethical implications of the particular experiment. An obstetrician charged with delivery of an infant would hardly be forgiven for interrupting his duties to write a volume on vicarious suffering. But to convert this necessity for scientific
diligence into a total indifference to values is quite another thing.

Nor, because we insist upon ultimates which are beyond change and flux, and upon which the whole scientific endeavor finally rests if it is to make sense, are we to be charged with complete abandonment of any realm of probability and revision. That there is a realm of technics, which is most competent to deal by direct examination and research with certain areas of reality, reaching conclusions which are subject to constant empirical revision, is not at all beyond dispute, as long as the interpretations yielded by such a method are clearly labeled as partial explanations, abstracted for specific uses, and not dealing with the question of purpose, nor minimizing that the why is in the long run of greater significance than the what.

Science affords us a view of things which is only partially coherent, and which therefore reaches beyond itself for intelligibility. This is true not only of the conclusions of science, but also of the very premises with which it sets out. As to the conclusions, it is a frustrating and self-defeating statement of human nature, and one which can issue only in pessimism, which fixes upon man as a speck of animated stellar dust and leaves suspended in mid-air his deepest hopes and fears involving a relationship to a real but unseen spiritual order; science does not make room for the scientist, in his most intimate personal experiences, on such an approach. As to the initial assumptions, science cannot even get underway without a commitment to those basic moral obligations upon which all knowledge depends, such as the intrinsic superiority of honesty over dishonesty, of objectivity over caprice in experimentation, as well as the broad assumptions of the intelligibility of the universe and of the value of truth as against superstition. The whole scientific enterprise is robbed of coherence if the shadow of moral and rational relativity is cast over these primary postulates.

What is clearly needed is a method which retains meaning for all the valid elements of human experience. No appeal and decision is involved in such an ex-

simply to a philosophic method, nor to a revelational method, is self-sufficient, for philosophic methods are legion and competing revelation-claims must likewise be tested. We must not abandon crucial areas of human experience to unrelieved paradox, but rather, rise to that coherence which retains significance for every legitimate aspect of life and history. The fact that some philosophers in the name of coherence, have settled for idealistic and sub-Christian interpretations of reality need not trouble the Christian, as long as he can press the case that the coherence of the facts of science, values, and of God is more profound and complex than the truncated coherence which is sometimes preferred. Just as science, within the arbitrarily fixed limits of its methodology, cannot attain to more than a partial understanding of its data, so too the attempt to make room for an objective spiritual and moral order does not attain a fully coherent expression apart from a proper centrality for that special divine revelation centering in the Hebrew-Christian scriptures and fulfilled in Jesus Christ. A view of existence which asserts an abiding truth and goodness makes room for its own affirmations about scientific phenomena, but it is not so coherent as a view which is alert to special divine revelation, for that alone affords a compelling theistic framework to underwrite the objectivity of genuine religious and moral encounter.

In the recovery of morality, scientists today bear a heavy responsibility. As they conveyed to the modern world the impression that scientific discoveries have overthrown Biblical supernaturalism, they must now contend with equal vitality—if they are in earnest about super-scientific knowledge—for the relevance of that same objective spiritual and moral order which once they denied. That is not an easy task. For one thing, scientism spurred the cultural descent to naturalism, but the scientists by themselves cannot spur a cultural ascent to Christian conviction. Much more
change. The overthrow of relativistic expediency in the interest of Biblical morality is not a reversal to which humanity is naturally inclined. Furthermore, the abandonment of the optimistic notion of the essential goodness of man may be made to yield as much comfort to naturalism as to Biblical theism. If man is no longer, at the core of his being, to be viewed as a minor deity, is the dominance of brute impulses to be interpreted along the pattern of man’s essential animality? That is a crucial question today, and the whole movement of recent science has not formulated any unambiguous case for man’s essential super-animality.

The case for an objective morality cannot be separated today, any more that it was in the early Christian ages, from the issue of divine revelation. There is only one effective alternative to the illusion of man’s animality, as also to the illusion of his essential deity, and that is that man is a sinner. He is not a miniature God, but he is a creature made in the image of the holy Lord of the universe. He is not an animal, but he is a fallen sinner in revolt against his Maker, and is morally responsible for his defection. That is the proclamation of revealed religion. In the Hebrew-Christian scriptures alone is God self-disclosed as the ultimate source of our moral distinctions, and as so holy that he does not gloss over the sinfulness of man. He is so holy that he neither overlooks sin, nor accepts the best offerings of tarnished hands and hearts as the equivalent of the divine standard of holiness. He declares instead that man cannot save himself, so radical is the plight of fallen humanity, yet that God in sovereign mercy promises and provides in Christ that alone sufficient salvation.

That view of objective holiness alone stands in sufficient judgment upon the moral complacency of modern man, reacting to sin with a high cosmic seriousness. There alone is found the offer of a redemptive dynamic sufficient to lift man beyond egoistic and destructive impulses. There alone is the message which, if made the context for the modern scientific pursuit, will enable scientism to redeem the time which it has spent in undermining the relevance of Christian supernaturalism and the moral demand of reality upon men’s minds and hearts.

There is no effective plea for an objective morality, except in terms of the divine revelation spoken by God to man. It is because God has spoken that we know ourselves at once as objects of His creative and of His redemptive love. It is as we acknowledge our sinfulness and our need of His mercy that we come to experience God as the supreme value of life, and as the source of changeless moral norms.

That may not be a message with which modern science is primarily concerned, but unless the modern scientist makes it a primary concern, he cannot escape delivering our age to barbarism and despair. Indifference to essential Christianity means indifference to values, and indifference to values will sooner or later clearly imply the valuelessness of science in the most significant areas of human life.