"SCIENCE" AND "VALUES": ARNOLD BRECHT'S *POLITICAL THEORY* REVISITED

Political Theory: The Foundations of Twentieth-Century Political Thought, by Arnold Brecht. Princeton, New Jersey: Princeton University Press, 1959. Pp. xxii, 607. $21.00 cloth and $5.95 paper.

Arnold Brecht's magnum opus[1] was acclaimed when first published in 1959. It received the prestigious Woodrow Wilson Foundation Award as the best book in political science published in that year; and it was highly praised in reviews by reputed political scientists who predicted that it would prove to be of enduring value. It appeared in some ways to be a somewhat unorthodox version of the recently emergent "scientific" political science. It seemed to offer a more open and flexible approach to the arguments between the older and the newer political science. It appeared to be more willing to admit the limitations of the new science and to concede the possible value of contributions from outside the new science. These characteristics seemed to be associated with an apparently greater philosophical sophistication, a greater conversancy, with the philosophy of science as well as with other philosophies or schools of thought. Since the book continues to be read (it is still in print) after twenty-one years, an apparent testimony to its enduring value, it appears worthwhile to re-examine Brecht's exposition and arguments in order to determine whether these appearances are more than "skin-deep."

I.

Brecht states that the primary purpose of his book, a purpose which he describes as both "humble and ambitious," is to provide "serious students" with a comprehensive account of the genesis and systematic character of what he terms the twentieth-century revolution in "scientific political theory." He wants to explain "the fundamental turn that scientific political theory took in the early part of

1. All page numbers in parentheses within the text refer to *Political Theory*.

this century"; to "initiate" the reader, "with adequate clarity and depth, into the theoretical and philosophical problems involved"; and to make us "fully understand both the positive and negative implications of what is going on in political theory today" (viii) . He visualizes this work as the first part of an even more ambitious effort which will eventually entail a second volume devoted to the application of the new political theory to "the main subjects of political practice" -dealing with: the forms of government; "power, rights, goals, and techniques, including masses, parties and elites, revolution and resistance, equilibrium, order, and general welfare"; "government organization, federalism, public administration and bureaucracy"; and, finally, "sovereignty, international organization, and world government" (22f.). The second volume was never completed.[2]

There is nothing evidently humble in his description of the scope of his endeavor; nor is there in its anticipated depth. He tells us that his "systematic and genetic" account of the new science "is to serve as a well-organized basis" for his own additions to the theory, "chapter by chapter," for the purpose of contributing to the "advancement of theoretical thinking" (viii). He had come to perceive that his own and others' previous efforts to make theoretic contributions on a "piecemeal" basis were inadequate. "So much had to be presupposed in each article, or to be expressed indirectly by mere allusions, that no generally useful purpose could be served; the actual outcome was at best an esoteric exercise for a few addicts, with little meaning for a general public." The cumulative effect of such piecemeal efforts was the "creeping evil" of "lack of clarity and consistency" in political theory. But a more comprehensive, or "fully coherent

2. He explains in the "Introduction" to his autobiography, *The Political Education of Arnold Brecht* (Princeton University Press, 1970; originally published in German in two volumes under the titles *Aus ndchster Ndhe, Lebenserinnerugen eines beiteiligten Beobachters* and *Mit der Kraft des Geistes, Lebenserinnerungen zweite Hdlfte,* Deutsche Verlags-Austalt, 1986-67) that he turned instead to the writing of his autobiography, with the full realization that, at the age of nearly 80, he would be unlikely to live long enough to complete both projects (or a third, the publication of his lectures on the constitutional history of mankind).

"Why in these circumstances I gave priority to the autobiography calls for a word of explanation. The longer I thought it over, the more I became aware that the other two books could be written by someone else, whereas this one only by me. I have liked to fancy, it is true, that the first volume of *Political Theory* bears my personal stamp. The second, however, was meant to be based to such an extent on the principles laid down in the former that some inspired member of our profession who agrees with them should be able to produce it in the same spirit, enriched with his own infusions" (vii).

presentation" of the new scientific theory could be "permeated" with his own contributions, enabling him to "elucidate dark regions and show the merits of over-all consistency." "It is not difficult," he confesses, "to write . much and intelligently, wittily and even fascinatingly, on political issues; but to be consistent in one's thinking, both clear and consistent, is not easy, if I may understate the case" (ix).

Although there is no evidence of humility in Brecht's description of the scope and depth of his prospective inquiry, there is a possible hint of it in his assessment of his accomplishment of its aims. He tells us that he is "far from claiming that I have attained these goals, or any of them, to full satisfaction" (ix). He is, however, "reasonably confident that the reader will find a good deal of information and stimulation here, and teachers and students a much-sought-for coherent presentation, satisfactory for advanced students, but understandable even to the beginner, if he is sufficiently intelligent to submit to theoretic discussion."[a]

Brecht's initial statement of the purpose of his book leads one to expect a uniquely comprehensive treatment of modern scientific method. "There are," he tells us,

> excellent texts on scientific method in the social sciences...; there are books and articles in many languages on political ends and means, on values and on relativism...; there are plenty of essays dealing with jurisprudence...; there are studies on the philosophical basis of science and others on the scientific basis of philosophy; and there are many brilliant asides on basic questions in papers that deal with practical (problems. Yet there is no book, within any of the social sciences, that deals with these various, intrinsically interrelated, aspects and problems on the same level, giving each its full measure of attention, and all of them a well-integrated and entirely consistent presentation. (viii)

It is his intention, in this volume, to supply that need. But it comes as a bit of an initial surprise to discover that about four-fifths of the book concentrates in one way or another on the problem of the justification of "values." That degree of emphasis is indicative of a deeper level of Brecht's purpose. That ulterior purpose is clearly signaled, though somewhat confusedly explained, in his account of

3. That confidence is perhaps further reflected in his statement that he "dispensed with the venerable practice of submitting all parts of my work to the advance critique of numerous colleagues." I.e., with the exception of chapters I and II, dealing with scientific method. Pp. ix f.

the "crisis of unprecedented magnitude" which has overtaken "political theory" in this century.

What is that crisis? Brecht's explanation is rather ambiguous in some respects. The crux of the crisis is the erosion of the "values and principles" upon which Western civilization has been erected or which constitute the essential core of Western civilization.[4] Brecht implicitly distinguishes between a crisis in practice or the practical dimension of the crisis and a crisis in theory or the theoretical dimension of the crisis. The former consists of the political assault upon the basic values and principles, "first by Communism (Bolshevism), next by Fascism, then by National Socialism" (7). What he identifies as the theoretic dimension of the crisis is the inability of modern science "to defend Western civilization by reference to fundamental principles," due to the new theoretic opinion concerning the relationship between "values" and "science." Brecht stresses that it is the theoretic dimension of the crisis which is most fundamental and determinative of the outcome of the political events. "[T]he rise of the theoretical opinion that no scientific choice between ultimate values can be made" antedated the emergence of the destructive ideologies "by about two decades" and, in a sense, prepared their way by undermining confidence in the justification of the alternative "democratic" values and principles. The possible defense against "totalitarianism" in practice had therefore been fatally weakened by the time "the battle was joined." *"This* constituted the real crisis in theory, as distinct from the crisis in practice" (10).

But in what possible sense can this be properly regarded as a crisis in "scientific theory"-i.e., from the standpoint of someone like Brecht, who, as we shall see, does *not* regard this theoretic opinion concerning "values" and "science" as an incorrect view which

4. Including the following "important political principles": "that government should be based on respect for the dignity of man and on freedom of conscience; that there should be independent judges, equality before the law, no slaves, no torture, no cruel punishment; that the principles of habeas corpus should give every arrested person the right to be heard by a judge who could, if detention was not warranted under the law, free him with or without bail; and that science, art, and press must go uncersored"-and perhaps also "the doctrine that government should serve the greatest happiness of the greatest number" (6f.). Brecht identifies all of these as "values and principles" which were "generally accepted" in Western civilization. A careful scrutiny of the items suggests that his frame of reference is limited to what might be termed "advanced intellectual circles."

therefore damages or debases a properly "scientific" political theory. Must it not rather be construed as a "non-scientific" crisis or problem, however much the inability of "science" to provide a solution for it may contribute to its emergence or continued existence? In the light of the peculiar implications of the new theoretic opinion concerning "values," the suspicion immediately arises that Brecht's conception of the ostensible "crisis" can have no "scientific" standing. If that suspicion is correct, then Brecht's enterprise is, in its greater part, perhaps, a "non-scientific" one according to his own conception of "science" and its limitations.

Brecht's explicit discussion of the meaning of the terms "theory," "science" and "philosophy" only further muddies the conceptual waters. The distinction which he makes between "scientific" theory and "non-scientific" theory provides an apparent possible way out of the difficulty.[5] "Political theory" may be either "scientific" or "non-scientific," or, in a comprehensive sense, both. One might, then, consistent with the apparent implications of the theoretic opinion concerning "values" and "science," describe the "crisis" of twentieth century political "theory" as a crisis which afflicts the "non-scientific" dimension of that body of "theory." It is that dimension which presumably continues to embrace the old-fashioned pronouncements about good and bad and justice and injustice, and which therefore may consistently regard the threatened destruction of Western civilization as a "crisis." But Brecht does not explain it this way. He persists in regarding the crisis as, at bottom, a crisis in *scientific* theory. In doing so, he implicitly concedes more to the arguments of critics of that new theoretic opinion than he apparently intended![6]

The same ambiguity emerges from his explanation of "science"

5. "Theory," he tells us, "is always used to designate attempts to `explain' phenomena, especially when that is done in general and abstract terms." If "scientific rules" are followed, the theory is "scientific"; if not, it is "non-scientific" (14).

6. Brecht's awareness of the crisis of Western civilization and his perception of its connection with the emergence of "scientific value relativism" enables him to avoid being skewered by Leo Strauss' very telling Neronic analogy ("Epilogue" in H. Storing (ed.). *Essays on the Scientific Study of Politics,* Holt, Rinehart and Winston, 1961, p. 327). But that escape is apparently purchased by conceptual confusion. It might be said that he is aware that Rome is burning and he does not actually fiddle, but he cannot resist keeping time with the fiddler's music; and it distracts him in his efforts to help put out the fire.

and "philosophy." He tells us that "philosophy" is "scientific" to the extent that, in its efforts to give a comprehensive explanation of *"everything,"* it follows "scientific" rules of procedure or method (15). And he stresses that the new "science" avoids "the establishment of first principles a priori, the validity of which [have not been] proven" (5). But the rules of scientific procedure are "preestablished" (16)-t.e., prior to any "scientific" knowledge. They are the pre-condition of any such knowledge and therefore cannot have been "proven" scientifically. And yet Brecht characterizes "logic and methodology" as "exacting scientific disciplines" (16) and tells us that the question of "the interrelation between philosophy, science, and theory is one of the fundamental problems in the present crisis of *scientific* thinking."[7]

In his later elaboration of the particulars of the new "science" and "scientific value relativism" he leaves no doubt of his belief in the correctness of the view that value judgments cannot be derived from "scientific" knowledge; but here, in his explanation of the need and purpose of his book, he appears to waver between the perspective of the proponents of that view and the perspective of those who reject it. This evident tension between Brecht the man and Brecht the "scientist" is not resolved by a consistent application of the "two hats" or "two coats" doctrine, the usual recourse of "scientific value relativists" who believe that they somehow have something of value to say about "values." Brecht perhaps faces up to the nature and implications of that urge to a greater extent than many of his colleagues. He is consequently less able to deny so glibly that his assessment of the practical value of the new "science" and its possible products or the underlying sense of one's own wisdom in such matters of "value" has something to do with one's knowledge of the world of the "is," gained through intelligent observation and deep reflection. The latter half of the book represents the results of Brecht's efforts to resolve this tension through the possible modification of the new theoretic opinion concerning "values" and "science." However, that effort is crippled at the outset by Brecht's apparent inability to question that new view at a sufficiently fundamental level. Consequently the range of possible solutions is arbitrarily constricted from the start, thus precluding the possibility of any real success in his humane effort to rescue Western civilization from destruction.

7. (14). Emphasis added.

II

Brecht's general characterization of the "revolution" which gave birth to the new "scientific" political theory dates it as beginning at around the turn of the 20th century and describes it as essentially a revolt against a then dominant mode of inquiry or discourse in which "pronouncements were freely advanced on good and evil, just and unjust, morally right and wrong, worthy and unworthy (detestable or wicked), laudable and reprimandable, desirable and undesirable, valuable and nonvaluable" (3). The rebellious fashioners of the new, truly "scientific" political theory came to perceive the lack of "scientific" justification for such pronouncements, viewing them as merely expressive of religious and cultural dogmas and personal idiosyncrasies. They thus saw the need for a more rigorous conception of "science" and its capacities and limitations. That more rigorous conception entailed a primary focus on the question of the proper *methods* of inquiry, for the purpose of insuring that "scientific" inquiries would henceforth restrict themselves to accounts of what "is," informing us about the conditions of life as they actually are. "The trend thus was away from `dogma'... and on to `reality'" (5). It was the "triumph" of this revolution not only to produce a more accurate and precise account of "reality," but, by doing so, to bring about an "unprecedented progress...in many fields, especially in those of social welfare in the broadest sense of the term" (5).

This is, of course, an all-too-familiar story, as it was already in 1959 when Brecht recounted it. What was rather unique in his account of the "revolution" was his ascription of *both* the "triumph" and the "tragedy" or "crisis" of twentieth century political theory to the same source: the new conception of the relationship between "science" and "values." Others who had propagated the story tended only to perceive the "triumph";[8] and if they had any awareness of the "tragedy," they did not connect it with the new view of "science." He and they make the element of self-restraint entailed in the stance of the new breed of scientists, the "scientific value

8. *E.g.:* David Easton. *The Political System: An Inquiry into the State of Political Science* (New York: Knopf, 1953); David B. Truman, "The Impact on Political Science of the Revolution in the Behavioral Sciences," in *Research Frontiers in Politics and Government* (Washington, D.C.: The Brookings Institute, 1955), pp. 202-231.

relativists," appear commendable in contrast to their predecessors' ostensibly uncritical absolutization of more or less conventional ethical norms. But while Brecht is at least willing to acknowledge some of the unanticipated mischief which that moral neutrality has generated, he defends the basic stance as energetically and uncritically as they do.

Brecht identifies "scientific value relativism" as "the Seamy Side of Scientific Method" (117). Scientific method, he tells us, "led automatically" to "scientific value relativism." "The two were necessarily tied together; they were two aspects of the same approach to science" (6). "Scientific value relativism," then, is not merely one among a number of possible "methods" or rules of procedure which the careful enquirer, who wishes to understand human life and the human condition, must consider and perhaps adopt in order to improve the accuracy of his enquiries. It is rather the central core or necessary implication of any such core. It is not exactly synonymous with "Scientific Method"; but you cannot have the one without the other. "Scientific value relativism" is, as it were, the negative face or implication of "Scientific Method" (118). We shall examine Brecht's account of "Scientific Method" in some detail at a later point. But first let us look at its negative face more closely.

> Compactly formulated, Scientific Relativism (or Alternativism) holds that:
>
> (1) The question whether something is "valuable" can be answered *scientifically* only in relation to
>
> (a) some goal or purpose for the pursuit of which it is or is not useful (valuable), or to
>
> (b) the ideas held by some person or group of persons regarding what is or is not valuable; and that, consequently,
>
> (2) it is impossible to establish scientifically what goals or purposes are valuable *irrespective* of
>
> (a) the value they have in the pursuit of other goals or purposes, or
>
> (b) of someone's ideas about ulterior or ultimate goals or purposes. (117f.)

That is to say that "science" is able to deal with questions of "value" only as questions of means to pre-determined ends. It can potentially tell us how to get to any "given" destination or how to get there most efficiently; but it cannot select the destination itself for us. Why not?

Because "[a]ccording to Scientific Value Relativism, `ultimate,' `highest,' or `absolute' values or `standards of values' are `chosen' by mind or will, or possibly... `grasped' by faith, intuition, or instinct; but they are not `proven' by science-excepting, however, that science can help a great deal in clarifying the meaning of ideas about such values and the consequences and risks entailed in their pursuit" (117).

What, then, is the basis for this conviction that "science," when properly conducted, is inherently incapable of proving the objectively authoritative status of ostensible "ultimate values," of discovering the intrinsic "value" of some possible objects of human aspiration? There are several dimensions or layers to the explanation which Brecht provides.

Brecht's primary reliance for the support of "scientific value relativism" is placed on the argument from deductive "analytic" logic which insists that there is a "logical gulf" between "descriptive" and "normative" *propositions.* Brecht tells us, approvingly but somewhat imprecisely, that the "chief technical ground for the withdrawal of science from moral value judgments has been the logical difference ('gulf') between Is and Ought" (125). The technical logical argument insists that: (1) deduction or "analysis" is simply a process of bringing to light or spelling out the various meanings or implications which are contained in given *propositions* or major and minor premises; and (2) "[i]nferences of what `ought' to be, therefore, can never be derived deductively (analytically) from premises whose meaning is limited to what `is'; they can be correctly made only from statements that have an Ought-meaning, at least in the major premise" (126). But it does not directly follow from this that it is logically impossible to derive "oughts" from observations and explanations of what "is." The "withdrawal," if it is not simply illogical, is based upon a further presupposition of a complete disjunction between the "is" and the "ought" *in nature,* at least insofar as "science" is concerned.

There is no doubt that the logical distinction between "is" and "ought" type *propositions is,* on the whole, a meaningful and useful one. But its usefulness varies from case to case. Some observers may intend their propositions about the "is" and the "ought" to be completely disjunctive. But not all observers do so. And the primary explanation of this difference in intent is that it is generated by differences of understanding of the relationship between the "is" and the "ought" *in nature-or,* that is to say the difference between

those who believe that the "is" (nature) contains an "ought" dimension and those who either deny it or at least insist thay any such dimension of the "is" is unknowable or unknowable "scientifically." Obviously, if the "is" floes contain or embrace an "ought" dimension, then premises which describe what "is" may therefore embrace aspects of its "ought" dimension and consequently provide a sound basis for conclusions expressed in the normative (or "ought") mode. Only if it is explicitly or implicitly denied that there is a scientifically demonstrable "ought" dimension to the "is," does the argument from deductive analytic logic appear to disclose an unbridgeable gulf between the "is" and the "ought."

It appears, then, that the argument from deductive logic per se does not provide a sufficient support for "the withdrawal of science from moral value judgments." "Analytic" statements as such can tell us nothing about the world as it "is." The assertion or the denial of the existence of an "ought" dimension in nature, like any other descriptive account of the world as it is, is what is termed a "synthetic" proposition in the Kantian tradition which Brecht accepts. And it is understood that "science" is *primarily* characterized by such "synthetic" propositions rather than "analytic" ones. Moreover, "science," understood as the most careful and self-conscious inquiry into the various dimensions of what "is," proceeds *inductively* from the observation of particulars to the formulation of generalizations or universals. Therefore the stricture stipulated by the rules of deductive logic would appear to be of questionable applicability to the process of scientific induction. But Brecht emphasizes that "[t]he decisive point of the Gulf Doctrine...is that it extended the ban on switches from Is to Ought beyond deductive to *inductive* reasoning." Thus, "deriving major premises of Ought-form from observation of facts" was condemned as "unscientific."

9. (540). "Once it had been seen that inferences from Is to Ought could never be validly drawn in a purely logical manner, Scientific Value Relativism was around the corner. But something else was necessary to enforce its acceptance. It had to be recognized (1) that every conscious pursuit of goals or purposes, whether moral, amoral or immoral, contains elements of evaluation; (2) that every selective evaluation (better than') of ultimate standards and, therefore, in particular every moral evaluation is either identical with, or at least associated with, ideas or feelings about what ought to be done or approved, whose validity cannot be logically derived from facts; and (3) that the validity of ultimate standards of evaluation is not only logically undemonstrable but cannot be proved in any other scientific manner" (215).

Brecht's presentation makes it seem to be a simple and unproblematical matter to extend the logical dichotomy prescribed by deductive logic to scientific induction as well;[10] but it is not. The former is concerned only with the intended meanings of propositions; the latter is apparently concerned with the investigation of what "is," and with the formulation of propositions which express or reflect the various characteristics of what "is," in all of its richness, in all of its depths, in all of its dimensions. It is one thing to insist that "oughts" cannot be derived from propositions which are devoid of any ought dimensions or implications. It is another thing entirely to prohibit the drawing of "ought" implications from one's investigation of the characteristics of a world which may well contain such dimensions. This is tantamount to prohibiting the inquirer from perceiving or taking note of any perceptions of any evidence of such an "ought" dimension or its contents-unless one allows for the possibility of *direct* perception of "oughts" as original data from which further "ought" inferences might be made. But such allowance is not clearly made by Brecht (or other "scientific value relativists"), even though he seems to be toying with this possibility in his later search for "universal postulates of justice."[11]

Since the question of the existence and possible content of such a dimension of our world is of such immense practical consequence for us as living human beings, one might reasonably expect that the investigation of nature or of what "is," in that respect, would be given high rank on the agenda of science. But, as we see, Brecht, like other "scientific value relativists," is clear and emphatic in his insistence upon the complete exclusion of this item, this dimension, from the agenda of science. What can justify this prior restraint, as it were?

There are three apparent alternative possible grounds for insisting upon such prior scientific restraint, although the third may be only an apparent and, not a real alternative to the second. It would appear that we would be justified in excluding the possible "ought"

10. (126-130). However he does admit that "[t]he matter is less obvious" in the case of "*inductive* generalizations" (127). Brecht's emphasis.

11. See below, pp. 153-156 "This 'Gulf Doctrine,' as we shall call it in further references, has far-reaching consequences because if logical derivations from facts are barred, no transmissible proof can be presented for nonhypothetical propositions in the form of Ought beyond the demonstration that human beings themselves insist or urge that something ought to be done. That, of course, can be verified by science in many cases" (127).

dimension from our scientific enquiries: (1) if we already know that no such dimension is a part of the "is"; or (2) if we know that there is no possibility of perceiving or uncovering it even if it is there; or (3) if we know that any possible "knowledge" of it will necessarily differ in character from our other "scientific" knowledge, so substantially as to require separate treatment and status. That is to say that we cannot "know" it in the same sense that we "know" the other dimensions of what "is."

As to the first of these alternatives, Brecht could not, of course, consistently claim to possess knowledge of the non-existence of an "ought" dimension to the "is"-for the purpose of constructing the proper scientific methodology. For such "knowledge" would then be "pre-scientific" and, as such, suspect in its accuracy and precision. This is no doubt why he expressly denies that there is any conclusive proof of the absence of any objective ground of "values." He carefully distinguishes between his position of "scientific value relativism" and "philosophical relativism" which insists that "there is nothing of absolute value and that all values *are* equal" (262). "Scientific value relativism" stops short of such a contention that all values are inherently relative, because "there is surely no scientific proof for that."[12] To claim to know that all "values" are inherently relative and subjective is to claim to know that there is no objectively discoverable "ought" dimension in the nature of things; and to make such a claim, Brecht asserts, is to engage in a "self-contradiction"which is "easy to refute." It is "to deny absolute truth and in the same breath to proclaim one." And he states that he "never met a scientific relativist who took this stand in his scientific work" (262). We shall see in due course why Brecht formulates the contradiction in terms of "absolute truth."

While the absence of proof of the non-existence of an "ought" dimension to the "is" is not a proof of its existence, it would at least appear to provide a reasonable ground for including the question on the scientific agenda. Why should inquiry in this direction be restricted at the outset? Perhaps because we know that such enquiries are bound to fail, because it is impossible to obtain such

12. (435). Brecht's emphasis. "Historical relativism deals with the historical conditions of value judgments and of science; it either denies or neglects the possibility that there may be trans-historical values. The relativism of Scientific Value Relativism, by contrast, is primarily `transhistorical.' It investigates the problems of values that are thought of as independent of historical conditions, or at least refers to them also" (133).

knowledge. Brecht's comments relative to this possible ground for scientific self-restraint are, on the whole, rather ambiguous.

How do we know that it is impossible to obtain solid knowledge of the possible intrinsic value of the various objects of human aspiration? In part, empirically.. But the empirical evidence which Brecht offers is off-hand, fragmentary, and obviously inconclusive; and he does not, accordingly, rest his case heavily upon it. It is rather employed in a minor supplementary way. It consists of the observation of a great diversity of opinion concerning the identity of the ostensible "ultimate" or "absolute" values.1[a] The diversity of such opinions prior to the emergence of modern Scientific Method itself presumably tells us something about the elusiveness of the truth about such matters. But the fact that so many different values have been "absolutized" even by twentieth-century scholars in their "revolt against Scientific Relativism" is "a fact which is of no little support for the relativistic thesis" (156). "Another phenomenon that supports the viewpoint of Scientific Relativism is the fact that modern democratic parliaments reflect" diverse conceptions of "justice." Thus, the resulting "rainbow of party ideologies is merely the logical consequence of the fact that science is unable to decide which of the several views is correct" (157). He thus seems to imply that if "science" were capable of determining the correct answer to such value-questions, it would presumably have done so by now. And if it had done so, the political parties as well as the scholars would presumably all have adjusted their conceptions and claims accordingly. This would seem to imply that "science" produces answers which are, if not absolutely certain, at least universally compelling or appealing.

But such empirical evidence as this is, of course, entirely inconclusive. The history of science presents us with an equally impressive diversity of conclusions on a great many other matters, but that is not thought to prove the impossibility of discovering the truth about those matters. Such problems rather inspire moderns like Brecht to search for better "methods" of inquiry in order to increase

13. Brecht frequently uses the designations "ultimate values" and "absolute values" interchangeably; but the term "absolute would seem to refer to the quality of the knowledge of it; whereas "ultimate" calls attention to its position as the first link in a chain of ends and means. Such a position does not necessarily entail "absoluteness," especially in the sense of being unquestionable; but we shall see in what follows in the text above, how these two notions become joined in Brecht's thinking about "values."

the chances of success. Moreover, if such evidence is produced by an inquiry conducted without the discipline of modern "Scientific Method," it must be regarded by Brecht with suspicion. And if it is produced by an inquiry which is methodologically restricted from serious inquiry into the possible intrinsic values of things, then it must be regarded by us as the testimony of a prejudiced witness.

That there is and has been a wide diversity of views on questions of "value" is not a matter of dispute. The question of the significance of that diversity is highly disputable. Brecht, and other "scientific value relativists," insist that in the face of that diversity one must adopt a radically skeptical attitude toward *all* of the diverse opinions, either extant or possible. One cannot appropriately claim to know that they are all false or erroneous as claims to knowledge; but one can be certain that none can be proven to be true:

> Scientific Value Relativism thus takes full account of the fact that the believer may have an absolute yardstick as the basis of his thoughts on justice-absolute for him, and perhaps really absolute if his revelation is right. But science holds modestly that, precisely as God's existence cannot be scientifically proved or disproved, the absolute standard of justice, too, cannot be proved or disproved, only believed and taken for granted, or disbelieved and not so taken. (158)

"Scientific value relativism," then, is based upon an assessment of the knowledge claim of the "knower" or evaluator-in advance, as it were. It proceeds on the conviction that "absolute" knowledge or proof of the authoritative status of ostensible "ultimate" or "end" values is unattainable. It does not contend that the "values" per se are relative and subjective; but only that any "knowledge" of them must be relative and subjective (125).

Does this mean, then, that it is simply impossible to attain any real knowledge of any such possible intrinsic "values"; or does it merely mean that such knowledge is simply different from "scientific" knowledge? Brecht, as we have seen, seems at times to imply the former, but he explicitly asserts the latter. He admits the possibility of individuals possessing such knowledge; but he insists that the validity of such claims of knowledge is "beyond scientific proof" (435). And that is to say that it is, at best, "knowledge" of a different sort than that which "science" produces or certifies. Therefore, all references to "ultimate goals or purposes of human life must be debarred as evidence from scientific discussion, except in hypothetical forms." He tells us that "[t]his is a hard demand indeed, and to live up to it requires a great deal of discipline. Yet

science is no child's play" (125).

But what does it mean to say that there may be "knowledge" of objectively authoritative "oughts," but that such knowledge is "non-scientific"? Is it really knowledge, then; or is it only a kind of pseudo-knowledge indistinguishable from error, wishful-thinking, and other flights of fancy? It is evident from the preceding quotation that the immediate ground which Brecht repeatedly stresses in justification of the scientific prohibition of "value judgments" is the alleged intrinsic inability of "science" to provide "evidence of *a conclusive* nature" or *"absolute"* proof of the authority of such values. "This method does not enable us to state, in *absolute terms,* whether the purpose pursued by us or by others is good or bad, right or wrong, just or unjust, nor which of several conflicting purposes is more valuable than the other." "In short, it does not enable the scientist to render an unconditional scientific value judgment, and especially not a moral one" (124f.). That means that it is not possible for the claimant of "knowledge" of the authoritative "values" to prove to others the authenticity or validity of that claim, "unconditionally," "conclusively" or "absolutely" (125). The question of the precise status, as knowledge, of such "inter-subjectively non-transmissable" items, as well as some of the further implications and problems associated with this phase of Brecht's argument must be deferred to a later point when we have had the opportunity to explore his account of "Scientific Method" more fully.

More to the point of our immediate concern is the question of *how* it is known beforehand that such "value and principles" cannot be known "scientifically." Brecht does not provide as clear and crisp an answer to this question as one would wish. It emerges piecemeal and by implication from his discussion of other points. He seems, for the most part, to take it for granted that it is simply obvious. He makes no effort to build a case in its support on empirical grounds; there is no doubt that he is clearly aware of the necessarily inconclusive character of any such attempt. But his discussion of "analysis" and "induction" provides, implicitly, a more conclusive proof of the point, one which is derived from rules of logic and which is therefore not apparently dependent upon the results of an empirical examination of the question at issue.

Brecht tells us that "analytical deductions if correctly made can be said to be `absolutely true'."

> But this quality of absolute truth refers only to the analytical inference as such, i.e., to the statement that the meaning of proposition *a* implies the proposition *b*. Whether the proposition *a is* true, and consequently, whether *b is* true, is not guaranteed by the fact that *b* is implied in the *meaning* of *a*. These are the most elementary facts about logic. (57)

It is this capacity to produce "absolute truth" which "gives deductive logic...its singular place in science," he points out. But it is a severely circumscribed capacity. It applies only to the logical relationship between the general and particular propositions *per se,* not to the relationship between such propositions on the one hand and a real world which they are attempting to describe, on the other hand. Thus viewed in their "synthetic" character, the "truth" of which such propositions are capable is of a different order. "Synthetic statements, too, may be true; but whether they are depends on something more than mere deductive, analytical logic, and this `something more' is always subject to scientific challenge" (59).

Inductive inferences necessarily lack "this quality of absolute truth." The process of generalizing from a limited number of particular instances is one in which our generalized conclusion extends beyond what is *necessarily* implied or proven by the particulars from which it is inferred. Thus, after a brief review of the various attempts of John Stuart Mill, Felix Kaufman, and John Dewey to justify such inductive generalizations, Brecht concludes that "[f]or our present purpose [of understanding the nature of Scientific Method] it does not matter which of these theories we follow." The important point, he stresses, is that "it is recognized today that inductive reasoning can lead only to tentative hypotheses, whose truth may always be exposed to scientific challenge" (62).

How does this bear upon the question of the possibility of "unconditional" or "absolute" knowledge of "values and principles"? It would seem that such "oughts" must either be perceived directly or indirectly (inferentially). If they are perceived directly (via revelation, intuition or other means") their authenticity or authority is

14. Including "pure practical reason," according to Kant. Kant, who is obviously much admired by Brecht, receives much gentler treatment by Brecht than other philosophers who have made less absolute claims for their "oughts." Brecht carefully avoids directing any criticism at Kant's notion of "synthetic a priori" statements in general or its application to the "moral law" in particular. See: pp. 55-63, esp. p. 59; 105; 368 f.; and 375. He concludes that "Once we accept his premises we cannot accuse Kant, any more than we could Moses, of having made unwarranted inferences from what is to what ought to be" (368 f.).

not provable to others who have not participated in such direct perceptions. And Brecht denies that there is *as yet* any established evidence of any such "oughts" directly perceived by all or by a sufficient number to establish their authenticity beyond doubt (ch. X). Any such offerings thus far must therefore be regarded as "intersubjectively untransmissable" and therefore "non-scientific." However, he does hold open the theoretical possibility of some such future discoveries in this direction; and he explores this possibility himself, inconclusively, in the fourth and final part of his book. However, until that possibility comes to fruition (if ever), we are left without any verifiable absolute knowledge of any objectively authoritative "oughts" and the consequent prohibition of "value judgments" from "scientific" discussion.

If the "oughts" are perceived only inferentially, they must be inferred either by induction from particulars or by deduction from some higher principle or generality. But if they are inferred inductively, then they cannot be known "absolutely" or "unconditionally," due to the inherent limitations of inductive knowledge. This consideration alone, then provides a sufficient basis for the repudiation, as "unscientific," of any attempt to establish "oughts" on the basis of empirical observations.

And if such "oughts" are inferred deductively, their truth can be "absolute" or "unconditional" only if the higher principle or gererality from which they are derived is known in such an "absolute" or "unconditional" way. But Brecht emphatically denies the existence of any "intersubjectively transmissible" proofs of any such claims of absolute knowledge of any such higher principles or generalities from which authoritative "oughts" might be deduced. Thus, he tells us that the "reason" for the "impotence" of "science" to "set the goal" or to tell us "in absolute terms" what ends or purposes we should pursue "is closely connected to the inability of Scientific Method to provide conclusive scientific evidence for or against the reality of God and for or against the validity of the opinion that the world in general, and life on earth in particular, has any purpose apart from that we give it. Could we answer these questions scientifically we would also have an answer to questions regarding moral values" (125).

It appears, then, on Brecht' account of things, that the only (theoretical) *possibility* of "absolute" or "unconditional" knowledge of authoritative "oughts" is through direct perception which avoids the necessity for inferences which either violate the logical

dichotomy between "is" and "ought" type propositions or are afflicted with the limitations inherent in inductive reasoning. But the possible role of "science" in exploring this possibility is, at best, a limited one. It is restricted to the possible demonstration of the universality of certain opinions or inclinations in support of particular "values" or moral "postulates." But it does not appear that "science" could attest to the moral authority of such common inclinations in support of particular "values" or moral "postulates" in any case. It could, at best, only identify "universal opinions about values" (132). To draw any conclusion concerning authoritative "oughts" from such factual data would appear to violate the "Gulf Doctrine."[15] And that is to say that the drawing of the "ought" conclusion would entail the drawing of an inference. And that, in turn, implies that the "ought" is not simply perceived directly after all.[16] Brecht does not address this issue directly; and he consequently never seems to make up his mind whether the direct perception of "oughts" is or is not possible. And that no doubt explains the ambiguity of his position on the possible utility of the "scientific" search for "universal values."

Brecht thus appears to have closed the door on all of the possibilities of "absolute" or "unconditional" knowledge of "values" which are "intersubjectively transmissable" and therefore a proper subject of "scientific" inquiry. But it also appears that a double standard has now quietly reared its ugly head. For "science," in Brecht's account, deals primarily in "synthetic" propositions and inductive reasoning, and is therefore intrinsically incapable of providing "absolute" or "unconditional" knowledge of anything. It appears, then, that "absolute" or "conclusive" proof and "scientific" proof are not

15. This would be to commit the ostensible error of traditional moral philosophy: "Far into the nineteenth century, and in part even into the twentieth, writers on ethical and legal questions derived their doctrines of what ought to be, or what ought to be done, from the factual data on what is. Human beings are, therefore they ought to be; they ought not to be killed. They have a natural impulse to preserve their lives; therefore they ought to have the right of self-defense. They are born equal; therefore they ought to be treated as equal. Society exists, and is useful to the maintenance of life; therefore there ought to be society" (126).

16. The term "value *judgment,*" so commonly used by "scientific value relativists" and others would itself suggest that the assessment of the moral authority or "oughtness" or "value" of any possible object necessarily entails a mental operation characterized by some form of inference rather than some simple form of direct perception.

synonymous; and that a far more demanding standard is being applied to "value judgments" than that which obtains in the restricted sphere of "scientific" investigations. We must therefore turn to a more detailed examination of Brecht's account of proper "science" in order to determine whether this impression of a double standard is correct and, if so, whether Brecht can justify its employment.

III

Brecht's account of the characteristics of a proper "science" of politics, which should be contrasted with the first pages of the Fourth Book of Aristotle's *Politics,* stresses the prime importance of "method" in typical contemporary fashion. But some of the specifics of his account are rather untypical in that Brecht makes more of a self-conscious effort to avoid the implication of a simply mechanical inquiry into the efficient causes of a world presumed to be merely a complex machine. His account of the "growing methodological awareness" of the twentieth century explains it as a reflection of a growing awareness of "limitations in the nature of science." This "methodological awareness" entailed the acceptance of the necessity for certain restrictions on how one could proceed in the effort to investigate and understand the world.

> The principal tools of science *qua* science, they found, were observation of facts, measurement, and logical reasoning. Anything that could not be done with such tools should not be presented under the pretense of being scientific but be frankly put forward as the personal opinion of the writer, or as a piece taken out of a religious creed, or as a tentative assumption, or the like. (4)

The specification of the detailed particulars of the proper rules of scientific method or procedure, he acknowledges, has been a matter of considerable debate. But those who have been responsible for making this century "the methodological century in the social sciences" have been in agreement on the superiority of this general approach to that which had previously prevailed. As Brecht explains it:

> Instead of indulging in the establishment of first principles a priori, the validity of which was not proven but from which detailed postulates had nevertheless been derived, twentieth-century political science gradually came to focus research on actualities, that is, on the disclosure of facts and of their interrelations, basing its findings on painstaking observation and measurement, especial-

> ly on a rapidly growing stock of pertinent statistics. No greater revolution has ever taken place in the routine work of scholars in the social sciences."

The trend toward "methodological awareness" was, thus, a trend "away from `dogma'-from religious dogma as well as from dogmas of national tradition or of a personal conviction-and on to `reality'" (5). And, as we have seen, on its negative side it came to entail the stricture against "value judgments."

Brecht presents his own version of "Scientific Method" in terms of eleven "`scientific actions,"scientific operations,' or `steps of scientific procedure'," which he cautions, do not necessariy occur in the order presented.

1. *Observation* of what can be observed, and tentative acceptance or nonacceptance of the observation as sufficiently exact.
2. *Description* of what has been observed, and tentative acceptance or nonacceptance of the description as correct and adequate.
3. *Measurement* of what can be measured; this being merely a particular type of observation and description, but one sufficiently distinct and important to merit separate listing.
4. *Acceptance* or nonacceptance (tentative) as *facts* or *reality* of the results of observation, description, and measurement.
5. *Inductive generalization* (tentative) of accepted individual facts (No. 4), offered as a "factual hypothesis."
6. *Explanation* (tentative) of accepted individual facts (No. 4), or of inductively reached factual generalizations (No. 5), in terms of relations, especially causal relations, offered as a "theoretical hypothesis."
7. *Logical deductive reasoning* from inductively reached factual generalizations (No. 5) or hypothetical explanations (No. 6), so as to make explicit what is implied in them regarding other possible observations (No. 1), or regarding previously accepted facts (No. 4), factual generalizations (No. 5), and hypothetical explanations (No. 6).
8. *Testing* by further observations (Nos. 1-4) the tentative acceptance of observations, reports, and measurements as properly made (Nos. 1-3), and of their results as facts (No. 4), or tentative expectations as warranted (No. 7).

17. (5). If the stress is placed on the term "routine," in the narrow sense, the assessment offered in the final sentence may be beyond reproach. But if that term is interpreted more broadly, Brecht's assessment must surely be regarded as short-sighted by those who understand the magnitude of the revolution wrought by such men as Bacon, Hobbes, and Descartes.

9. Correcting the tentative acceptance of observations, etc., and of their results (Nos. 1-4), of inductive generalizations (No. 5) and hypothetical explanations (No. 6), whenever they are incompatible with other accepted observations, generalizations, or explanations; or correcting the previously accepted contributions.

10. Predicting events or conditions to be expected as a consequence of past, present, or future events or conditions, or of any possibleconstellationof such, in order either (a) to test factual or theoretical hypotheses (Nos. 5 and 6), this being identical with steps 7 and 8; or (b) to supply a scientific contribution to the practical process of choosing between several possible alternatives of action.

11. Nonacceptance (elimination from acceptable' propositions) of all statements not obtained or confirmed in the manner here described, especially of "a-priori" propositions, except when "immanent in Scientific Method" or offered merely as "tentative assumptions" or "working hypotheses" (28 f.).

An adequate evaluation of Brecht's efforts requires that we examine these eleven principles with some patience and care. We shall then come back to a more general treatment of the work. It is noteworthy that neither "Scientific Value Relativism" nor the criterion of "intersubjective transmissibility" is featured in his presentation of "Scientific Method."[18] Nor are they discussed to any significant extent in his subsequent systematic exposition of these eleven points per se. Both are presented, ,explained and justified subsequent to that exposition;[19] and while they are then related to some of the preceding points, this form of presentation spares Brecht the apparent necessity of a more thoroughgoing treatment of some of the fundamental problems which they entail and which would become more evident in a more completely integrated presentation.

In the light of the central importance which Brecht attaches to the theory of Scientific Value Relativism in the explanation of the essential character of modern scientific method, and in the light of the demanding standard of proof which he applies to standards of "value," the most significant feature of his systematic exposition of

18. When rendered by Brecht in capitalized form, thus, his own particular versions of "scientific value relativism" and "scientific method" are intended.

19. "Scientific Value Relativism" as the "negative" side of "Scientific Method," as we have seen, and "intersubjective transmissibility" as the justification of the "exclusiveness" of "Scientific Method."

the eleven "steps" which constitute Scientific Method is his repeated admission of the underlying and insurmountable uncertainty which attaches to the results produced through these scientific steps. In his account, the products of the proper Method are inevitably uncertain both as to their accuracy and their completeness. They are, at best, propositions which must be regarded as tentative or incompletely confirmed efforts to describe and explain what really "is" or is going on. And their uncertainty is insurmountable because of the inescapable role played in "scientific" inquiry by such intersubjectively untransmissible elements as individual "genius," "insight," and "judgment," as well as by the intersubjectively transmissible but "unscientific" elements of "common sense."

In remarks made preliminary to his exposition of the eleven "steps," he stresses that "Scientific Method must not be understood as a merely mechanical procedure of indiscriminately gathering data and processing them in line with prescribed steps, leaving every progress to assiduity and little if anything to genius. Rather the opposite is true" (30) . It is creative genius which perceives or selects the questions worthy of scientific inquiry; and it is such creative genius, which Scientific Method is incapable of supplying, which somehow perceives the order present amid the "confusing multitude of factors" which are present in most "events" which we seek to understand, as a necessary precondition of any systematic "scientific" investigation of such events. He insists, of course, that all such creative insights "must finally be processed in line with Scientific Method in order to become a part of the body of science"; but he admits that "to put a fertile idea through the mills of Scientific Method is often merely the last act of the total process, even though it be the one that gives it the stamp of science" (31). The clear implication, then, is that "the total process" by which our knowledge of the world is produced goes well beyond the provisions, rules, or steps of Scientific Method. The latter constitutes, at best, only the last of an unspecified number of "acts" or stages of the total process, and perhaps not even the most important stage at that, insofar as it is not the stage or act by which new discoveries or insights which add to our knowledge are generated. It appears from Brecht's subsequent explanations rather to be primarily, if not exclusively, merely a means of testing and choosing between such ostensible insights for the purpose of distinguishing between those which are to be ac-

cepted *by others*[20] as established knowledge and those which are not.

Brecht's account of the first of the eleven "scientific steps," *observation,* stresses its essentially subjective aspects. Noting the complex nature of the "process" of empirical observation "of even the simplest fact," he emphasizes the active, rather than merely passive, role which "the mind" plays in "intentionally singling out the objects and sub-objects of observation, using many conceptions and experiences previously piled up in it, and affecting-sometimes sharpening, sometimes corrupting-the accuracy of observation through expectations or through some preconceived shape or configuration" (32). Observation "is always, strictly speaking, observation by a person, and by one person only." The observations of two different observers cannot be identical; and "the `what' observed," or objects of such multiple observations, can be regarded as identical only upon the basis of a presupposition: the assumed truth of "the common-sense assumption that one and the same thing often causes parallel impressions in different human beings, and that, therefore, there is a broad sphere of what is best called...`consubjectivity'" (33). This fundamental reliance upon common sense cannot be transcended, because "Scientific Method" is incapable of proving "that consubjectivity exists." And yet "[w]ithout consubjectivity there can by no intersubjectivity, and without intersubjectivity there could be no science."

Brecht's version of scientific method also "follows common sense" in the acceptance of the validity of introspective observations. Consequently, man's inner or mental life, including motivations, become more or less directly accessible to "scientific" investigation. While giving some praise to "behaviorist methods," he stresses that "Scientific Method, as here interpreted, is not tied to Behaviorism, i.e., behaviorist taboos are not mandatory within Scientific Method" (36). But neither are they prohibited. We are not required by Scientific Method to follow common sense in such matters; we

20. There is some ambiguity as to the ostensible necessity of "Scientific Method" as a test of the validity of one's own "insights." While Brecht seems to imply at least its utility in this regard, he also admits that there is no doubt that a person can possess true knowledge of something without being able to prove it through "Scientific Method" or any other method (275). He does not fully explain how the person who possesses the undoubted, but intersubjectively untransmissible, knowledge is able to know that he really knows; but it would appear that knowing and proving to other what one knows are different "acts" or stages in the establishment and diffusion of knowledge, no matter how difficult it may be to account fully for either.

are merely permitted by it to do so. While the limited possibility of "controls" in such introspective observations presents a problem; he assures us that "intersubjective communication" does not. "We do `understand' reports on each other's inner observations extremely well in the great majority of cases. This understanding...is grounded in `analogy'" (35). And the "analogy" is converted to "identity" throuth the common sense assumption of "consubjectivity."

Furthermore, even the assessment of relevant exactitude of observations entails elements of individual judgment not amenable to "scientific" controls. There are, Brecht noted, no "absolute" or clear-cut rules for determining whether an observation is "sufficiently exact to be taken into account" (34). It is a matter of individual judgment which may freely choose between technical and common sense criteria. One may rely upon the testimony of a single reliable observer or one may insist upon "the most refined controls devised by modern technology and psychology." But whatever one "accepts" in this regard, that "acceptance" is only tentative and "may be withdrawn on better grounds at any time."

In similar fashion, Brecht's account of the second "scientific step," *description,* emphasizes the subjective element involved. "No observer," he warns us, "can describe what he has seen without using conceptions or pictures that refer to things he had seen before. Language itself consists of memories incorporated in words, the latter serving as symbols for the former" (38). Moreover, Scientific Method has no answer to the question whether what the observer actually observes are the larger wholes or the smaller parts of which they are composed (39). And, while Brecht does not explain the significance of this difference, it would appear that if it is only the smaller parts which are actually observed, the wholes must be regarded as mental constructions potentially subject to all kinds of individual distortion or idiosyncratic variation from one person to another. Consequently it is necessary to interpret all reported observations (or "report propositions") "so as to include the words `I thought' before the assertion 'I saw, etc.'" "Indeed, to be quite exact, the report should be read to have this pattern: `I do think (believe) *now* that I was at place *p* at time *t,* and that *then and there I did* think (believe) I saw *a'" (39).*

Thus, no matter how meticulous the care taken by the observer, uncertainties remain. And those uncertainties are compounded when his reported observations are utilized as scientific evidence by others. "Adequate description does not depend alone on the mind of

the observer and what is in it when he reports; it is contingent also on the mind of the report's receiver. Words may have a different meaning for the writer and the reader, the speaker and the hearer" (39). And some speakers, as in surveys or scientific interviews, may possess a "conscious or subconscious intent to deceive, to modify or to exaggerate." Refined techniques have been devised to avoid the most obvious pitfalls, but these produce, at best, a limited degree of success in avoiding the possible errors. The use of preformulated questions and answers, indirect questions, depth interviews, etc., all have their own particular sets of associated methodological problems.[2]

In his account of the third "scientific step," *measurement,* Brecht acknowledges that at least some "qualitative values" "resist attempts to measure them in quantitative terms." And this resistance bears heavily upon "the possibilities of measurement in the social sciences," which are, "and will continue to remain, limited because of the great number of variables, all of which cannot be included in scientific analysis and, insofar as they can, are not all measurable" (43). But Brecht implies an even more serious limitation or defect of the results of the employment of statistical techniques in the social sciences when he comments, in the preceding section, that the results of depth interviewing "are not fit for statistical calculations unless they are first coded and thereby once more bereaved of all or some of their `depth'" (41). The loss or absence of depth in so many of the studies which have been produced by practitioners of the new "science" has, of course, been frequently remarked upon by critics, almost always to a cool reception.

Brecht's account of the fourth "scientific step," *acceptance as `fact,"* provides a continuation of the emphasis on insuperable uncertainties. "Even when an observation is accepted as exactly made and adequately communicated, it remains to be decided by science whether the conclusion can be drawn that the phenomenon which was subjectively observed corresponded objectively to an actual fact" (48). And that decision on "acceptance" is a matter of individual judgment for each "scientist." There are "no strict rules" to guide that judgment, other than a few negative ones which forbid

21, Brecht gives only the briefest mention of some of these, but his constant stress is on the problematical character of the results achieved even with the greatest possible methodological care.

the simultaneous acceptance of mutually contradictory "facts" (48) and which prohibit "arbitrariness" and absolute or final acceptance (71). "Even the fundamental philosophical problem of the certainty ,and nature of reality is involved in every decision on the acceptance of the results of observation as facts" (48).

In his brief and somewhat disjointed discussion of this fundamental problem of the relationship between reported observations or "facts" and reality or what really "is," Brecht chooses to divide his discussion into four separate sections, dealing successively with ¨Fact," ¨Truth," ¨Proof" and ¨Reality.¨ Reality, of course, comes up in all four sections, but receives inadequate and inconsistent treatment over-all. In his discussion of "truth," he distinguishes between the theoretical alternatives of "truth" (i.e., of "facts") as correspondence with reality and "truth" as the "warranted assertibility" or the "empirical validity" of propositions. He quickly concludes that "[t]he important point for us here is that Scientific Method is not necessarily tied up with a definite choice among these views."[22] The individual scholar is free to accept "propositions about alleged facts" as "true" in any one of several possible senses-as "corresponding to reality, empirically valid, verifiable, or warranted"-whichever he prefers. But his acceptance must be "tentative or provisional" in any case (51).

In his discussion of "proof," he begins by noting that "[i]n the strictest sense of the term, full empirical proof is never available under Scientific Method" (51). Such "full proof" is restricted to "analytical judgments." Consequently, "we can speak only of probability of a high degree, or of plausibility" when dealing with "empirical questions"-at least when we are dealing with "inductive generalizations of observed events" or with "statements about causal relations." But when dealing with "particulars," he tells us, "we need not always be so shy." Here we can be certain of the truth or reality of the "fact." "It would indeed be foolish and misleading if with regard to every particular event social scientists spoke of there being no more than a high degree of probability that it happened." It is "both true and fully proved" that Hitler; Lincoln, Washington, Caesar, Cicero, Plato, and Aristotle lived, etc. [23] Brecht tells us that

22. Cf.: "I...wish to make it clear that the scientific usefulness of a concept depends not on analytical reasoning alone but on the truth of `synthetic' propositions that are meant to reflect reality" (59).

23. (52). See also (508).

"No counter such [particular] statements with Pilate's question, `What is truth?' is not appropriate in scientific discourse. Here again it appears that Scientific Method is to a considerable degree based on common sense" (52). In this case, at least, it appears that common sense is mandatory rather than merely permitted. Thus, in his discussion of "reality," Brecht declares that-

> Scientific Method expects the scientist to accept reality, unless he has weighty grounds for withholding acceptance. It can be said that, in a sense, the observable world is the real world to Scientific Method. But this must not be mistaken to mean that Scientific Method claims ability and competence to judge what reality is. It makes no such claim. (52)

Common sense, then, comes down firmly on the side of the "correspondence theory"; and Scientific Method follows common sense in this regard after all. But whereas common sense apparently believes that it *knows* that its "perceptions" correspond to reality, Scientific Method self-consciously disclaims such knowledge. Is that really to follow common sense; or is it merely a way of having one's theoretical cake and eating it too?

In his account of the fifth step, *inductive reasoning* to empirical generalizations, Brecht again stresses the limitations and uncertainties of the scientific product, as we have already seen.[24] He points out that there are no strict positive rules governing the acceptance of such generalizations, since proof of their truth or validity is always incomplete. The most common justification given for such generalizations from limited observations, he notes, is based upon the premise of the uniformity of nature or the assumption that `What has been observed once (or often) will always be observed under essentially like conditions.' But this premise is not empirically provable; "it must be accepted as a kind of religious creed, as an ultimate `assumption' or `axiom'" (60). We are thus forced "to go from contentions we cannot prove, up to higher premises we can prove even less, and finally to accept as an axiom what we can prove least." Other possible justifications of inductive generalizations, it appears, are equally problematical.

Brecht's account of the sixth "step," *explanation,* is almost entirely a discussion of the problematical character of causality. He begins by distinguishing between three different types of explanation: "(1)

24. See above pp. 148-149

what it `means,' or (2) why it is `true' or `false,' or otherwise compatible or incompatible with some norm, standard or rule, or (3) how it has come to `be there,' what is `is' (not what it `means'), and what the consequences of its being there may be" (73). His subsequent remarks on the first two of these are extremely brief, even though all three types of explanation appear to be employed with Scientific Method. That brevity appears all the more strange and unjustified in the light of certain evident ambiguities concerning the relationships between the three.

In the first place, it is noteworthy that the second type of explanation, as described, collects both the the defense of the truth of "scientific" propositions (synthetic) and the defense of the truth of derivative evaluative propositions in the same category. In the first case we show "that acceptance of the proposition as true or false is in line with other rules of scientific procedure"; and in the second case we "try to explain why some behavior, attitude, etc., is `right' or `wrong' by showing that it is or is not in accord with presupposed norms, standards, or rules" (73). Stated in this formal fashion, there would appear to be no significant difference between the nature or authoritativeness of Scientific Method's descriptive account of the "is" and the normative conclusions produced by a "policy" science geared to some set of assumed "ulterior" or "ultimate values." In both cases the relevance and authoritativeness of the product is wholly contingent upon an unjustifiable acceptance or rejection of the presupposed "rules" or "norms." This suggests the obvious possibility of the systematic inclusion of normative considerations in the study of politics by the inclusion of some "ultimate" value or values supported by the same "common sense" which is followed in matters of reality, causality, etc. But Brecht does not discuss such a possibility here.

To "explain" in the third sense, he tells us, is to explain "an existential fact or event"; and this means "to present it as a link in the chain of cause and effect, or, if we are unable to assign it a place in some pattern of cause and effect, at least to give it a place in some other pattern of existential regularity." But he allows that such "existential facts" may also be regarded as "signs" which have some "definite meaning"; and that implies that they are amenable to the first mode of explanation (74). This of course raises the possibility of an inductive exploration of the normative "signs" or significance of the natural order. Brecht does not notice this possibility for discussion. But he tells us that such explanations of the "meaning" of ex-

istential fact always imply "a rudimentary explanation in terms of cause and effect," whether we are dealing with natural or human events.[25] The first type of explanation is therefore clearly distinguishable from the third only if and when it deals with "meaning" unrelated to "existential facts." Brecht does not provide a very clear conceptual distinction between these two, but he insists that they "must be clearly distinguished in scientific inquiry" (74).

There also appears to be a close kinship between the first and second types of explanation. In the first type we may seek "to point out some or all of the meaning's implications." And in the second we may explain "why we hold the proposition to be `true' or `false'" by showing "that it is logically implied in the meaning of the other propositions which have been accepted or assumed to be true or false" (73). Thus, both have to do with the "analysis" of propositions, and both "explain" the "meaning" or "truth" of the concept or proposition by locating its place in a larger order. Explanation of "existential facts" has this same character, as we have seen. The question naturally arises as to the relationship between these two different orders-i.e., the "logical" order and the causal order ("or some other pattern of existential regularity"). But Brecht does not explicitly raise the question in this context; he had done so in his earlier discussion of logic. His remarks here implicitly bear upon the question, however.

Brecht briefly discusses some of the modern doubts concerning causality, ranging from the Humean denial of our capacity to perceive causal connections, through the Kantian[28] insistence that causality is a human mental projection whose correspondence with reality we are unable to confirm, to more recent outright denials of the existence of causality in nature. He concludes that, such philosophic doubts about the reality of causation notwithstanding, "Scientific Method continues to work with the concept of causal relationship or its equivalent in both natural and social sciences, at least outside microcosmic research." But that is not because it is able "to establish the reality and the nature of causal laws." It simply requires us to follow "common sense" in making the hypothetical

25. (74). "For when I say that stars are signs of God's greatness, this implies the meaning that the existence of stars is causally interrelated with God's existence, and when I say that a rotten egg is a sign of contempt, that implies the meaning that the egg hits the speaker because someone had thrown it."

26. Brecht disputes this interpretation of Kant, at least in part. Pp. 75f.

"assumption" of the reality of causality." Brecht insists that "philosophical doubt of causality is not itself considered a good enough ground under Scientific Method for challenging empirical evidence, any more than is the philosophical doubt of reality" (80). But what does the term "evidence" mean here? The context is a discussion of "explanation," not of specific observations or "facts." He appears to be understating the implications of the mandatory acceptance of the common sense assumption of causality. It appears that we are required to accept explanations couched in terms of "cause" and "effect" despite the fact that such relations are presumed to be unobservable and whose real existence, like reality as a whole, is presumed to be unconfirmable to a "scientifically" respectable degree. We must "follow" common sense in this as in the assumption of the reality of the things which we "observe"-not because we can justify our doing so, but rather "because" no sufficient justification, one way or another, is possible. But, again, while we "follow" common sense in this regard, we are too sophisticated really to "swallow" what it offers.

Human motivation is accounted "a special type of causation, distinguished by two particular characteristics":

> The first is that scientific observation, in the form of self-observation, has more direct access here to the process of causation than in physical and chemical reactions. The second is that the cause-effect relation presents itself as less compelling, less necessary, here than there. Free will seems to interfere at times. Sometimes, free will seems even to be able to start a new line of causation (81).

The advantage of direct access to causality in the sphere of human motivation is therefore offset by the fact that causation here is less compelling, less mechanical. If it is less compulsive or mechanical is it to that extent not in accord with the principle of causality? That is, is the "causal" explanation provided by Brecht's Scientific Method merely mechanical after all? Brecht does not see the need to discuss this issue in this context. He merely concludes that the reading of human motivations remains a dark area fraught with uncertainty, along with all other types of causality. The introspective evidence is

27. He describes it as a two-fold assumption: "(1) that under like conditions an event of the nature of a will always be succeeded by an event of the nature of *b,* and (2) that this is to be ascribed to some influence or impact of *a* on *b."* He states that they are arrived at inductively; "they are not immediately observed" (80).

incapable of reducing the uncertainties to a respectable "scientific" level. "Whether or not there is free will, and, if so, where lies the line between necessity and free will, continues to be a controversial philosophical problem" which Scientific Method cannot resolve. However, Scientific Method, he points out, "is not generally concerned" with this problem, "unless it is the special subject of research." The uncertainty is again transcended by the simple expedient of adopting the common sense view, in this case the assumption that human beings do possess some freedom from, as well as power over, the elements with which they interact in the ceaseless flux or flow of events (81f.).

In his earlier discussion of the relation between logic and nature, Brecht takes issue with the contention that "far from dealing only with the meaning of statements, logic partakes of Being and Reality, that it is itself *real" (67).* This contention, he notes, is based on the ostensible evidence afforded by the fact that "all phenomena of nature" "obey general laws." That is, of course, to say that the causal order and the order of logic are both parts of a larger natural order. Brecht insists that this line of reasoning or argument "is based on a fallacy." "In the first place," he tells us, "it is very doubtful whether we are scientifically justified in saying, except figuratively, that the phenomena of nature are `ruled' by general laws, and that nature `obeys' or `follows' these laws. For we cannot state scientifically that the general laws are something separate from the behavior of nature." And in the second place, he argues that even if it is conceded that nature does obey such general laws, it does not follow that she is behaving "logically." The "laws" to which he refers are, of course, the *causal* "laws" which are the characteristic mode of explanation offered by modern science-i.e., the kind of science advocated by Brecht. And his objection does point to a certain shallowness or insufficiency of that mode of explanation. But his remarks here shed no light on the question he has broached-the relationship between the order of nature and the order of logic-because his argument is skewed in an unproductive direction by his arbitrary and inappropriate attempt to subsume the order of nature under the order of logic, rather than vice versa. His argument consequently misses the mark. But the conclusion which it supports is that logic is not derived from or reflective of nature, but is rather a wholly conventional (man-made) order; while the order expressed by the "general laws" of modern science are truly reflective

of the order of nature.[28] We are left to wonder why it is that our employment or following of the order of logic in our thinking or reasoning about our perceptions of the order of nature proves to be so compatible, useful and necessary.

In the course of his elaboration of the problem of causality, Brecht vaguely and fleetingly alludes to an aspect of a most fundamental epistemological problem and disposes of it by fiat,[29] but with devastating implications for the common sense realism of his Scientific Method. The problem is that of explaining our apparent (to common sense) capacity to perceive and distinguish "wholes" or the variety of things or beings and their constellations in "events," etc., in what would otherwise be, according to William James, a booming,buzzing confusion. Brecht simply offers a common modern opinion on this matter, as though it were the only opinion or the only defensible one. He tells us that:

> A special difficulty in the conception that one event is caused by another arises from the fact that, even apart from atoms and happenings within them, events cannot be neatly separated into "units" that follow each other like the units of an alphabet, distinctly identifiable as separate. Every detail of what occurs is so inseparably intertwined with what had occurred before and will occur after, and even with what occurs simultaneously, that any lumping together of occurrences into bigger units called "events" is utterly arbitrary, except where we do so for some special purpose, as for example a scientific one; then it may be a reasonable,. and even the best possible, procedure in the pursuit of this particular purpose. Apart from such purposive human selections, the apparently separate and independent events are, to use John Dewey's words, "integral constituents of one and the same continuous occurrence." It follows that we cannot label clusters of minute events "the cause" or "the effect," except for our convenience in the pursuit of some inquiry or the like (78f.).

The problem of accounting for the "wholes" and the ordering or articulation of our perceptions of things is a particularly acute one for modern philosophy, including modern "scientific" philosophy such

28. Thus, he tells us that "when nature behaves in line with our [scientific] expectations, it is not because she performs logically, but because to that extent the general laws describe the behavior of nature correctly" (67).

29. In his earlier discussion of *description,* he had identified this problem somewhat more clearly, although not enough so to make it coherent to anyone not already familiar with the issue. He concluded there that "Scientific Method, as here understood, does not claim to have a ready answer to these questions" (39). Brecht makes no explicit connection between these two separate discussions. See above. p. 162

as Brecht's. As a consequence of the resolute modern denial of the existence of any faculty or capacity of mental perception working in conjunction with the five senses, there is no possibility of accounting for such orderings or articulations of our sensory receptions or responses *as perceptions.* Alternatively they must be construed as merely imaginative "constructions" or "projections."

In Brecht's pragmatic version of this view of the limited capacities of our perceptual apparatus, "scientific" observations and explanations, like all others, apparently propagate arbitrary constructs or orderings of the sensory data, which are meaningful only in relation to some arbitrary human purpose, end or "value." Brecht's phrasing makes it appear that arbitrariness is perhaps avoided somehow when the purpose is "special" or "scientific." But such an epistemological view cannot support a conception of "science" as the pursuit of the unvarnished truth about what really is. It can support pragmatic or utilitarian endeavors in which the "facts" are formed so as to accord with the preconceived purposes or "values," and in which the criterion of "truth" is "success" or the achievement of the practical purpose. (There would not appear to be any place for purely theoretical purposes-i.e., ones which are not strictly instrumental or ministerial to the practical manipulation of "events.") But Brecht does not consistently adhere to this pragmatic view of the character of the "scientific" product. Neither that pragmatic view, nor the epistemological theory which underlies it, can support the Brechtian insistence upon the exclusion of "value judgments" as objects of "scientific" inquiry and the sharp and rigid distinction between "science" and non-"science" as defined by reference to Scientific Method.

Despite both his stated skepticism concerning the reality of causality *and* his "common sense" commitment to the specifically modern conception of causality as compulsive necessity, Brecht makes a theoretical allowance for the possibility of entelechy or natural ends (telos) or purposes. However, this theoretical concession proves to have no impact on his treatment elsewhere of the things to which it relates in the order of logic or the order of nature. Brecht is led to consider teleology or entelechy as a type of "causal" explanation because of certain evident "facts" which are summed up in the statement that "the future seems to be incorporated in the very nature of many things" (82). He notes that "the seeds of plants, animals, and human beings seem to carry their own future in them, and every organ of a living body seems to be the incarnation of a

purpose, and to act for that purpose. Even some inanimate matter, like crystals, seems to develop toward a goal." These considerations present us with "a grave problem" of explanation.

Brecht outlines the explanatory alternatives as follows. If we are to explain "life" in teleological terms, then we are confronted with two alternative possibilities: "either the future is the cause of the past"; or "a `goal' or `purpose' is incorporated in things" (83). The first of these alternatives is dictated by his initial definition of "cause" and "effect" as "the conventional name for the interrelation between two successive events where the occurrence of the earlier is regarded as a condition for that of the latter" (74) and is prefigured by the questions with which he begins his discussion of entelechy: "Can the order of cause and effect be reversed? Can the end effect its own cause? Can the future shape the past to suit it?" (82) This possibility appears to be disposed of by Brecht's previous comment that "[w]e are dealing here only with life on our little planet, where cosmic relativity does not interfere with our common-sense concept of time, and time flows in only one direction" (82).

The second teleological alternative is dealt with equally briefly. Brecht gives little idea of the richness and force of this ancient conception of "causality"[30] and he does not notice its potential as at least a partial remedy for the shallowness or insufficiency of the modern conception and its narrow concern with compelling or mechanical necessities. He simply points out that if we conclude that goals or purposes are "incorporated" in things, "that would logically[31] require" either "that there is, or was, someone who conceived the goal or purpose and did incorporate it" *or* that what is meant is ("some type of pantheistic thinking") "that the thing itself

30. "Cause" is the usual translation of the ancient Greek term *aitia,* which means something like "condition of existence." Aristotle, in his classic formulation, distinguishes four different types of such *conditions* or "causes": (1) material-e.g., the lumber, etc., for a house; (2) efficient-e.g., the carpenter who builds the house-i.e., applies the compelling necessity to the lumber (material) to convert it into what comes to be (the house); (3) formal-e.g., the architectural plan or ordering or organizing principle which shapes the material (via the instrumentality of the carpenters) and makes it a house rather than merely a pile of lumber; and (4) final-i.e., the end or purpose of the thing-e.g., a dwelling place for human life-which explains why the house has the form which it has. The being or existence of the house is insufficiently "explained" unless an account is given of all four types of "causes," and not merely its efficient or material and efficient causes, as modern "science" narrowly provides.

31. Note the apparent fusion of the logical order and the order of nature here.

sets the goal, or forms the purpose, which it pursues" (83). He notes that "[t]he striking appearance of entelechy in nature has, therefore, always been one of the strongest arguments for the belief in a Creator." And that is to say that the existence of a creator was an inductive conclusion drawn, however reluctantly, from a consideration of the apparent facts, as Brecht indicates. But the apparent necessity for that conclusion was removed, he tells us, about a hundred years ago, with Darwin's publication of his theory on the evolutionary origin of species through "natural selection." Brecht discusses this alternative to the teleological explanation at greater length, emphasizing both its "scientific" utility and its bearing upon the question of Creation. [32]

Brecht concludes that "Scientific Method provides no answer to the question which alternative is correct" (85). However impressive the results of research based upon the Darwinian view, he cautions that the evidence in its support is "still limited" and inconclusive. And "the same holds true for the divine alternative" (87). Brecht implies again in this context a certain shallowness or insufficiency of the modern "causal" explanation, when he observes that:

> Even if fully verified, natural evolution would fail to explain how the entire chain of events that led to such miraculous results was set going and to establish whether or not that was done by a Creator with a purpose-a purpose incorporated, not perhaps in individual things, but in the entire chain of events and the evolutionary laws governing them. (88)

These considerations explain why Brecht considers it appropriate

32. Brecht is more skeptical of the "scientific" utility of kindred attempts to explain the course of human events by reference to historical patterns understood to be "causal" or necessary. This is at least somewhat surprising since such historical theories are like the evolutionary theory in purporting to discover a natural order which is manifest in a pattern which gradually unfolds over a great stretch of time. But, of the historical theories, Brecht says: "Limited knowledge of relevant events, plurality of possible causal factors, limited possibility for actors in history to foresee the effects, and the limited ability of the historian to list all the possible alternatives of action and their potential effects, plus the immense number of other variables involved in the analysis of history-all this makes the causal interpretation of macro-history a free field for almost unlimited adventures in speculative thought, while the possibilities of verification are narrowly limited. Owing to these limitations such interpretations can rarely claim *a scientific* status higher than that of `working hypotheses'" (91). He concludes that the investigation of causal relations in history is likely to produce better scientific fruit when confined within "more narrow and specific limits."

to explore "the divine alternative" as he does in the final chapter of the book. But they do not sufficiently explain his failure to take the teleological alternative seriously when considering the relation between "science" and "values" or when dealing with others' efforts to delineate a natural order of "values." He thus chooses to dwell upon the ultimate metaphysical implication of such a purposive order of nature and to ignore its more specific "value" content or human significance-i.e., those dimensions of that order which we are capable of experiencing more directly and which we may therefore come to know more certainly.

Brecht's discussion of the seventh "scientific step," *deduction,* is divided into two parts, the first presented with his discussion of induction, explaining its capacity to provide absolute (analytical) truth. The second part, offered in its proper "step" sequence, explains the importance of deduction as "a tool of control." After factual or explanatory generalizations have been formulated it is then necessary to deduce their further logical implications for the purpose of testing their validity by testing the correspondence of those logical implications with further "facts." "If logically correct inferences are invalidated by tests, then the general statement of causal relationship is wrong, or is at least in need of modification" (92). He stresses that it is therefore an error to say "what is so often heard," that Scientific Method has simply abandoned deduction in favor of induction. The truth is, that what has been appropriately discarded is "the acceptance in scientific procedure of major premises (generalizing statements) as true or valid on ultimate grounds other than inductive reasoning carefully checked." That is to say that "Scientific Method objects to the acceptance of `a-priori' propositions"-i. e., other than what he will later term "immanent methodological a-prioris," some glimpses of which we have already had. Deduction, he informs us, is thus "one of the methods used scientifically to refute false propositions, a-priori or other." He employs this method frequently in dealing (in other sections of the book) with other thinkers' efforts to articulate a natural order of "values" or human ends and excellences. And at least some of those exercises indicate how easily the method may be abused when its user does not sufficiently grasp the intended meanings of the propositions he is testing."

33. See, for example, Chapter VIII, in which h'c briefly examines more than a dozen different ultimate standards of value proposed variously by more than three

Brecht's brief discussion of the eighth and ninth "steps," *testing* and *correcting,* like his discussion of deduction, substitutes confidence and high expectations for the uncertainty and caution which characterized his treatment of the earlier "steps." "Careful tests constitute an essential element in Scientific Method on two grounds," he observes. "They fortify the operating scientist's own acceptance of observations and conclusions; and they increase the intersubjective (interpersonal) transmissibility of scientifically acquired knowledge" (93). They therefore reduce the level of uncertainty. But if we bear in mind the character and source of the most fundamental uncertainties Brecht has previously identified, we realize that there are severe limits to the possible extent of these reductions, limits which Brecht does not here recall to us. While he considers in passing that the "ideal" test is the "pure-type" or fully controlled experiment and that it is "rarely, if ever" possible to employ such experiments in the social sciences, he stresses that "less severe forms" of experimental tests are available and do "play a great role in political science" (95). Such tests are provided by governmentally implemented "pilot programs" as well as by studies in comparative government, sample surveys and "controlled experiments" (not identified).

In similar fashion he accentuates the positive, even though he cannot eliminate the negative, in his discussion of the tenth "step," *prediction.* But whereas deduction, testing and correction serve only to reduce the uncertainties of the accuracy of our scientific descriptions and explanations, prediction not only serves this same purpose, but it also "gives us the greatest chance we have to overcome the drawbacks of Scientific Value Relativism" (98). By predicting in advance the consequences and risks associated with alternative courses of action, the "scientist" may influence others' ("value") choices. And the deliberate intent to do so is, according to Brecht, a "legitimate" purpose of such predictions, notwithstanding some admitted hazards of error resulting from the "assumed" element of

dozen different philosophers or theorists in a mere sixty pages. The treatment of each separate theory is of course far too brief to do it justice-i.e., to reveal fully its evidential and persuasive grounds. But Brecht concludes: "The examination of more than a dozen proposed ultimate standards, one by one, in this chapter should have made it plain that none can be upheld by science and by science alone, without recourse to ideals based on religious, scientifically unverifiable sources, or to historical conditions or to not-universal personal opinions and preferences" (362).

human freedom of will and methodological problems.

Brecht begins his discussion of the eleventh and final "scientific step," *non-acceptance,* by indicating that, while the account of the first ten "steps" has provided a "positive" statement of proper Scientific Method, he will now present the "negative" side-i.e., what it is especially that Scientific Method rejects or repudiates. Summarily stated, "Scientific Method eliminates all propositions that have been arrived at otherwise or have been invalidated through it, as nonscientific in its terms" (98). Most importantly, "[i]t shuts the front door of science to (1) a-priori judgments, (2) metaphysical propositions, and (3) absolute value judgments. These three are only admitted, if at all, through the back door of `working hypotheses' and `assumptions'." He characterizes both "metaphysical propositions" and "absolute value judgments" as "special types of a-priori propositions." His subsequent discussion does not address each of these specifically, but rather treats of a-priori reasoning in general, reserving the "special types" for particular examination later in the book.

Brecht begins his general treatment by distinguishing four different usages of the term "a-priori": (a) "the most firmly established classical sense" which refers to "notions, propositions, or postulates that are considered true or necessary irrespective of experience or anterior to it"; (b) a more "modern" sense which refers to "all notions, propositions or postulates that are extraneous to the system or method of thought under which the inquiry is conducted," or what he terms "the methodologically repudiated a-priori"; (3) a closely related modern sense associated with methodological considerations, which refers to certain notions, propositions or postulates which "cannot be reached or verified" through the preferred "method" and which "underlie the method's operations"-termed "the immanent methodological a priori"; and (4) a sense, employed by "some writers," which refers to "all things that are `given' or simply there a priori; i.e., the things that constitute, so to speak, the raw material of scientific research"-or what he terms "the a priori of givenness" (100f.). What is immediately noticeable about Brecht's account of these four "senses" is that they are not distinct. The first or classic sense appears silently in the definition of the fourth. And the second and third senses merely add an apparently arbitrary methodological criterion as a principle of selection or standard for choosing to accept some notions, propositions, or postulates as true "irrespective of experience or anterior to it" while rejecting others.

Brecht, not surprisingly, is "particularly concerned" with these second and third senses; but his subsequent discussion focuses on the Kantian treatment of the a priori in "the classical sense" for the purpose of showing the "historical continuity" between it and the "immanent methodological a prioris" favored by Scientific Method.

It is unnecessary here to examine in detail Brecht's discussion of Kant's theory, other than to notice that: (1) Brecht moves among Kant's particular ideas or theories much like a shopper whose selections and rejections are guided by a specific predetermined recipe, accepting those which appear congenial to Scientific Method and rejecting those which do not; and (2) notwithstanding his rejection of some of Kant's ideas, his treatment of Kant is almost entirely uncritical, and that is to say that he not only fails to take notice of theoretical problems associated with what he finds acceptable in Kant's theory but does not even tend to do so in relation to what he finds unacceptable or uncongenial to the Method. Instead he tends to interpret Kant in such a way as to exaggerate the similarities and soften the discrepancies between the Kantian view and his own.

Brecht accepts fully Kant's negative "a priori notions of reason"-"that no sensory experience could ever give us certainty about the 'thing-in-itself' which had caused the experience, nor about the real nature of causation or about that of space and time. In all these respects, our experience [is] limited to phenomena as they *appear...to* us" (103); but he apparently rejects Kant's positive "a priori notions of reason," such as "the reality of a highest immaterial being, or God," not to mention Kant's "categorical imperative." Brecht then rather misleadingly concludes that "Kant's a-priori principles of pure reason, then, were essentially negative. They tell us what pure reason can *not* do".[34] As negations "which limit our possible knowledge," he finds them "in line with the basic principles of Scientific Method that science must rely on observation" (105). "In sum," he concludes, "there is no practical conflict between Scientific Method and Kant's a-priori principles."

Brecht never acknowledges the problem entailed in Kant's notion of "synthetic a prioris," avoiding the use of that term; nor does he question how Kant can properly speak about a world of "noumena"

34. (105). Brecht's emphasis. The apparent justification given for this conclusion is that Kant indicates that "reason could not state with certainty" the truth of these more positive "transcendental ideas."

or "things-in-themselves" presumed to have real existence, while at the same time categorically denying our capacity to perceive it either in general or particular. And his later discussion[35] of Kant's "categorical imperative" treats it out of context and rejects its authority or imperativeness without offering any substantial reasons for doing so. He offers only the evidently specious implied argument that Kant's negative a-prioris are valid because they constitute *"logically* necesssary" assumptions; but the categorical imperative is not *a logically* necessary assumption. It therefore raises a question of fact-whether the moral law is a built-in feature of human thinking-which, he insists, should be subjected to empirical inquiry rather than simply assumed (377).[36] This would seem to suggest that Kant would have done a better job if he had only discovered Scientific Method in its current form and had then established his necessary regulative principles of the human mind on an "empirical" basis.

Brecht concludes his general discussion of a prioris by briefly reiterating the dependence of Scientific Method on the assumed "immanent methodological a prioris": "consubjectivity; the ability of observation to disclose `facts'; causality or, at least, regularity; and some human freedom of will." The precise nature of their relationship to Scientific Method is, however, rendered ambiguous by his previous insistence that, "[s]trictly speaking, Scientific Method does not as such accept or incorporate these assumptions, but it permits the scientist to accept them without being on that ground guilty of violating the rules of procedure" (99). His subsequent discussion of the role of "assumptions," "working hypotheses," "types," and "models" in scientific inquiry stresses that their usefulness depends upon their correspondence with reality (not qualified by quotation marks) and that their fruitful genesis is a highly creative act of human genius (107-112).

It is evident, then, that many of the claims made on behalf of Scientific Method by Brecht in his more general characterizations are not borne out in his discussion of the particulars of that mode of inquiry. Most particularly, the level or degree of certitude of its products appears markedly lower among the particulars than it is made

35. Pp. 368-9, 375-7.

36. The argument is, however, so vaguely and implicitly rendered as to resist a very precise and confident interpretation. This is due in part to the fact that it is disjoined from his earlier discussion of the other a prioris.

to appear in the generalities. And its touted general antagonism toward unconfirmed generalities and a priori assumptions turns out, upon closer examination, to be only a selective antagonism which appears at base to be the logical consequence of an arbitrary set of definitions-of "science" and "non-science" (by whatever other name). Moreover, his explanation of the eleven "steps" which flesh out the basic scientific concern with careful observation, measurement and logical reasoning does not demonstrate any necessity for the inclusion of Scientific Value Relativism as an associated feature or expression of that basic concern. Far from being a necessary implication of his foregoing exposition, as part of the "negative side" of Scientific Method, Scientific Value Relativism rather appears as an arbitrary appendage.

It is also evident that Brecht's manner of addressing the fundamental ontological, cosmological, and epistemological issues which underlie and must inform any deliberate selection of the preferable methods of inquiry, is not very conducive to a consistent, coherent, and perceptive treatment of those problems. While apparently convenient for the explication of various "steps" entailed in some pre-determined Method, it results in a disjointed, ambiguous, and selectively incomplete discussion of the considerations which would justify that method, if such justification is at all possible. [37] Brecht appears implicitly to recognize that his explication of the eleven "steps" has not provided a satisfactory justification for his preferred Method, for he subsequently directs our attention to that need, and attempts to meet it in his following discussion of "the exclusiveness of Scientific Method."

> The decisive question, of course, is not whether science is defined in these terms, but whether it ***must*** be so defined and not otherwise, since it is our purpose here to present a ***theory*** of Scientific Method and not just a description of it. Consequently, it is not sufficient for us to insist on the a-priori character of the rules of procedure. The questions remain., Why must these rules be so? Why can they not be otherwise? Or is there `no ultimate justification of these rules'...?" (113)

37. Brecht had claimed that this mode of presentation supplies "an appropriate framework within which fundamental philosophical problems of science can be discussed, each in a setting that indicates the relevance of such examination" (28). He had cautioned there that "nothing said" in the course of his explication of the eleven "steps," or, that is to say, the "clearly defined model of scientific operations," "should be considered prejudiced to the question whether there are other, better, or at least supplementary, scientific methods."

The crucial questions, upon which the justification of his exclusion of "value judgments" as proper objects of "scientific" inquiry hinges, are thus raised *after* his discussion of the underlying philosophical issues, even though he had implicitly attempted to provide answers to them there. And he proposes to answer them now by an account of the requirement of "intersubjective transmissibility."

IV

As we have seen, Brecht employs a variety of different terms and phrasings to characterize the essential difference between truly "scientific" inquiry and knowledge on the one hand and non-"science" and its products on the other. His usual stress is on the ostensibly greater degree of "precision and control" exhibited by the former and the subjectivity and uncertainty of the latter. But as we have just seen, his detailed explication of the former reveals pervasive elements of subjectivity and uncertainty irretrievably woven into the very fabric of the former as well. What, then, marks the critical difference between the two? Brecht tells us now that the ultimate justification for Scientific Method and its assumed "immanent methodological a prioris" is "the practical ground that only such knowledge as is supported by experience and logical analysis is capable of a conclusive transmission from person to person" (106). To say that it is its capacity for "intersubjective transmission," which is the grounds for its special and exclusive status, would seem to say that its claim to fame is based upon the communicability rather than the discovery, profundity, completeness or absolute certainty of the truths which it has to offer.

What exactly does its "intersubjective transmissibility," then, entail? What is being "transmitted"? Presumably an accurate account of the order of nature and of the doings of men. The success or failure of the transmission must therefore entail some consideration of the truth or "correspondence" of the intended message. Is the proof of the truth of the account also "transmitted"? If so, is it an absolute or conclusive proof or only persuasive evidence? And, if the latter, must it be persuasive to all or only some? If only some, how many or who in particular?

In the previously quoted passage, Brecht refers to "conclusive" transmission; but it is not clear what it is that is "conclusive"-i.e., that the message is without doubt clearly received, or that the truth of the message is conclusively proven. His pointed criticisms of the

inability of non-"science" to provide "intersubjective evidence of a conclusive nature" (125) or "exact proof" (16) in its account of things, would seem to imply the latter meaning. That appears also to be the implication of his comparative observation that "[f]actual research and strictly logical inferences offer possibilities of intersubjective verification that are not available in the case of ultimate value judgments" (298). Similarly his claim that "Scientific Method" provides transmission of "knowledge *qua* knowledge" and not merely "the assertion that I have such knowledge" (114), while non-"science" is "limited to the personal report, or `protocol,' saying that we believe we have knowledge on such and such a basis" (280).

But this impressive claim is not well supported by his more careful formulations. What he tells us there is that "[w]hat is intersubjectively transmissible *qua* knowledge is the evidence, not the conclusions therefrom" (114). But what is "the evidence"? What are the "facts" or the observations upon which they are based? He concedes that the "acceptance" of "facts" as true and of observations as accurately made and communicated entail the subjective judgments of individual "scientists," as we have seen. In Brecht's account, the exact form of the "scientific" observation report appears remarkably similir to a "personal report, or `protocol'."[38] It is with these sources of uncertainty in mind that he explains his avoidance of the term "intersubjectively `verifiable' knowledge": "We actually do not through Scientific Method `verify' the data and conclusions on which our knowledge relies, at least not all of them, either to ourselves or to others....) We can merely transmit them with the evidence, leaving acceptance ultimately to the recipient" (116). But the ambiguity remains as he goes on to claim that "the evidence is sometimes so strong that acceptance is practically necessary and inescapable" and in a later passage equates the "intersubjective proof' of science with "immediate obviousness" (435). But what all readily perceive goes without saying-i.e., it does not require "transmission"; and this is surely not the self-chosen sphere of "science."

To transmit "our subjective knowledge to others *qua* knowledge," he explains, requires "a type of knowledge that can be transmitted from *any* person who has such knowledge to *any* other person who does not have it but who can grasp the meaning of the symbols

38. See p. 162

(words, signs) used in communication and perform the operations, if any, described in these communications" (114). Scientific knowledge is, in this sense, "universally transmissible" (481). But it apparently possesses this characteristic as a matter of principle (in some unclear sense) rather than of practice, since his prior discussions of "acceptance" stress the uncertainties and disagreements which necessitate regarding "scientific" findings always as merely "tentative." Hence, "[t]he body of science is living, not petrified. It includes all tentative acceptances, or refusals to accept, that are legitimately offered by any scientist. It embodies controversial theories as well as noncontroversial ones; and the controversial theories do not merely surround an otherwise firm and petrified body of science like an atmosphere or aura but sometimes reach deep down to its very core" (72). There is not even always to be found "a `prevailing opinion' about what is the `established knowledge' at the time; and if there were, to let numbers decide would make little sense, although it would be logically possible" (70). He adds, in a note, that: "Campbell goes too far when he defines science as `the study of those judgments concerning which universal agreement can be obtained,' and insists that although a theory may be doubted for some time, `in the end it is always either definitely accepted or definitely rejected.'This," he says, "is more than we can promise.' But, of course, it might be called the ideal aim" (519). Thus, however short of the "ideal" the actual results may be, we are encouraged to think that somehow "science" is, in principle, what it never can manage to be in practice. The "principle" entailed can be nothing more than an idealization or expression of wishful thinking, since Brecht's "theory of Scientific Method" does not justify such high claims and expectations.

But if Brecht accords more than the benefit of the doubt to Scientific Method, he concedes a good deal less to what we have termed "value inquiry." He does concede the theoretical possibility that objective "values" may exist and that some individuals may possess genuine knowledge of them. But his manner of treatment of specific accounts and claims of such knowledge and his tendency to refer to their conclusions as "mere speculations," "personal opinions," and the like, make it clear that Brecht is radically skeptical of all such knowledge claims. He acknowledges this in saying that the "radical skepticism" of modern science "begins where Scientific Method leaves off" (168). And he raises the obvious question; "Why is its skepticism so selective?" Why should it be willing to accept in-

conclusive "proofs" in the one sphere but not in the other-i.e., with regard to "ultimate values"? His answer, on this occasion is that it is because "Scientific Method is based fundamentally on common sense-but only on *common* sense."

> It is common sense to accept reality, causation, some freedom of will, and the results of careful observation. Inquiries based on these assumptions are, therefore, interdenominationally understandable in their approach. This foundation, however, disappears when we deal with value judgments. It is no 'common' sense to accept controversial value judgments. When facts are controversial we can still present the observational data underlying our contention; but when it comes to value judgments, there are no data to refer to other than either personal opinions which differ or facts from which logical inferences regarding what ought to be considered valuable cannot be drawn without some implicit previous ulterior value judgment... (168)

But, of course, it is not the specific "facts" and "theories" produced by "Scientific Method"-e.g., those of nuclear physics-which are spontaneously embraced by common sense. It is rather the underlying assumptions of causality, etc., which "science" accepts from common sense. Why then should we require a showing of common sense agreement on specific "values"? The proper analogue would appear to be what Brecht perhaps refers to as "some implicit previous ulterior value judgment." Is there anything which could fit that description and yet be shown to have substantial support in common sense, something which would serve to elucidate the "normative" meaning of the natural order, in association with carefully conducted observations and logical reasoning? We have it on the testimony of a great number of brilliant men over the course of the history of political and ethical philosophy, that there is. Stated in merely descriptive terms, it is the observed natural tendency of all human beings to pursue happiness or well-being. Stated in terms which Brecht would apparently regard as exclusively "normative" or "evaluative" but which may properly be regarded as referring to a characteristic of the natural order or given "is," it is the belief or conclusion that happiness or well-being is the proper end of human life.

That there may be some apparent or real exceptions to this rule, is no more fatal to it than the doctrinaire denial of causality is to that rule. And that there may be many and continuing disagreements as to the various component elements of human well-being and their relationships and respective priorities is not more destructive of the

authority of that end than that the many and continuing disagreements among scientists about specific causes prove the falsity or uselessness of the belief in causality. And the fact that the pursuit of the ultimate metaphysical justification of the end of human happiness or well-being may lead to the notion of a supreme being or "unmoved mover" no more discredits the argument and evidence in support of the reality of that end than does Brecht's implied belief that the order of nature described by modern science is similarly traceable to such a supernatural source discredits the scientific account.

Brecht thus fails to make out a sufficiently convincing case that there is necessarily a significant difference in the degree of "transmissibility" of "scientific" and "evaluative" knowledge respectively. He waffles between claims of universality, generality, and narrower bases of agreement in identifying "scientific knowledge." And he appears not even to understand the criticism of an un-named "witty opponent" who reputedly charged that "Scientific Method is based on the `lowest common denominator'" and who expressed preference for a science with "the highest possible basis, even though that be attainable to only a `small elite'" (169). In response, Brecht addresses himself only to an explicitly hypothetical interpretation of the criticism as referring to "a morally low level." It is more probable that what was intended was the fairly obvious problem that if one insists upon too broad a base of agreement, replication, etc., for the comfirmation of "findings" as respectably certain or "scientific," the danger arises that only that will be respected as "knowledge" which is "immediately obvious" to idiots, children or others whose perceptive capacities are relatively limited. That problem is implicit in Brecht's account of Scientific Method; but he never fully faces up to it in a consistent fashion. We need only remember the stated dependency of Scientific Method on "genius" which it cannot itself supply or supplant, to realize that a failure of "transmission may as readily result from a defective or insensitive receiver as from a defective transmitter or garbled or nonsensical message. Thus, of an intended or self-chosen recipient is insufficiently perceptive and assiduous to follow an intricate and subtle exposition of the ethical implications of the natural order, the failure of the "transmission" is a poor index of the quality of that exposition or of the perceptions which it embodies. As we have seen above, Brecht does not seem to catch the full drift of Kant's arguments on the a priori. But Brecht is a man of extraordinary talents and he evidently devoted himself assiduously

to Kant. Why, then, should we blame Aristotle, for example, or his doctrines simply because he or they are not persuasive to large numbers of social scientists much less talented than Brecht whose knowledge of Aristotle may be limited to brief encounters with Sabine's history?

V

It is evident, then, that Brecht does not convincingly show that the uncertainties necessarily attaching to value inquiry are significantly greater than those which are admitted to be a part of the warp and woof of an ostensibly non-evaluative science of politics. He is unable to resist being swept along by the radical skepticism of modern philosophy because he is unable to counter its skeptical arguments; but he is simply unwilling to allow his enthusiasm for and confidence in Scientific Method to be dampened by those concessions. He is similarly unable to resist the current tide of "scientific thinking" about values; and while he finds some reasons to want to resist that tide and its destructive effects, he is, in the final analysis, unable to do so in an effective way. His subsequent effort to modify the current "scientific" understanding of the relationship between science and ("ultimate") values turns out to be as unjustifiable, by reference to his philosophic position, as is the selective association of the Scientific Method with "common-sense." But while Brecht offers no principled grounds for the scientist's "following" of common sense in the employment of (but not the *belief* in) the conceptions of reality, causality, etc., he can apparently count upon the stubborn persistence of these common sense beliefs to obscure the theoretical problem and thus preserve the status of Scientific Method. He is apparently willing to allow the "values and principles" of Western civilization to be saved by a similar easy and unprincipled reliance upon common sense beliefs, so long as the latter are "universal"; but that is not a likely prospect, since the designation "Western civilization" itself testifies to the uniqueness of that combination of "values and principles" in space and time. The uncertain "facts" are therefore preserved, while the uncertain "values" go down the drain. Would the result have been different if it had occurred to Brecht that the common sense opinion that some things are intrinsically good or right (i.e., by nature) and others bad or wrong, appears to possess a universality comparable to that of the belief in causality?

What could justify such reliance upon common sense? What else but the reasoned belief that it reflects *perceptions* and not merely prejudice, fancy, or mere projections of some interior state of mind. This view would provide more substantial support for the knowledge claims which Brecht makes on behalf of Scientific Method; but it would of course also dignify the status of at least some products of common sense as knowledge and thereby reduce the ascendancy of Scientific Method (as defined) while recognizing the lack of immunity of either to error. It would also call into question some of the particulars of Scientific Method, including its exclusions and "exclusiveness." It would thereby open the door to a re-examination of the narrowly mechanical character of the explanations thus far favored by Scientific Method and its consequent stress on manipulation, prediction and replication.

Brecht's stated aim of avoiding a merely mechanical account of things is apparently defeated by his predilection for a "predetermined" set of methods or rules of inquiry which are congenial only to such mechanical explanations and which sacrifice depth of insight for the reassurances of wider agreement and prediction and control. His account of Scientific Method makes it implicitly clear that it does not embrace the entire process of knowing even what it claims to know. And he acknowledges that there may be other dimensions or further depths to the things which it purports to know, depths which are irretrievably beyond its capacity to know or to prove. And he even concedes the possibility and probability that these further depths may be known by other means, though apparently not knowable or proveable on such a wide scale as is afforded by Scientific Method. But he does not face up to the further problems entailed by these admissions. He does not fully acknowledge the potential mischiefs wrought by an instrumental or "applied" science of means to "given" ends ("ultimate values"), based upon such a "pure" science of causes and effects, which declares its inability to inform us of the other dimensions or depths of the things which it will teach us to manipulate and control. He seems to be insensitive to the possibility that such a one-dimensional account may provide a grossly distorted understanding of the nature of some things and their appropriate uses. And while he is aware of the threat to Western civilization and the inability of Scientific Method to come to its defense, he does not appear to be quite so alive to the more positive danger generated by a morally neutral Scientific Method which is preoccupied with the acquisition of manipulative

knowledge which is of greater potential utility to tyrants than it is to men who believe in the possibility and the necessity of deliberative choice or justification of ends as well as means.

Brecht's insistence upon "absolute" or "unconditional" proofs of the moral authority of any proffered "ultimate values" obviates the possible usefulness of his subsequent search for "universal postulates of justice" and his effort to "unbracket the divine alternative." Not only do these approaches to the problem generated by Scientific Value Relativism appear to be fruitless in the light of the "scientific" criteria which Brecht sets down; but they appear, moreover, to be an unfortunate distraction from more promising lines of inquiry which come to light within the framework of his exposition of the philosophic issues underlying Scientific Method. His discussion of the potential "scientific" contribution to the understanding of the consequences and risks associated with particular "values" or ends and his discussion of the practical implications of "impossibility"-as considerations which logically bear upon one's acceptance or commitment to such ends-reveal the possibility of deliberation in the choice of ends, that is, the possibility that a rightly conceived social science would help us to determine better what is just and unjust, right and wrong. This is a possibility which is never adequately explored by Brecht.

Brecht's preoccupation with "the divine alternative" apparently follows from his insistence upon absolute proof of the authority of any "end-values." But what can justify such an apparently excessive demand? Does he mean to imply that one's "acceptance" of ultimate or end-values must be absolute or final and irrevocable? Why? Is it impossible to act upon the basis of one's best judgment as to the ultimate ends of one's existence, in full awareness that one's best judgment *may* be in error? Human experience would surely testify to the contrary, the apparent exception of zealots and fanatics notwithstanding. Would he then presume to say that it is immoral? That does not appear probable. Is it then simply an indulgence in wishful thinking? In the final analysis, his insistence upon "absolute" proof reduces the status of his proposed applied science oriented to the assumption of God's existence, to that of just one among a countless number of such possible arbitrary exercises.

It must appear to be a rather strange position for a man so dedicated to "empirical" inquiry to suggest to us that our best prospect of establishing a "factual link" between the Is and the Ought is to concentrate our efforts on the attempt to prove that which is most

remote from our direct experience and therefore least amenable to the kinds of proof which are insisted upon. In the meantime the possibility of an investigation into the accessible conditions of human happiness in its various parts and varieties is entirely lost from sight.

However, despite the many criticisms which I have made of his various arguments, I would not want to deny Brecht credit for being more open to things which lie beyond the narrow confines of Scientific Method and Scientific Value Relativism than are most of his fellow "scientific value relativists." If he has promised more than he has been able to deliver, he is at least to be credited for insisting upon the necessity of the attempt to understand and justify these current "scientific" orthodoxies in relation to the underlying philosophical issues. And if he is censurable for the inconsistency of his treatment of some of those issues, he is nevertheless to be praised for his stubborn adherence to "common sense" and his avoidance of moral obtuseness in the face of what so many others apparently find to be thoroughly intimidating "scientific" conventionalities. It is not particularly remarkable that he failed to rise above *all* of those conventions. Very few people do.

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