

R. F. Baum

## The Age of Endarkenment: Naturalism and Nihilism in Modern Thought

YEARS BEFORE ISAAC Newton published his *Principia* his friend John Locke, a religious dissenter with a plain man's trust in observed fact, was seized of a large and conciliatory ambition. Locke wanted finally to free men's minds from the metaphysical-theological convictions, usually deduced from revelation, that had fueled Europe's religious wars. With the publication of *Principia* in 1687, and the vaulting prestige of a science that Newton declared *induced* from empirical observations, Locke's ambition found its opportunity.<sup>1</sup> In 1690 Locke's *Essay Concerning Human Understanding* developed what Locke took to be Newton's induction of his cosmology from empirical observations into a general theory of knowledge, in an attempt to "clip the wings of speculation."

According to Locke's *Essay*, man's mind at birth was an "empty cabinet" which in the natural course of things was furnished by sense experience. Hence it was not in metaphysics or theology, not in any constructions of man's speculating mind, but in the testimony of the senses and reflection on it that "Certainty, real Certainty," could be found.<sup>2</sup>

Carried to France by Voltaire and there simplified by Condillac, Helvetius, Holbach, and others, an empiricism derived from Locke and acclaiming sense experience as the source of knowledge became the epistemological buttress of the eighteenth-century Enlightenment. The naturalistic bent of that Enlightenment soon became overtly atheistic

in France.<sup>3</sup> Philosophical naturalism, buttressed by empiricism and with it advocating collection of, and induction from, observed facts as the proven way to valid law and theory, came to typify the modern mind.

Objections may be raised to the statement that the epistemological revolution promoted by Locke and his successors has been driving us toward an endarkenment in which no light whatever, let alone certainty, will illuminate the world we live in. Yet such an unexpected outcome is written large on the characteristic thought of our time.

Sharing naturalism's hostility to the affirmation of anything transcending space and time, the past generation's most referred-to philosophers, Wittgenstein and Heidegger, proscribed any search for realities other than those observable. For Wittgenstein the ways of thought manifest in ordinary, that is to say ever-changing, language became the end of philosophical inquiry; philosophy would delve no further. Heidegger rejected the traditional conception of unchanging Being, proclaimed the historicity of all reality, and urged men to be and live authentically by aligning themselves with the direction in

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which history was moving. Both these thinkers left modern man adrift in the dark of ever-changing circumstance. Neither, let us remember, offered any philosophical resource against the triumphant tyrannies of their time. Heidegger drifted for a while in the Nazi darkness, and Wittgenstein is reported to have visited Stalin's Russia in the hope of finding there a congenial home.

#### Reductionism in Science, History, Psychology

Also pressing the assault on metaphysics and *a fortiori* on theology, the Logical Positivists hailed as an adequate guide for living the allegedly verified theories, the accepted laws, of "inductive science." Championing such science, Logical Positivists dominated and even domineered in many Anglo-Saxon universities—until Karl Popper's *Logic of Scientific Discovery* demolished both the induction notion and the idea of verified theories or laws. Popper correctly perceived that from particular observations one could neither induce nor verify universal laws. He illustrated his point by remarking that no number of true reports of white swans could ever verify "all swans are white." And of course it is just the universality of scientific laws— $E = mc^2$  everywhere and always—that gives them validity in the future, their predictive power.

Popper did, however, go on to develop a conception of scientific and rational knowledge that did uphold its power to illuminate reality. He wrote that scientists, instead of inducing laws from observed facts, as widely thought, actually proceeded by proposing laws as hypotheses. He further stated that by rejecting or altering hypotheses that were falsified by facts, and by retaining and developing those corroborated by facts (though never finally verified), scientists could and did achieve an ever closer *approximation* to truth.

While Popper's "falsificationist" conception of rational method and of the knowledge generated by it satisfied scientists and most reflective men, Popper's demolition of induction alarmed devoted naturalists. In

view of that notion's centuries-long association with naturalism, a naturalist might well feel that Popper had probed uncomfortably close to the nerve of naturalism itself. In fact, the association is more than merely historical. For if we obtain knowledge, however approximate, by some means other than induction from empirical observations, e.g., by constructing *a priori* hypotheses, man's mind becomes much more than an empty cabinet furnished by sense impressions, and the empiricism derived from that conception falters. As the eminent naturalist Sterling Lamprecht has written, naturalism stands or falls with acceptance of "a strictly empiricist method."<sup>4</sup> Emerging together some three centuries ago, the induction notion, empiricism, and naturalism itself exhibit a logical interdependence that seems tight enough to require the statement that if one falls, the others do also.<sup>5</sup>

For naturalism's sake devoted naturalists had somehow to silence Popper. Yet his demolition of induction was unassailable.<sup>6</sup> The retaliative possibility remained of denying that Popper's "falsificationism" cast the light that he had claimed, and in 1962 Thomas Kuhn's *The Structure of Scientific Revolutions* declared that discarded theories were never truly falsified—a declaration that cast a deep shadow on Popper's assertion that successive theories bring a closer approximation to truth.

Kuhn took his stand on the truth that sense perceptions of objects, accepted as reports of physical facts, were not the same things as objects themselves. Perceptions exist in the perceiver, objects in the external world. Kuhn also insisted that scientists' facts were not, as naively assumed, simple deliveries of the senses. Instead, as could be seen when different men perceived the same object differently, the sense perceptions accepted as reports of facts were constructs in which not only objects but also the perceiver's mind played a part. However widely agreed on, the empirical facts used to falsify or corroborate theories contained a mental input. They were therefore in part theoretical and not categorically different from theories themselves. This meant, on Popper's

own view of theories as never finally verified, that so-called empirical facts were also never finally verified. And it was manifestly illegitimate to falsify a theory by means of unverified facts.<sup>7</sup>

Popper's conception of scientific method and knowledge has corrected a centuries-old misunderstanding.<sup>8</sup> Scientific knowledge grows or progresses not, as even Newton thought, by induction from accumulated observations but by a process of trial and error, by bold *a priori* hypotheses and retention of those that survive factual and logical tests. But Popper's conception explains only how scientific knowledge grows; it does not attempt to establish that such knowledge corresponds to or lays hold of external reality. "Security and justification of claims to knowledge," Popper has written, "are not my problem."<sup>9</sup> In consequence he has propounded a convincing theory of the growth of scientific *thought*, but that theory leaves untouched Kuhn's concluding statement that "the notion of a match between the ontology of a theory and its 'real' counterpart in nature now seems to me illusive."<sup>10</sup>

Must not consistent naturalists admit, then, that in their own fully unfolded view physical science may cast as little light upon reality as the disinterest in science of the romantics and existentialists has long suggested? For certain purposes, of course, scientific theory "works" and enhances human survival. But then the "theories" of laboratory rats obtaining food from devices whose design and structure they have not the faintest notion also "work" and enhance the rats' survival.

Turning from physical science to historiography, we find a similar nineteenth-century confidence in supposedly induced and verified theory and an even deeper twentieth-century endarkenment. For nearly a century, only brief, one-battle wars had marred the European concert inherited from the Congress of Vienna. History appeared to have borne out Auguste Comte's prediction in the 1820s that serious warfare between civilized nations was becoming obsolete. In Europe and America nearly everyone enjoyed an ample diet and was clothed and

housed better than in previous ages. The continuing improvement of material conditions and the continuing turn from theology to naturalistic science that were major elements in the idea of Progress seemed obvious inductions, truths as clearly induced from observed facts as Newton's cosmology itself. By the end of the century the idea of Progress in Hegelian, Marxist, Comtean, or Spencerian guise had come to serve not only the public but also most historians as an explanatory-predictive theory illuminating history's general course, future as well as past.

With the physical and moral devastation wrought by World War I confidence in Progress collapsed. Even before the shock of World War I had been sealed by the further shock of World War II, historians, conscious of having been misled by a theory whose claims about the future plainly could not have been induced from observed facts, took a direction wholly different from that of their physicist contemporaries. While physicists had been moving on from Newtonian theory to the vaster conceptions of relativity and quantum theory, historians had dropped and furled their own theoretical sails. Embracing facts with all the ardor of repentant sinners, historians displayed a once-burned-twice-shy hostility to any general theory or philosophy of history whatever.<sup>11</sup>

While with this new posture historians intended especially to discredit deterministic theories and the moral passivity engendered by them, the same posture eliminated from historical writings what thinking people had especially looked for in them. This was more than true description of past events. It was an intimation, at least, of what, in Thucydides' words, "might be expected to happen hereafter in the order of human things."<sup>12</sup> Instead of an awareness of some lasting order in human affairs, the characteristic contribution to twentieth century historical thought was the belief that no such order, habit, or pattern could be found; harsh polemics were aimed at those who sought one.<sup>13</sup> Since the past had little if any relevance to the future, little of practical value could be learned from history. "Let us

admit at once," Henry Steele Commager advised the profession, "that in a practical way history has no use."<sup>14</sup>

Moreover, when history is seen as devoid of any enduring order, any trend or fashion may appear as a once-for-all "verdict of history" requiring acceptance by anyone not hopelessly reactionary or eccentric. Quite as effectively as a deterministic mindset, the denial of enduring order engenders moral passivity. But this was not the only shadow that fell across the historical profession. Historical facts, too, came into question.

In the 1920s in a paper entitled "What Are Historical Facts?" Carl Becker of Cornell, soon to be president of the American Historical Association, pointed out that an agreed fact, like Caesar's crossing of the Rubicon, generalized or symbolized the countless acts, words, and thoughts of an entire army crossing a river.<sup>15</sup> Becker went on to say that Caesar's river crossing, unlike countless others, had become a historical fact, that is, one used and cited by historians, expressing their own view of the political situation of the past. It was not the river crossing itself but the meaning or interpretation put upon it by historians that made it a historical fact.

Drawing a distinction like the one that would be drawn later by Kuhn between things and human perceptions of them, Becker correctly wrote that "the actual occurrence and the historical fact, however closely associated, are two different things."<sup>16</sup> No historian could simply present the facts and let them speak for themselves. A historian had not only to generalize but also to select from a superabundance of actual occurrences, and his own views and purposes would govern his selection. Consequently, a historian could not eliminate "the personal equation"; objectivity lay beyond his reach.

Now in asserting the unavoidability of "the personal equation" in a historian's selection of facts Becker overlooked what he himself surely knew: that historiography, like any science, is a communal enterprise, and that a historian's peers and successors can identify and prune from his work whatever

is merely personal or merely time-bound. By reading different histories of the same events a thinking layman can achieve much the same result. But, and the "but" is large, that reflection disposes of only a part of Becker's profoundly endarkening thought.

Unrefuted and unrefutable was Becker's demonstration that a historical fact did not consist in the mere reporting of empirical research, that monuments and archives are no more complete in themselves than perceptions of physical objects are simple deliveries of the senses.<sup>17</sup> A historical fact is instead a mental construct in whose construction not only the historical record but also the mind of the historian plays a part. That kind of fact a naturalist-empiricist, with his confidence in observation as the source of knowledge and his view of active mind as the source of error, cannot trust. In Becker's view the historical world became "an intangible world, re-created imaginatively and present in our minds [rather than in the actual past]." He described its value as "only an enrichment of our minds with the multiplied images of events, places, peoples, ideas, emotions outside our personal experience."<sup>18</sup>

But we have not yet considered the nadir of modern naturalism: behaviorist psychology and cybernetics. Here, with staggering irony, the effort that may be said to have begun with Locke, the centuries-long effort to free men's minds from metaphysics and theology, has culminated in a denial that anything properly called mind, anything capable of directing the computer-like neural apparatus that is the brain, *exists*. Herbert Simon of the Pittsburgh-Mellon Institute of Technology opined that there were in principle no tasks seemingly performed by minds that computers could not perform as well. Harvard's B. F. Skinner has advised his readers that mind is only "an explanatory fiction." Years ago John Dewey announced that habits were "the sole agents of recollection, foresight, and judgement, and . . . a mind or consciousness or soul in general which performs these operations is a myth."<sup>19</sup>

With such denials of the efficacy or even

the existence of the mind that Locke and his successors had hoped to liberate, the behaviorist or cybernetician adds nothing new to the essence of naturalism. For when the naturalist asserts that nature, by which he means objects and events in space and time, constitutes the whole of reality, he conceives nature to be a causal system that by its own working produces everything that is, including human thinking. Likewise, when as an empiricist he conceives minds formed and furnished by sense impressions, he makes thought a passive register, in fact a function, of external stimuli. In both instances he finds us thinking and believing as the stimuli, the environment, compel; free rational thought or, in one word, *mind* is excluded.<sup>20</sup> And that exclusion denies us any ground for thinking that any thought, including naturalism itself, is truer than thought caused by drugs, disease, or personal interest.

#### The Naturalistic Temptation

Debilitated by an intrinsic disclaimer of its own claim to rationality and truth, a once ebullient epistemological enlightenment has been turning into a comprehensive endarkenment. A generation ago Albert Camus correctly remarked that knowledgeable men had begun to "despair of true knowledge." Unknown to the man in the street, a worm of total, unlimited doubt has been planted at the foundations of modern claims to knowledge. There, we may be told, its action is benign, forestalling any absolutism, whether evil or naive. But by now the same worm gnaws away at every rational belief, every factually tested scientific theory or historical reconstruction, leaving in its stead a sterile sophistication that writes and thinks of the "good," the "real," and the "true" in deprecating double quotes.

Although seldom doubting the reliability of its own perceptions of reality, the educated public increasingly suspects that no perception is truer than any other—"my cup of tea or yours"—and that any opinion on the burning issues of the day may become a compelling "verdict of history" if its adher-

ents can get out the vote or incite mob action. As we jostle and collide against each other in that growing darkness, each of us driven by his own galvanic load of instinct and desire, nothing seems less likely to prove effective than pleas for mutual tolerance. Why, indeed, if men possess no grasp of truth or good superior to the brutes, should men receive more respect than brutes? Denigrating mind and thought in favor of the testimony of the senses, then undermining confidence in that testimony itself, thus throwing us back on what we immediately feel and crave, the endarkenment will achieve the opposite of Locke's original irenic aim.

A seventeenth-century bishop made this cautionary remark in a letter to Locke: "it is a thing of dangerous consequence to start such new methods of *Certainty* as are apt to leave men's minds more *doubtfull* than before" (emphases original). This statement may well strike us as a model of prescient wisdom.<sup>21</sup> Yet here we must enter an enormously significant demurrer to that remark: Locke's "new methods" did not in fact possess the novelty attributed to them.

In Greece, two millennia earlier, another anti-metaphysical, naturalistic enlightenment had dawned. It developed an idea of Progress that clearly anticipated the nineteenth-century idea, spread throughout the Hellenistic world, and finally illuminated Augustan Rome.<sup>22</sup> Acclaimed for his indifference to the gods, to anything transcending space and time, Epicurus, the prophet of that enlightenment, had logically gone on to find in sense perception the source of knowledge, and there the Stoics followed suit.<sup>23</sup> Again like Locke and his successors, both Epicurus and the Stoics believed that induction from accumulated observations was the right way to general knowledge. They also found mind, because of its propensity to generalize before observing, the source of error.

Neither the naturalism nor the associated empiricism and inductivism of the European Enlightenment were really new. Nor, except for further refinement and elaboration, were their epistemological conclusions. In the third century A.D., Plotinus, preceding

Kuhn and Becker by seventeen hundred years, was drawing the distinction between actual things and perceptions of them: "If to see is to accept imprints of the objects of our vision, we can never see those objects themselves."<sup>24</sup> In the same century the Skeptic Sextus Empiricus demolished the induction notion with an argument basically like Popper's.<sup>25</sup> Before Sextus' time the satirist Lucian had voiced a thoroughly modern sophistication: "Religion is absurd, philosophy vacuous; therefore let us enjoy the moment. . . ." Though long forgotten in Locke's time, an Enlightenment founded on a naturalist-empiricist reliance on the testimony of the senses had beguiled the educated people of the ancient world. In thinkers like Sextus and Lucian, and in the contemporary bloody contests for imperial power, that Enlightenment guttered out.

A society whose naturalistic epistemology is driving it toward an endarkenment stands in urgent need of an epistemology that unequivocally asserts the possibility of achieving a significant approximation to true knowledge, physical and historical, particular and general or theoretical. When opinions differ and interests clash only such an epistemology can sustain appeals to fact and reason.

The epistemology required must first of all attribute freedom to man's mind, for if we think and believe only as nature or environment compel, we can in no way claim that any idea is truer than any other—or that men deserve more respect than beasts. Second, an affirmative epistemology must acknowledge the truth that all our ideas, including those commonly considered simple statements of observed fact, are mental constructs bearing inputs from our minds. An epistemology capable of relieving our endarkenment must explain how mental constructs can also be discoveries of external reality, how ideas subjective in the sense of being human can also be objectively true.

That last requirement may seem by definition impossible to meet, and within the naturalistic philosophy or worldview impossible it is. Emerging, or re-emerging, in the seventeenth century, that worldview

ignored or denied anything transcending the natural or spatio-temporal world. In consequence it conceived the universe to consist of two categorically dissimilar parts: on the one hand a mindless nature and on the other hand observing human minds.

Seeking the philosophic germ of this dualistic worldview, we may discover it in the doctrine of "primary qualities" first made explicit by Galileo. According to Galileo, such qualities as number, size, weight, and shape, all qualities of physical objects and easily measured and given mathematical statement, were ultimately real, while such other qualities as color, taste, and by implication value or purpose were only the effects of "primary qualities" on human minds.<sup>26</sup> Viewing all that could not be measured as only epiphenomenal effects of "primary qualities," Galileo's doctrine at once set up the dualism. It conceived the universe external to human minds as perfectly mindless, composed of physical bodies in motion, and it conceived every other seemingly external entity or quality as little more than human illusion. And here once more in this germ of modern naturalism we find Europe's naturalistic Enlightenment repeating the ancient one. For the "primary qualities" notion essentially repeats Democritus' concept of a universe of physical atoms and the void, and it was avowedly on Democritus' teaching that Epicurus based his ancient naturalism, empiricism, and inductivism.

What evidence did Galileo offer for his enormously consequential doctrine? The astonishing answer is "None." Quite arbitrarily and in contradiction to his wiser statement that men would only know reality fully on reaching "the plane of beatitude," Galileo planted—in fact re-planted—the seed of the naturalist worldview. His near contemporary Descartes did, however, offer an argument: "primary qualities" were ultimately real because present in every object. But of course the same holds true of an allegedly "secondary quality" like color. A neo-Pythagorean urge to make mathematics adequate to reality may account for seventeenth-century scientists' acceptance of

the "primary qualities" doctrine. Newton's commitment to it in *Principia* and the revulsion against metaphysics and theology brought on by the religious wars goes far to account for the general acceptance of naturalism and its corollaries by most of the educated public.

Today we can flatly reject, as without foundation, both the "primary qualities" doctrine and the dualism flowing from it.<sup>27</sup> In consequence we can ignore the customary modern notion of objectivity. That our ideas are subjective in the sense of being human or mind-impregnated need not mean that they misrepresent the external world. At the same time, that negative conclusion fails to explain how, affirmatively, some of our ideas might accurately represent that world. That ideas or perceptions of objects and events are not the same things as objects and events themselves seems as plain as daylight. How can it be that some ideas, at least, closely resemble external things?

Since our basic problem is to vindicate the mental constructs commonly called empirical facts, which we use to test both physical and historical theory, we cannot on pain of circularity appeal to such facts themselves. Our problem can have only a meta-physical solution. Such a solution, implicitly attributing freedom to the human mind and overcoming the difficulty posed by the difference between perceptions of things and things themselves, lay in the worldview characteristic of the West prior to the seventeenth century.

According to the Judeo-Christian tradition, nature and man alike were creations of a free Creator who had made man in His own image. That image appeared specifically in man's mind or reason. "That light of reason," Augustine wrote, "which makes man the image of God."<sup>28</sup> Centuries earlier Philo Judaeus had called the same reason the most adequate symbol for God. Still earlier Socrates had rebuked a youth's naturalism with a question pointing toward the same conception and traceable to the pre-Socratics:

If of all the other elements men's nature

contains only a small part of the great mass of them contained in the rest of the world, do you think that he has somehow picked up his mind by a lucky chance, and that there is no mind anywhere else?<sup>29</sup>

From the conception of the generic or essential human mind as an image or analogue of a transcendent Creator it follows that such mind is free and that its constructions will image the creation and so be discoveries or true knowledge. In the Socratic and Judeo-Christian worldview mind becomes, not the foremost source of error, but the foremost source of truth.

With that, we meet flat contradiction of Locke's conception of the primal mind as an empty cabinet and we are led to question the prevailing conception of reason as little more than a faculty of drawing inferences from data supposedly provided solely by the senses. Mind or reason provide not only the clearly *a priori* principles of logic and such categories as true and false, right and wrong, but also the very idea of external reality itself. To external reality, as Hume pointed out long ago, the senses simply do not testify (though naive empiricists think they do). A sensation is only an event in consciousness, an awareness of an inner state; in and by itself it warrants no inference to an external world. As the "prince of sceptics" noted, belief in the existence not only of sensations or perceptions but also of the objects sensed, hence belief in an external world, is a product "either of the reason or the imagination."<sup>30</sup>

#### A Theistic Revival

When it comes home, as to reflective men it has been coming home for at least two generations, that the testimony of the senses is in great part testimony of the mind, acceptance of so-called empirical facts and of empirically tested theory as deserving more respect than personal feeling will depend upon the confidence that belief in mind as the image of a Creator once gave. Whitehead drove to the depths of the matter when he called faith in the possibility of science

(knowledge) "an unconscious derivative from medieval theology."<sup>31</sup> Conversely, doubt or denial of that possibility and disparagement of rational thought have burgeoned with the rejection of that theology's theistic premise. Contrary to naturalistic opinion, modern knowledge, whether physical or historical, factual or theoretical, has been rooted in theistic faith. When that connection is severed, knowledge of every kind loses grounding in external reality and hence its authority in men's judgment. Already, physical science is valued less as a store of truth than for its technological uses. Meanwhile increasing numbers of people find historians' reconstructions of the past irrelevant in a world of computers, missiles, and gene splices that seems devoid of any enduring order.

Because the question of the agreement of human perceptions or empirical facts with external reality cannot be escaped, we might expect to find it addressed by Locke in his seminal *Essay*. The expectation holds true. Locke wrote:

'Tis evident, the Mind knows not Things immediately, but only by intervention of the Ideas it has of them. Our Knowledge therefore is real, only insofar as there is a conformity between our ideas and the reality of Things. But what shall be the criterion? How shall the Mind when it perceives nothing but its own Ideas, know that they agree with Things themselves. . . ?<sup>32</sup>

In starkest possible contradiction to the anti-metaphysical intent of his *Essay* Locke replied by appealing to "the Wisdom and Will of our Maker." From God's wisdom and will, he wrote, "it follows that simple ideas [sense perceptions] are not fictions of our fancies but the natural and regular productions of things without us, really operating upon us. . . ."<sup>33</sup> Descartes' similar reply to the same inescapable question powerfully argues that reply's unique sufficiency. Ignoring for a moment his own naturalistic dualism, Descartes declared that God would not deceive men in their "clear and distinct" ideas.<sup>34</sup> The only answer to the same question that can be drawn from Galileo's writ-

ings is practically identical: God created the world such that man's mathematical concepts would nicely fit it.

In the face of a growing awareness of naturalism's epistemological bankruptcy and of the naivete of naturalism's inductivist view of science and the falsity of its theory of Progress, a resurgence of theistic faith seems likely.<sup>35</sup> Given such a resurgence, the scientific community's factually tested theories from, say, Ptolemy through Newton to Einstein will stand vindicated as closer approximations to physical reality. The same will hold over a similar span of time for the historical reconstruction of the human past. Meanwhile, history must once again be seen as a manifestation of an enduring "order of human things." We need a philosophy of history as comprehensive as the theory of Progress or Spengler's cyclic theory—but one that unlike them survives empirical and logical testing.

The recovery of a philosophy of history must begin by questioning the hallowed notion that the future lies open before us, that in human affairs anything may happen. The crucial questions are: *how* open is the future, *may* anything happen? Constrained to answer, every historian of sound mind will acknowledge what naturalists dreaming of a mankind totally autonomous, even self-created, and of unlimited potential ignore, and what Christian Fathers, Socrates, and Hebrew prophets never forgot: namely, that many things can never happen. For example, men will not turn into angels; imperfect men will never create a perfect society; no fixed creed or philosophy will ever perfectly portray reality. Enduring limits to human possibilities ring us round and cannot be ignored with impunity. All of man's contrivances bear a stamp of imperfection which, when they achieve unchallenged dominance, reveal their imperfection, grow baneful, and provoke repudiation.

With human limitation and human freedom as founding principles, a thoroughly realistic philosophy of history can be built. It will remark throughout the past a fluctuation between variously named and elaborated but at bottom naturalistic and theistic

worldviews, and between the distinctly different policies and actions those worldviews inspire. Historical knowledge will regain its usefulness to living men by reminding them that history continually reverses its so-called

verdicts and that in the spiritual crises, reversals, and fluctuations of the past and in their social and other consequences we can discern, not the particulars, but the form or shape of things to come.<sup>36</sup>

1. As proposed by Francis Bacon and conceived by Newton, induction consisted in inferring general theories or laws from accumulated particular facts. For Newton's declared commitment to induction see *Principia's* final paragraph and Fourth Rule of Reasoning.
2. *Loc. cit.* Book IV, Ch. 4, Section 10.
3. Philosophical naturalism is well described as a blend of materialism and religious agnosticism. Since the latter takes no stand, the materialism, which is atheistic, comes to rule.
4. Lamprecht, *The Metaphysics of Naturalism*. 1967, 180.
5. Awareness of the interdependence described probably accounts for naturalists' persistent hope that induction will somehow, sometime, be vindicated. See for example R. B. Braithwaite, *Scientific Explanation*, 1960 edition, ix, or Ernest Nagel, *Logic Without Metaphysics*. 1954, 313.
6. In the *New York Review of Books*, May 2, 1974, Peter Singer attempted a refutation. Singer argued that when we prefer a corroborated theory to a falsified one we must do so on the inductivist assumption that the future will resemble the past. Actually, no such assumption is needed or made. The theories in question are *universal* theories and, once falsified, fail of universality.
7. For a lengthier discussion see R. F. Baum, "Popper, Kuhn, Lakatos: A Crisis of Modern Intellect," *Intercollegiate Review*, Spring, 1974.
8. While David Hume, Joseph de Maistre ("Philosophy begins with contempt for Locke"), and others preceded Popper in criticism of induction, Popper has been its most effective critic.
9. Popper, *Objective Knowledge*, 1972, 37.
10. Kuhn, *Scientific Revolutions*. 2nd edition, 1970, 206.
11. The British historian Herbert Fisher gave the new attitude a much admired expression: "I can see only one emergence following upon another as wave follows wave, only one great fact in respect to which, since it is unique, there can be no generalizations; only one safe rule for the historian: that he should recognize in the development of human destinies the play of the contingent and the unforeseen." *A History of Europe*, London, 1935, Preface.
12. Thucydides, *The Peloponnesian War*. Jowett trans., 1960 edition, 34.
13. Spengler, who coldly rejected Nazi overtures and with reference to Hitler declared that Germany needed "a hero, not a heroic tenor," was called a Nazi. The British historian Trevor-Roper likened Toynbee to Hitler.
14. Commager, *The Study of History*. 1965, 73.
15. See Becker's paper in Hans Meyerhoff, ed., *The Philosophy of History in Our Time*. 1959.
16. Kuhn remarked that much of his originality lay in applying to science concepts long familiar to historians. *Scientific Revolutions*, 208.
17. Maurice Mandelbaum, *The Problem of Historical Knowledge*. 1938, attempted a general refutation of Becker. Becker easily disposed of it in a review in *Philosophical Review*, May 1940, 361ff.
18. In a similar vein Lynn White, Jr wrote in his Preface to *The Transformation of the Roman World*. 1966, "the study of history is chiefly a means of discovering ourselves as we are mirrored in our thoughts about the past."
19. Dewey, *Human Nature and Conduct*. 1922, 176.
20. Freud, too, joined the deterministic chorus. He wrote that man's belief in his mental freedom "must give way before the claims of a determinism which governs even mental life." Freud, *The Complete Introductory Lectures on Psychoanalysis*. James Strachey, ed., 1966, 106. See also 49, and *passim*.
21. Bishop Stillingfleet, cited by Richard H. Popkin in *Journal of History of Philosophy*, July, 1971, 303.
22. Cf. Ludwig Edelstein, *The Idea of Progress in Classical Antiquity*, 1967.
23. Cf. Cyril Bailey, *Epicurus, The Extant Remains*, Oxford, 1926, 23, 101, and George K. Strodach, *The Philosophy of Epicurus*, 107.
24. Plotinus, *Enneads*, trans. Stephen Mackenna, London, 1917, LV, 6, 1.
25. Loeb Library, *Sextus Empiricus*, trans. R. G. Bury, Vol. I, 283.
26. Galileo, *Il Saggiatore (The Assayer)*. Question 48.
27. Here we have the support of recent physics. For example, with regard to the dualism see Henry Margenau in *Philosophy of Science*, July, 1952, 212. Harold G. Cassidy, *Science Restated*, 1970, 221, observes that "a counter-revolution against Galileo and Newton" has occurred "in which the distinction between primary and secondary qualities has been blurred, if not removed."
28. Augustine, *The City of God*. Book XXII, Ch. 24. See also Ronald H. Nash, *The Light of the Mind. St. Augustine's Theory of Knowledge*, 59, 111, and *passim*.
29. Xenophon, *Memorabilia*, 1, 4, 8.
30. See Hume's discussion of "double existences" in *A Treatise of Human Nature*. Book I, Part IV, Section 1. Also Hume's refutation of the "primary qualities" notion, which he aptly called "the fundamental principle" of post-Renaissance philosophy. *Treatise*, Book I, Part IV, Section 3.

- 31. Whitehead, *Science and the Modern World*, 1925, 13.
- 32. *Essay*, Part IV, Ch. 4, Section 4.
- 33. *Essay*, Part IV, Ch. 4, Section 10.
- 34. Descartes, *Meditations on First Philosophy*, III, IV, V.
- 35. The only other alternative to naturalism is pan-

theism, which in Stoic, Spinozist, and other forms entails a determinism like that of naturalism.  
 36. Readers familiar with P. A. Sorokin's *Social and Cultural Dynamics, 1937-41*, will see its influence here. For a review of Sorokin's theory see R. F. Baum, "Sorokin, Popper, and the Philosophy of History," *Intercollegiate Review*, Spring, 1972.

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