

IN PRAISE OF INTOLERANCE TO CHARLATANISM IN ACADEMIA^a

MARIO BUNGE

*Foundations and Philosophy of Science Unit
McGill University
Montréal, Canada H3A 1W7*

UP UNTIL THE MID-1960s whoever wished to engage in mysticism or freewheeling, intellectual deceit or antiintellectualism had to do so outside the hallowed groves of academe. For nearly two centuries before that time the university had been an institution of higher learning, where people cultivated the intellect, engaged in rational discussion, searched for the truth, applied it, or taught it to the best of their abilities. To be sure once in a while a traitor to one of these values was discovered, but he was promptly ostracized. And here and there a professor, once tenured, refused to learn anything new and thus became quickly obsolete. But he seldom lagged more than a couple of decades, was still able to engage in rational argument as well as to distinguish genuine knowledge from bunk, and did not proclaim the superiority of guts over brains or of instinct over reason—unless, of course, he happened to be an irrationalist philosopher.

This is no longer the case. Over the past three decades or so very many universities have been infiltrated, though not yet seized, by the enemies of learning, rigor, and empirical evidence: those who proclaim that there is no objective truth, whence “anything goes,” those who pass off political opinion as science and engage in bogus scholarship. These are not unorthodox original thinkers; they ignore or even scorn rigorous thinking and experimenting altogether. Nor are they misunderstood Galileos punished by the powers that be for proposing daring new truths or methods. On the contrary, nowadays many intellectual slobs and frauds have been given tenured jobs, are allowed to teach garbage in the name of academic freedom, and see their obnoxious writings published by scholarly journals and university presses. Moreover, many of them have acquired enough power to censor genuine scholarship. They have mounted a Trojan horse inside the academic citadel with the intention of destroying higher culture from within.

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The academic enemies of the very *raison d'être* of the university can be grouped into two bands: the antiscientists, who often call themselves "post-modernists," and the pseudoscientists. The former teach that there are no objective and universal truths, whereas the academic pseudoscientists smuggle fuzzy concepts, wild conjectures, or even ideology as scientific findings. Both gangs operate under the protection of academic freedom, and often at the taxpayer's expense, too. Should they continue to use these privileges, misleading countless students and misusing public funds in defaming the search for truth, or should they be expelled from the temple of higher learning? This is the main problem to be tackled in the present paper. But first let us sample the production of the academic antiscientists and pseudoscientists, restricting ourselves to the humanities and social studies.

ACADEMIC ANTISCIENCE

Academic antisience is part of the counterculture movement. It can be found in nearly all departments of any contemporary faculty of arts, particularly in the advanced countries. Let us take a look at a small sample of the antiscientific reaction inside the gates of Academia: existentialism, phenomenology, phenomenological sociology, ethnomethodology, and radical feminist theory.

Example 1: Existentialism

Existentialism is a jumble of nonsense, falsity, and platitude. Let the reader judge by himself from the following sample of Heidegger's celebrated *Sein und Zeit*, dedicated to Edmund Husserl, his teacher and the founder of phenomenology. On human existence or being-there (*Dasein*): "Das Sein des Daseins besagt: Sich-vorweg-schon-sein-in-(der Welt-) als Sein-bei (innerweltlich begehendem Seienden)."¹ On time: "Zeit ist ursprünglich als Zeitigung der Zeitlichkeit, als welche sie die Konstitution der Sorgestruktur ermöglicht."² I dare anyone to make sense of these wordplays, or even to translate them into standard German. Other famous formulas of Heidegger's, such as *Die Welt weltet* ("The world worlds"), *Das Nichts nichtet* ("Nothingness nothingness"), *Die Sprache spricht* ("Language speaks"), and *Die Werte gelten* ("Values are valuable"), have the virtue of brevity but are just as nonsensical as the former.

Not content with writing nonsense and torturing the German language, Heidegger heaped scorn on "mere science" for being allegedly incapable of "awakening the spirit."³ He also denigrated logic, "an invention of school-teachers, not of philosophers."⁴ Last, but not least, Heidegger was a Nazi ideologist and militant, and remained unrepentant until the end.⁵ (No mere coincidence here: the training of obedient soldiers ready to die for an insane criminal cause starts by discouraging clear critical thinking.) In short, existentialism is no ordinary garbage: it is unrecyclable rubbish. Its study in academic courses is justified only as an illustration of, and warning against, irrationalism, academic imposture, gobbledegook, and subservience to reactionary ideology.

Example 2: Phenomenology

This school, the parent of existentialism, is characterized by opaqueness. Let the reader judge from this sample of its founder's celebrated attack upon the exact and natural sciences: "I as *primaevae* I [*Ur-Ich*] construct [*konstituieren*] my horizon of transcendental others as cosubjects of the transcendental intersubjectivity that constructs the world."⁶ Phenomenology is also a modern paragon of subjectivism. In fact, according to its founder the gist of phenomenology is that it is a "pure egology," a "science of the concrete transcendental subjectivity."⁷ As such, it is "in utmost opposition to the sciences as they have been conceived up until now, i.e., as *objective* sciences."⁸ The very first move of the phenomenologist is the "phenomenological reduction" or "bracketing out" (*époché*) of the external world. "One must lose the world through *époché* in order to regain it through universal self-examination."⁹ He must do this because his "universal task" is the discovery of himself as transcendental (i.e., nonempirical) ego.¹⁰

Having feigned that real things such as chairs and colleagues do not exist, the phenomenologist proceeds to uncover their essences. To this end he makes use of a special intuition called "vision of essences" (*Wesensschau*), the nature of which is not explained, and for which no evidence at all is offered. The result is an a priori and intuitive science.¹¹ This "science" proves to be nothing but transcendental idealism.¹² This subjectivism is not only epistemological but also ontological: "the world itself is an infinite idea."¹³

How could anyone think that this wild fantasy could shed any light on anything except the decadence of German philosophy? This extravagance can only have at least one of two negative effects on social studies. One is to focus on individual behavior and deny the real existence of social systems and macrosocial facts; these would be the products of such intellectual procedures as aggregation and "interpretation" (guessing). The other possible negative effect is to alienate students from empirical research, thus turning the clock back to the times of armchair ("humanistic") social studies. The effect of the former move is that *social science* is impossible; that of the second is that *social science* is impossible. Either or both of these effects are apparent in the two schools to be examined next.

*Example 3: Phenomenological Sociology*¹⁴

This school is characterized by spiritualism and subjectivism, as well as by individualism (both ontological and methodological) and conservatism—ethical and political. The first two features are obvious: according to phenomenology social reality is a construction of the knower, not a given; for all social facts would be "meaningful" (have a purpose) and the subject of "interpretation" (guessing), whence everything social would be spiritual and subjective, or at most intersubjective, rather than material and observer independent. The ontological individualism of phenomenology derives from its subjectivism. Because individuals are said to "interpret" themselves and others, without ever facing any brute social facts, the task of the sociologist is to grasp "subjective meaning structures" rather than to construct or test models of social systems or processes. In particular, he must study the *Lebenswelt* or everyday life of

individuals, skirting such macrosocial issues as gender and race discrimination, mass unemployment, social conflict, and war. The phenomenological sociologist claims to grasp directly the objects of his study, alleging that they are ordinary. Moreover, let us remember that he is graced with the “vision of essences,” which gives him instant insight. Hence he can dispense with statistics, mathematical modeling, tedious argument, and empirical test. In short, phenomenological sociology is avowedly nonscientific and an invitation to sloth.

*Example 4: Ethnomethodology*¹⁵

This is the offspring of the union of phenomenology with symbolic interactionism. The members of this school practice what phenomenological sociologists preach: they observe at first hand and record trivial events in the *Lebenswelt* or everyday life, focus on symbols and communication, and skirt any important activities, processes, and issues, particularly large-scale social conflicts and changes. They engage in participant (short-range) observation but shun experimentation, which they disapprove of on philosophical grounds. Lacking theories of their own, the ethnomethodologists invoke the murky pronouncements of hermeneutics, phenomenology, and even existentialism—all of them declared enemies of science. Obviously an antiscientific philosophy that opposes the search for objective truth could hardly inspire scientific research. Mercifully the ethnomethodologists make no use of these doctrines in their empirical work. As a matter of fact, in field work they behave as positivists—even while vehemently denouncing positivism—inasmuch as they spend most of their time collecting data, which they are unable to interpret correctly for want of theory.

In fact, the ethnomethodologist audiotapes and videotapes “the detailed and observable practices which make the incarnate [?] production of ordinary social facts, for example, order of service in a queue, sequential order in a conversation, and the order of skillfully embodied [?] improvised conduct.”¹⁶ Possible English translation: “The ethnomethodologists record observable ordinary life events.” The data thus collected are audible or visible traces left by people who presumably behave purposefully and intelligently. These traces are the only clues the ethnomethodologists can go by, for, lacking a theory, they cannot tell us what makes people tick—i.e., they cannot explain the behavior they observe and record. Their practice does not differ from that of the empiricist and, in particular, the behaviorist—as even Atkinson, a sympathizer of the school, has admitted.¹⁷ In short, they behave like positivists even while engaging in positivism bashing—actually a devious way of attacking the scientific approach.

Only the ethnomethodologists’ convoluted lingo suggests intimate contact with their philosophical mentors. For example, Garfinkel starts one of his books by stating that ethnomethodology “recommends” that “the activities whereby members [of a group?] produce and manage settings [?] of organized everyday affairs are identical with members’ procedures for making those settings ‘account-able’[?]. The ‘reflexive’[?] or ‘incarnate’[?] character of accounting [?] practices and accounts makes up the crux of that recommen-

ation.”¹⁸ Or consider the same author’s definition of ethnomethodology as “the investigation of the rational [intelligible?] properties of indexical [context-dependent] expressions and other practical actions as contingent [?] ongoing accomplishments [outcomes?] of organized artful [purposive?] practices of everyday life.”¹⁹ Why use extraordinary prose to describe ordinary accounts of ordinary life?

This is not to deny the value of observing everyday life occurrences, such as casual encounters and conversations—the favorite material of ethnomethodologists. Such observation, a common practice of anthropologists, yields raw material for the scientist to process in the light of hypotheses and with a view to coming up with new hypotheses. But that empirical material is of limited use unless it is accompanied by reliable information concerning the role that the observed subject enacts, e.g., boss or employee. The reason is that such roles—in other words, the system in which the protagonists are embedded—largely determine the “meaning” (purpose) of everyday actions and the content of conversations.²⁰ But ethnomethodologists overlook the macrosocial context and are not interested in any large social issues. This fact, combined with the absence of tests of the proposed “interpretations” (hypotheses) and the lack of theory, explains the paucity of findings of ethnomethodology.

A characteristic product of this school is Lynch’s study “Sacrifice and the Transformation of the Animal Body into a Scientific Object: Laboratory Culture and Ritual Practice in the Neurosciences.” Taking his cue from Durkheim’s studies in the sociology of religion, Lynch claims that the killing of laboratory animals at the end of a run of experiments is part of a ritual practice whereby the body of the animal is transformed into “a bearer of transcendental significances.” Characteristically, he presents no evidence for the extraordinary claim that the laboratory bench is just a sacrifice altar.

Example 5: Radical Feminist Theory

The word “feminism” nowadays denotes three very different objects: the movement for women’s emancipation from male domination; the scientific study of the feminine biological, psychological, and social condition; and radical feminist “theory.” While the first two are legitimate and laudable endeavors, the third is an academic industry that makes no use of science. It is, moreover, hostile to science and is characterized by pseudoproblems and wild speculation. Some radical feminist theorists have promised a “successor science” that would eventually replace or at least complement what they call “male-dominated science.” Others, more consistent, are dead against all science, because they believe that reason and experiment are weapons of male domination. They hold that the scientific method is part of the “male-stream.” They denounce precision—in particular, quantitation, rational argument, the search for empirical data, and the empirical testing of hypotheses as so many tools of male domination. They are constructivist-relativists: they denounce what they call “the myth of objectivity.” (More on this below under ACADEMIC PSEUDOSCIENCE.)

For example, the feminist theorists Belenky, Clinchy, Goldberger, and Tarule hold that truth is context dependent and that “the knower is an inti-

mate part of the known"—just because some of the women they interviewed felt so.²¹ Sandra Harding goes as far as to assert that it would be "illuminating and honest" to call Newton's laws of motion "Newton's rape manual."²² (The rape victim would be Mother Nature, which of course is feminine.) Moreover, basic science would be indistinguishable from technology, and the search for scientific knowledge would be just a disguise for the struggle for power—as Herbert Marcuse²³ and Michel Foucault²⁴ had claimed earlier on the strength of the same empirical evidence, namely none. The radical feminist philosophers are interested in power, not in truth. They want to undermine science, not to advance it. In this way they do a double disservice to the cause of feminine emancipation: they discredit feminism by making it appear to be barbaric, and they deprive it of a strong lever—namely the scientific research of the spurious causes and the pernicious effects of gender discrimination. Moreover, their attack on science alienates women from scientific studies and thus reinforces their subordinate position in modern society.²⁵

To sum up, our antisience colleagues are characterized by their appalling ignorance of the very object of their attack, namely science.²⁶ Lacking intellectual discipline and rigor, they have been utterly barren. This has not prevented them from misleading countless students, encouraging them to choose the wide door, incapacitating them to think straight and get their facts right, and in many cases even write intelligibly.²⁷ Why should any serious and socially responsible scholar tolerate barbarians intent on discrediting genuine scholarly pursuits and even destroying modern culture?

ACADEMIC PSEUDOSCIENCE

To paraphrase Groucho Marx: the trademark of modern culture is science; if you can fake this, you've got it made. Hence the drive to clothe groundless speculations, and even old superstitions, with the gown of science. The popular pseudosciences, such as astrology, pyramidology, graphology, UFOlogy, "scientific" creationism, parapsychology, and psychoanalysis, are easy to spot, for they are obviously at variance with what is being taught at the science faculties. (Psychoanalysis would seem to refute this assertion, but it does not. Indeed, nowadays psychoanalysis is taught in only some psychiatry departments, which are part of medical schools, not of science faculties.) On the other hand, the academic pseudosciences are harder to spot partly because they are taught at university departments the world over. A second reason is that these pseudosciences abide by reason, or at least seem at first sight to do so. Their main flaws are that their constructions are fuzzy and do not match reality. (Some of them, such as neo-Austrian economics, even claim that their theories are true a priori.) Let us take a small sample, restricting our discussion to two trends: the love of spurious precision (in particular, pseudoquantification) and the post-Mertonian sociology of science.

Example 1: Pseudomathematical Symbolism

Vilfredo Pareto, an original, insightful, and erudite student of society who used mathematics in economics, passes for being one of the founders of mathematical sociology merely because in this field he used some symbols other

than words. Thus, in his massive and famous *Trattato di sociologia generale* Pareto listed a number of "residues" or "forces," among them sentiments, abilities, dispositions, and myths.²⁸ He assumed tacitly that the "residues" are numerical variables. But, since he failed to define them, the symbols he used are mere abbreviations for intuitive notions. Unaware of this confusion between arbitrary symbols and symbols designating mathematical concepts, he wrote about the composition of such "forces."²⁹ Further down he introduced the formula " $q = A/B$," where A stands for "the force of class I residues," and B for "the force of class II residues" in a given social group or nation.³⁰ Roughly, q would be the ratio of progressivism to conservatism. Since Pareto made no attempt to define any of these "magnitudes," he had no right to divide them or to assert that they increased or decreased quantitatively over time in any group or nation. Ironically, earlier in the same work (p. 509) he had warned that "Residues correspond to certain instincts in human beings, and for that reason they are usually wanting in definiteness, in exact delimitation."³¹ And even earlier in the same work he had devoted an entire chapter to characterizing and criticizing pseudoscientific theories.³² Likewise Pitirim Sorokin, one of the founders of American sociology and an early critic of what he called "quantophobia," sometimes indulged in the latter.³³ For example, he defined the freedom of an individual as the quotient of the sum of his wishes by the sum of his means for gratifying them.³⁴ But since he did not bother to define wishes and means in a mathematically correct way, he "divided" words. In sum, the symbols he used in this case were mere shorthand for intuitive notions.

Professor Samuel Huntington, the famous Harvard political scientist, was far sloppier. In fact he proposed the following "equations" concerning the impact of modernization in developing nations:

Social mobilization/Economic development = Social frustration,
 Social frustration/Mobility opportunities = Political participation,
 Political participation/Political institutionalization = Political instability.³⁵

Huntington did not define any of these "variables," he did not explain how numerical values could be assigned to them, and he did not even bother to tell us their dimensions and units. Obviously, he was unaware that he had "divided" words, not numerical values of honest functions. This was pointed out by the mathematician Neal Koblitz in a paper titled "Mathematics as Propaganda," which led Yale mathematician Serge Lang to campaign successfully against the induction of Professor Huntington into the United States Academy of Sciences. Regrettably, many political scientists and sociologists defended Huntington, thereby exhibiting their mathematical and methodological naiveté.³⁶

Professor Gary Becker, a Nobel laureate at the University of Chicago, is famous for his economic approach to the study of human behavior. Unfortunately he leans heavily on undefined utility functions and tends to pepper his writings with symbols that do not always represent concepts. For example, a key formula of his theory of social interactions reads thus: " $R = D_i + b$."³⁷ Here i labels an arbitrary individual, and R is supposed to stand for "the

opinion of i held by other persons in the same occupation"; and " b measures the effect of i 's efforts, and D_i the level of R when i makes no effort; that is, D_i measures i 's 'social environment.'" Becker christens these "functions" but does not specify them. Consequently he adds words, not functions. We are not even told what the dimensions and units of these pseudomagnitudes are. Therefore, we would not know how to measure the corresponding properties and so to test for the adequacy of the formula.

Of course, pseudoquantitation is sufficient but not necessary to engage in pseudoscience. An alternative is to relate precise magnitudes in imprecise ways, such as " Y is some function of X ," where X and Y are well defined but the function is left unspecified. Milton Friedman's "theoretical framework for monetary analysis" is a case in point.³⁸ Indeed, it revolves around three undefined function symbols (f , g , and l). Hence it may at most pass for a research proposal, an aim of which would be to find the precise form of the hopeful functions in question. But the project does not seem to have been carried out. And in any case, given the bankruptcy of monetarism, the project does not seem worthy of being carried out.

Example 2: Subjective Probability

When confronted with a random or seemingly random process, one attempts to build a probabilistic model that could be tested against empirical data; no randomness, no probability. Moreover, as Poincaré pointed out long ago, talk of probability involves some knowledge; it is no substitute for ignorance. This is not how the Bayesians or personalists view the matter: when confronted with ignorance or uncertainty, they use probability—or rather their own version of it. This allows them to assign prior probabilities to facts and propositions in an arbitrary manner—which is a way of passing off mere intuition, hunch, or guess for scientific hypothesis. In other words, in the Bayesian perspective there is no question of objective randomness, randomization, random sample, statistical test, or even testability; it is all a game of belief rather than knowledge.

This approach contrasts with science, where gut feelings and wild speculations may be confided over coffee breaks but are not included in scientific discourse, whereas (genuine) probabilities are measured (directly or indirectly), and probabilistic models are checked experimentally. (Think of models of radiative and radioactive decay, Brownian motion, gene mutation, or random mating.) This is not to write off the scientific study of belief. Such study is important; and, precisely for this reason, it belongs in experimental psychology and sociology, and it should be conducted scientifically. There is no reason to believe that probability theory, a chapter of pure mathematics, is the ready-made (a priori) empirical theory of belief. In fact, there is reason to believe that credences are not probabilities, if only because we seldom know all the branches of any given decision tree.³⁹

In the field of jurisprudence the so-called new evidence scholarship, born in the mid-1960s, claims to use probability to measure credence and in particular the credibility of legal evidence. In this connection there is even talk of "trial by mathematics."⁴⁰ I submit that probability hardly belongs in legal

argument because probability measures only the likelihood of random events, not the plausibility of a piece of evidence, the veracity of a witness, or the likelihood that a court of law will produce the just verdict. Consequently, talk of probability in law is pseudoscientific. Worse, the American and other criminal codes require the death penalty when “there is a probability that the defendant would commit criminal acts of violence”—as if such a “probability” (actually a mere plausibility) could be either measured or calculated. Thus sometimes not only property and freedom but even life hang on epistemologies that would not stand a chance in science or engineering, and whose only function is to justify an academic industry.

Example 3: Subjective Utility

Most of the utility “functions” occurring in neoclassical microeconomics and its applications to other social studies are not well defined—as Henri Poincaré pointed out to Léon Walras.⁴¹ In fact, the only conditions required of them is that they be twice differentiable, the first derivative being positive and the second negative. Obviously, infinitely many functions satisfy these mild requirements. This often suffices in some branches of pure mathematics. (Likewise the general theory of metric spaces does not require the specification of the distance function.) But the factual (or empirical) sciences are more demanding: here one uses only functions that are defined explicitly (e.g., by infinite series or products) or implicitly (e.g., by differential equations together with initial or boundary conditions). Such specification makes for definite meaning, more exacting testability, and more rigorous measurement. Finally, experimental studies have shown that preferences and subjective estimates of utility and risk do not satisfy the assumptions of expected utility theory.⁴²

In short, the use of utility functions is often mathematically sloppy and empirically unwarranted. Now, rational choice models make heavy use of both subjective utilities and subjective probabilities, as well as of the simplistic hypothesis that selfishness is the only motivation of human behavior. Not surprisingly, none of these models fits the fact. Hence, although at first sight they look scientific, as a matter of fact they are pseudoscientific.⁴³

Example 4: Loose Talk of Chaos Theory

James N. Rosenau, a well-known politologist, has claimed that political instability and turbulence are similar to the instabilities and vortices of fluids, and, moreover, that they satisfy chaos theory.⁴⁴ However, he did not write, let alone solve, any nonlinear differential or finite difference equation for political processes; all he did was some hand-waving. Another politologist, Courtney Brown, does write some equations, but they happen to concern two key variables—level of public concern and environmental damage—that he fails to define, so that the formulas are only ornamental.⁴⁵

All of the above-mentioned examples are exercises in either shorthand or mathematical name-dropping, not in genuine mathematical social science. What we have here is some of the accoutrements of science without its substance; i.e., we are in the presence of pseudoscience.

Example 5: Post-Mertonian Sociology of Science

The modern sociology of science is a scientific discipline born in the 1930s around Robert K. Merton.⁴⁶ It attempts to investigate in a scientific way scientific communities and the interactions between scientific research and social structure; and it holds the former to be realist, disinterested, critical, and subject to a moral code. In the mid-1960s an irrationalist and idealist reaction against the Merton school was born.⁴⁷

The pseudoscientific sociology of science, usually described as constructivist-relativist, claims to paint a far more realistic image of scientific research through jettisoning what are called the “myths” of disinterested research and objective truth. However, most of the new-style sociologists of science mistrust or even attack science. They regard it as an ideology, a power tool, an inscription-making device with no legitimate claim to universal truth, one more social construction on a par with myths, dress codes, and a variety of politicking. They regard scientists as skilled craftsmen but somewhat unscrupulous wheelers-dealers and unprincipled politicians. In short, they laugh at Merton’s classical characterization of the scientific ethos.

The members of this school regard all facts, or at least what they call scientific facts, as constructions, none as given. (Thus, the book that earned Latour and Woolgar instant fame is titled *Laboratory Life: The Social Construction of Scientific Facts*.) But actually in matters of knowledge the only genuine social constructions are the exceedingly uncommon scientific forgeries committed by a team. A famous forgery of this kind was the Piltdown fossil man, “discovered” by two pranksters in 1912, certified as authentic by a number of experts (among them Father Teilhard de Chardin), and unmasked as a fake only in 1950. According to the existence criterion of constructivism-relativism we should admit that the Piltdown man did exist—at least between 1912 and 1950—just because the scientific community believed in it. Are we prepared to believe this, or rather to suspect that the self-styled post-Mertonians are incapable or even unwilling to tell hot air from cold fact?

Because the constructivist-relativists deny that there is any conceptual difference between science and other human endeavors, they feel entitled to pass judgment on the content of science, not only on its social context. Thus, after reading one of Einstein’s popularizations of special relativity, Latour concludes that the poor man was wrong in believing that it deals with “the electrodynamics of moving bodies,” the title of the founding paper—one that Latour could not possibly understand for lack of mathematical and physical competence.⁴⁸ The theory, he reveals to us, is about long distance travelers. Not only this: it renders everything physical relative to the knower (not to the reference frame), thus confirming subjectivism—the misinterpretation popular among idealist philosophers at the beginning of this century. There is no telling what further wonders these modern day “Darwins of science”—as Latour calls himself and his friends⁴⁹—may bring.

Because the constructivist-relativists ignore science, they are incapable of distinguishing it from pseudoscience. Thus Michael Mulkay, a pioneer of the movement, waxed indignant over the way the scientific community treated Immanuel Velikovsky’s allegedly revolutionary *Worlds in Collision* of 1950.⁵⁰

He scolded scientists for their “abusive and uncritical rejection” of Velikovsky’s fantasies and for clinging to their “theoretical and methodological paradigms”—among them the equations of celestial mechanics. He claimed that the astronomers had the duty to put Velikovsky’s fantasies to the test. Obviously Mulkey ignores that the burden of proof rests on the would-be innovator, that nearly all of Velikovsky’s claims have been proved wrong, and that scientists have more important tasks than to test fantasies that collide head-on with the bulk of scientific knowledge. However, a number of scientists, headed by Carl Sagan, did take their time to criticize in detail Velikovsky’s fantasies, and the American Association for the Advancement of Science devoted an entire symposium to them.⁵¹

Other vocal constructivist-relativists have mounted spirited defenses of astrology and parapsychology.⁵² They attack the critics of these pseudosciences for espousing what they call “the standard model of science,” which they dub “ideology.” Regrettably they do not propose an alternative “model” of science. They only call for a “reappraisal of scientific method” to make room for astrology, parapsychology, psychoanalysis, and other “extraordinary sciences.” It would go against the grain of their school to propose its own clear-cut criteria of scientificity, since it holds science to be an ordinary “social construction.” But how is it possible to discuss rationally the scientific status of an idea or practice otherwise than in the light of *some* definition of scientificity? As for the truth values of the alleged findings of astrologers, parapsychologists, and the like, how can we discuss them in the constructivist-relativist framework, where truth is said to be a social convention on a par with table manners?⁵³

Example 6: “Scientific” Racism

Racism is very old, but “scientific” racism is a 19th-century invention that culminated with the Nazi *Rassenkunde* and the accompanying extermination camps. The American version of this doctrine was introduced by some psychologists on the basis of flawed IQ measurements, and it was entrenched in the American legislation restricting immigration from Southern Europe and other regions.⁵⁴ It was muted for a while in the wake of the revelation of the Nazi horrors, but it was resuscitated in 1969 by the Harvard professor Arthur Jensen, who, on the basis of some IQ measurements, asserted the innate intellectual inferiority of Afroamericans. This “finding” was unanimously rejected by the scientific community. In particular the Genetics Society of America warned against “the pitfalls of naive hereditarian assumptions.”⁵⁵

Yaron Ezrahi, a member of the constructivist-relativist pseudosociology of science, claimed that this denial was due to ideological reasons.⁵⁶ He held that the geneticists were particularly vehement in their criticisms of Jensen’s work for being concerned, at least in part, with their own “public image and support.” Ezrahi did not bother to analyze the very IQ tests from which Jensen had derived his “conclusions.” Had he done so he might have learned that (a) such tests were indeed culture bound and thus likely to favor whites over blacks, and (b) no IQ test will be fully reliable unless it is backed up by a well-confirmed theory of intelligence—a theory that is overdue.⁵⁷

Undaunted by such methodological criticisms, Richard Herrnstein and Charles Murray repeated the racist claim in their best seller *The Bell Curve* without adding any new evidence.⁵⁸ Their book was promoted by the American Enterprise Institute and widely publicized by right-wing journalists, who saw in this book the “scientific” basis for their proposal to eliminate all the social programs aimed at giving a chance to Afroamerican children and youngsters. The idea is, of course, that no amount of money, particularly if public, can correct for an allegedly genetic deficiency. This time around geneticists and psychologists were slow to react: perhaps they took the book for what it is, namely a political tract. On the other hand some journalists and sociologists did point out the methodological flaws of the book, uncovered its ideological sources, and denounced its implications for public policy.⁵⁹

Example 7: Feminist Technology

Since technology is the art and science of getting things done, maintained, and repaired, psychotherapy and jurisprudence should be regarded as technologies. Now, in recent years these technologies have acquired a sex: there is now talk of feminist psychotherapy and feminist jurisprudence. Let us take a quick look at the former. A forte of feminist psychotherapy is “recovered memory therapy,” consisting in “enhancing” a woman’s memory—if necessary, with the help of hypnosis and drugs—until she “remembers” having been sexually abused by her father during childhood. The patient is then encouraged to take her father to court, in order to punish him and extract from him the maximum possible monetary compensation—to be shared with the therapist. This racket flourished during the past decade in the United States until the American Medical Association and above all the False Memory Syndrome Foundation warned the courts of law that they were being taken in. Thanks to this reaction the number of lawsuits of that type has started to decline. This is not to deny that many children are sexually abused by their relatives. What is objectionable is planting by the therapist of false memories into her patient and the “theory” that underlies this practice: the former is unscrupulous, and the latter false. Indeed, the theory in question is psychoanalysis, a pseudoscience according to which we never forget anything unless it is repressed by the “superego.” This hypothesis is false: psychologists know that memory is not photographic but selective, distorting, and constructive. They also know that many people are suggestible, so that unscrupulous psychotherapists can successfully plant false memories in their brains.

To sum up, academic pseudoscience is just as toxic as academic antisience. Why should serious and socially responsible scholars tolerate it? Being a travesty of scientific research, it should be dissected and exposed, taught only to exemplify bogus science.⁶⁰

TWO KINDS OF IGNORANCE: NATURAL OR STRAIGHT, AND CONTRIVED OR WILLFUL

No chemistry department would hire an alchemist. A department of crystallography is no place for believers in the psychic power of crystals. No engineering school would keep someone intent on designing a perpetual motion

machine. An astronomical observatory is no place for people who believe that the planets are pushed by angels. A biology department would close its doors to anyone who rejects genetics. No one who denies the existence of Nazi concentration camps or Communist labor camps would be able to teach history at a decent university. No mathematics department would tolerate anyone holding that logic is a tool of male domination and quantity is masculine. No Jungian psychology is taught in any self-respecting department of psychology. Whoever believes in homeopathy cannot make it into an accredited medical school. To generalize: neither proven falsities nor lies are tolerated in any scientific or technological institution. And for a good reason, too: namely, because such institutions are set up with the specific purpose of finding, refining, applying, or teaching truths, not just any old opinions.

Walk a few steps away from the faculties of science, engineering, medicine, or law, towards the faculty of arts. Here you will meet another world, one where falsities and lies are tolerated, nay manufactured and taught, in industrial quantities. Here the unwary student may take courses in all manner of nonsense and falsity. Here some professors are hired, promoted, or given power for teaching that reason is worthless, empirical evidence unnecessary, objective truth nonexistent, basic science a tool of either capitalist or male domination, and the like. Here we find people who reject all the knowledge painstakingly acquired over the past half-millennium. This is the place where students can earn credits for learning old and new superstitions of nearly all kinds, and where they can unlearn to write, so as to sound like phenomenologists, existentialists, deconstructionists, ethnomethodologists, or psychoanalysts. This is where taxpayers' moneys are squandered in the maintenance of the huge industry of cultural involution centered around the deliberate rejection of rational discussion and empirical testing. This fraud has got to be stopped in the name of intellectual honesty and social responsibility.

Let there be no mistake: I am not proposing that we teach only what can be ascertained as true. On the contrary, we must doubt our learning, and we must continue teaching that we are all ignorant in most respects and to some degree or other. But we must also teach that ignorance can be gradually overcome by rigorous research, that falsity can be detected, that partial truth can be attained and perfected—the way Archimedes illustrated with his method for computing successive approximations to the exact value of the area of the circle.

We must also realize and teach that there are two kinds of ignorance: natural and willful, traditional and postmodern. The former is unavoidable and its admission mandatory; it is part of being a curious learner and an honest teacher. By contrast, willful or postmodern ignorance is the deliberate refusal to learn items relevant to one's interests. Examples: the refusal of the psychotherapist and the philosopher of mind to learn some experimental psychology and neuropsychology; the refusal of the literary critic with sociological interests to learn some sociology; and the refusal of the philosopher of science to learn a bit of the science he pontificates about. All these are instances of willful ignorance. This is the only intolerable kind of ignorance, for it is a form of dishonesty. And yet this kind of ignorance is being peddled nowadays in many faculties of arts.

Willful ignorance comes in two guises: naked or naive, and disguised or contrived. Naked or *indocta ignorantia* is the clear rejection of science, or—what amounts to the same—the denial of any differences between science and nonscience, in particular pseudoscience. This is what the irrationalists and the relativist-constructivists preach: it is part of the radical feminist and environmentalist “theories,” as well as of existentialism, poststructuralism, general semiotics, philosophical hermeneutics, deconstructionism, and similar obscurantist fads.

The first to deny the difference between science and nonscience was Paul K. Feyerabend, the philosophical godfather of the “new” philosophy and sociology of science. He has been listened to because he was wrongly believed to know some physics. But in fact his ignorance of this, the one science he tried to learn, was abysmal. Thus he misunderstood the only two formulas that occur in his *Against Method*, the book that earned him instant celebrity.⁶¹ The first formula, which he calls “the equipartition principle,” is actually the Maxwell-Boltzmann distribution function for a system of particles in thermal equilibrium. (Incidentally, the constant occurring in the correct formula is not R , the universal gas constant, but Boltzmann’s far more universal k . This is no small mistake, because it renders Feyerabend’s formula dimensionally wrong.) The second formula, Lorentz’s, does not give “the energy of an electron moving in a constant magnetic field” (my emphases), as Feyerabend claims. Instead, the formula gives the force that an arbitrary electromagnetic field $\langle E, B \rangle$ exerts on a particle with an arbitrary electric charge. (Incidentally, the constant c is missing in Feyerabend’s copy—which, again, makes his formula dimensionally incorrect.) To top it all, Feyerabend substitutes the second formula into the first; and, not surprisingly, he gets an odd result that, in a mysterious way, leads him to speculate on the (nonexistent) magnetic monopoles imagined by his teacher Felix Ehrenhaft. But the substitution cannot be made, because (a) the second formula does not give us an energy, which occurs in the first one; (b) the first formula refers to a system of particles, whereas the second concerns a single particle; and (c) unlike the energy, which is a scalar, the force is a vector, and therefore it cannot occur by itself in the argument of an exponential function, which is defined only for scalars.⁶² None of Feyerabend’s critics detected these elementary errors—a disturbing indicator of the present state of the philosophy of science. In sum, one of the gurus of the new philosophy of science was guilty of *indocta ignorantia*. He was also seen as a guru of the student leftist movement.

However, irrationalism, in particular the distrust of science, has no political color; it is found left, center, and right. Still, in most cases it is passive: Babbitt is not Torquemada but is just indifferent to and suspicious of intellectual pursuits. On the other hand militant philistinism is strong in the New Left, the Old Right, and the religious wing of the New Right. This is no coincidence: all of these groups are authoritarian. And, as Popper pointed out half a century ago, authoritarianism is incompatible with rationalism in the broad sense, i.e., “the readiness to listen to critical arguments and to learn from experience.”⁶³ Indeed, the citizen of a democracy is supposed to form his own opinions on matters of public interest, to debate them in the agora, and to par-

ticipate to some extent in the management of the commonwealth. Rationality is thus a necessary component of democratic life, just as irrationality is a necessary ingredient of the *dressage* of a faithful loyal subject of a totalitarian regime. Remember Mussolini's commandment: "Believe, obey, fight." So much for academic antiscience.

Academic pseudoscience is a different ball game: it is far more subtle and therefore harder to diagnose and uproot. Indeed, it wears some of the accoutrements of genuine science, in particular an esoteric jargon that fools the unwary, or even a symbolic apparatus that intimidates the innumerate. It looks like science, but is not scientific because it does not enrich knowledge; and, far from having a self-correcting mechanism, it is dogmatic. Because it misleads the innocent, academic pseudoscience is at least as damaging as outright antiscience.

CONCLUSION

I submit that the academic charlatans have not earned the academic freedom they enjoy nowadays. They have not earned it because they produce or circulate cultural garbage, which is not just a nonacademic activity but an antiacademic one. Let them do that anywhere else they please, but not in schools; for these are supposed to be places of learning. We should expel the charlatans from the university before they deform it out of recognition and crowd out the serious searchers for truth. They should be criticized, nay denounced, with the same rigor and vigor that Julien Benda attacked the intellectual mercenaries of his time (1927) in his memorable *La trahison des clercs*—which, incidentally, earned him the hatred of the so-called organic intellectuals of all political hues. Spare the rod and spoil the charlatan. Spoil the charlatan and put modern culture at risk. Jeopardize modern culture and undermine modern civilization. Debilitate modern civilization and prepare for a new Dark Age.

In former times higher learning was only a refined form of entertainment and a tool of social control. Today it is all that and more: scientific knowledge, science-based technology, and the rationalist humanities are not only intrinsically valuable public goods but also means of production and welfare, as well as conditions of democratic debate and rational conflict resolution. The search for authentic knowledge should therefore be protected from attack and counterfeit both inside and outside Academia. To this end I propose the adoption of the following Charter of Intellectual Academic Rights and Duties:

1. Every academic has the duty to search for the truth and the right to teach it.
2. Every academic has the right and the duty to question anything that interests him, provided he does it in a rational manner.
3. Every academic has the right to make mistakes and the duty to correct them upon detecting them.
4. Every academic has the duty to expose bunk, whether popular or academic.
5. Every academic has the duty to express himself in the clearest possible way.

6. Every academic has the right to discuss any unorthodox views that interest him, provided those views are clear enough to be discussed rationally.
7. No academic has the right to present as true ideas that he cannot justify in terms of either reason or experience.
8. Nobody has the right to engage knowingly in any academic industry.
9. Every academic body has the duty to adopt and enforce the most rigorous known standards of scholarship and learning.
10. Every academic body has the duty to be intolerant to both counterculture and counterfeit culture.

To conclude. Let us tolerate, nay encourage, all search for truth, however eccentric it may look, as long as it abides by reason or experience. But let us fight all attempts to suppress, discredit, or fake this search. Let all genuine intellectuals join the Truth Squad and help dismantle the "postmodern" Trojan horse stabled in Academia before it destroys them.

NOTES

- 1 M. Heidegger, *Sein und Zeit*, p. 192.
- 2 *Ibid.*, p. 331.
- 3 Heidegger, *Einführung in die Metaphysik*, pp. 20, 37.
- 4 *Ibid.*, p. 92.
- 5 *Ibid.*, p. 152.
- 6 E. Husserl, *Die Krisis der europäischen Wissenschaften und die transzendente Phänomenologie*, p. 187.
- 7 Husserl, *Cartesiansche Meditationen*, p. 68.
- 8 *Ibid.*
- 9 *Ibid.*, p. 183.
- 10 *Ibid.*, p. 76.
- 11 *Ibid.*, section 34.
- 12 *Ibid.*, p. 118.
- 13 *Ibid.*, p. 97.
- 14 E.g., A. Schu[e]tz, *The Phenomenology of the Social World*; and P. Berger & T. Luckmann, *The Social Construction of Reality*.
- 15 E.g., H. Garfinkel, *Studies in Ethnomethodology*; and E. Goffman, *Behavior in Public Places*.
- 16 M. Lynch, E. Livingston & H. Garfinkel, "Temporal Order in Laboratory Work," p. 206.
- 17 P. Atkinson, "Ethnomethodology: A Critical Review."
- 18 H. Garfinkel, *Studies in Ethnomethodology*, p. 1.
- 19 *Ibid.*, p. 11.
- 20 R. Collins, "Interaction Ritual Chains, Power and Property."
- 21 M. F. Belenky, B. McV. Clinchy, N. R. Goldberger & J. M. Tarule, *Women's Ways of Knowing. The Development of Self, Voice, and Mind*.
- 22 Sandra Harding, *The Science Question in Feminism*, p. 113.
- 23 Herbert Marcuse, *One-Dimensional Man: Studies in the Ideology of Industrial Society*.
- 24 Michel Foucault, *Discipline and Punish*.
- 25 D. Patai & N. Koertge, *Professing Feminism. Cautionary Tales from the Strange World of Women's Studies*, p. 157.
- 26 P. R. Gross & N. Levitt, *Higher Superstition: The Academic Left and Its Quarrels*

- 28 Vilfredo Pareto, *A Treatise on General Sociology*, section 2087.
- 29 *Ibid.*, e.g., section 2148.
- 30 *Ibid.*, section 2466.
- 31 *Ibid.*, p. 509.
- 32 *Ibid.*, chapter 5.
- 33 Pitirim Sorokin, *Fads and Foibles in Modern Sociology and Related Sciences*.
- 34 Pitirim Sorokin, *Social and Cultural Dynamics*, vol. 3, p. 162.
- 35 Samuel Huntington, *Political Order in Changing Societies*, p. 55.
- 36 See S. Lang, *The File*.
- 37 Gary S. Becker, *The Economic Approach to Human Behavior*, p. 257.
- 38 Milton Friedman, "A Theoretical Framework for Monetary Analysis."
- 39 See, e.g., D. Kahnemann, P. Slovic & A. Tversky, eds., *Judgment under Uncertainty: Heuristics and Biases*; and M. Bunge, "Two Faces and Three Masks of Probability."
- 40 See P. Tillers, "Decision and Inference" and the subsequent papers.
- 41 H. Poincaré, *Correspondence of Léon Walras and Related Papers*, vol. 3, pp. 164–165.
- 42 M. Allais, "The Foundations of a Positive Theory of Choice Involving Risk and a Criticism of the Postulates and Axioms of the American School"; A. Tversky, "A Critique of Expected Utility Theory: Descriptive and Normative Considerations"; J. W. Herrnstein, "Rational Choice Theory: Necessary but Not Sufficient."
- 43 M. Bunge, "Game Theory is Not a Useful Tool for the Political Scientist"; "The Poverty of Rational Choice Theory"; *Philosophy in Social Science*; D. P. Green & I. Shapiro, *Pathologies of Rational Choice Theory: A Critique of Applications in Political Science*.
- 44 J. N. Rosenau, *Turbulence in World Politics. A Theory of Change and Continuity*.
- 45 Courtney Brown, "Politics and the Environment: Nonlinear Instabilities Dominate."
- 46 See, e.g., R. K. Merton, *The Sociology of Science. Theoretical and Empirical Investigations*.
- 47 See, e.g., the journal *Social Studies of Science*; B. Barnes, ed., *Sociology of Science. Selected Readings*; D. Bloor, *Knowledge and Social Imagery*; K. D. Knorr-Cetina & M. Mulkay, eds., *Science Observed. Perspectives on the Social Study of Science*; and B. Latour & S. Woolgar, *Laboratory Life: The Social Construction of Scientific Facts*.
- 48 B. Latour, "A Relativistic Account of Einstein's Relativity."
- 49 B. Latour, "Who Speaks for Science?"
- 50 M. Mulkay, "Some Aspects of Cultural Growth in the Natural Sciences."
- 51 D. Goldsmith, ed., *Scientists Confront Velikovsky. Papers from an AAAS Symposium*.
- 52 See, e.g., T. J. Pinch & H. M. Collins, "Is Anti-science Not-science?" and "Private Science and Public Knowledge: The Committee for the Scientific Investigation of the Claims of the Paranormal and Its Use of the Literature."
- 53 More criticisms in M. Bunge, "A Critical Examination of the New Sociology of Science, Part 1"; "A Critical Examination of the New Sociology of Science, Part 2"; L. Wolpert, *The Unnatural Nature of Science*; R. Boudon & M. Clavelin, eds., *Le relativisme est-il irrésistible? Regards sur la sociologie des sciences*; and R. Boudon, *Le juste et le vrai*.
- 54 See, e.g., S. J. Gould, *The Mismeasure of Man*.
- 55 E. S. Russell, "Report of the Ad Hoc Committee."
- 56 Y. Ezrahi, "The Political Resources of American Science."
- 57 See, e.g., M. Bunge & R. Ardila, *Philosophy of Psychology*.
- 58 R. J. Herrnstein & C. Murray, *The Bell Curve. Intelligence and Class Structure in American Life*.
- 59 C. Lane, "The Tainted Sources of 'The Bell Curve'" and the March 1995 issue of *Contemporary Society*.
- 60 More on pseudoscience in social studies may be found in M. Bunge, *Finding Philosophy in Social Science and Social Science under Debate*.

- 61 P. K. Feyerabend, *Against Method. Outline of an Anarchistic Theory of Knowledge*, p. 62.
- 62 More on Feyerabend's scientific incompetence in M. Bunge, "What is Science? Does It Matter to Distinguish It from Pseudoscience? A Reply to My Commentators."
- 63 K. R. Popper, *The Open Society and Its Enemies*, chapter 24.

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