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Cover Page Footnote

Professor Philosophy at Fordham University in New York City, has served as President of the Faculty Senate, and is in his ninth year as Chair of the Department. He wrote his Ph.D. on Piaget's developmental epistemology of science under Richard J. Blackwell at Saint Louis University. He is also Treasurer of the American Catholic Philosophical Association. His research interests include the history and rationality of science, Descartes, Galileo and the seventeenth century scientific revolution. His publications appear in books and periodicals including "International Philosophical Quarterly," "The Modern Schoolman," and the "Review of Metaphysics." Dr. Balestra is also interested in the relationship between science and religion, especially in respect to rationality questions. His more recent publications bear on this and include: Dominic J. Balestra, "At the Origins of Modern Science: Demythologizing Pythagoreanism," *LXVII Mod. Schoolman*, Jan./Mar. 1999, at 195-210; Dominic J. Balestra, "In-Between Science and Religion," in *Hermeneutic Philosophy of Science, Van Gogh's Eyes, and God: Essays in Honor of Patrick A. Heelan, S.J.* (Babetter Babich ed., 2001); Dominic J. Balestra, "Science and Religion," in *Philosophy of Religion: A Guide to the Subject* 328-61 (Brian Davies ed., 1998); Dominic J. Balestra, "Situating the Question of Science and Religions," *Chicago Studies* (forthcoming).

TOWARD EPISTEMIC JUSTICE: A RESPONSE TO PROFESSOR GOLDBERG

*Dominic J. Balestra**

I want to thank the Law School of Fordham University, Dean John Feerick, Professor Russell Pearce, Amy Uelman and Professor Goldberg for the opportunity to participate in this Conference and to display my ignorance of the law! Many of my students would enjoy the latter. Before I begin, please allow me a caveat—since I am only a philosopher and not a lawyer, and claim no expertise about the law, I asked myself, “How do I even begin to make comment on the paper of a highly regarded Professor of Law before a gathering of professors of law and practicing lawyers?” This question becomes even more vexing as I recall that the closest I have ever come to contributing to our justice system, was when summoned on two different occasions to jury duty and then, upon questioning in the *voir dire*, dismissed both times by the lawyers. Now, I wonder why I accepted yet a third invitation to contribute. Therefore, I would like to preempt any blunder in my remarks this morning by recourse to a claim of nonculpable ignorance of the law.

Professor Goldberg’s paper represents a call to lawyers, policy makers, and even legislators to step out from the shadows of a silence created by the privatization and the exclusion of the religious voice of the individual from the polis.

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I could begin by quarreling with Professor Goldberg's remark about the genome or take pause at his quick resort to the "is/ought" distinction for what sounds like too Cartesian a standpoint.¹ But to do so would mislead you and Professor Goldberg, for I find much more sympathy with the Professor's position fully presented in his recent, provocative book, *Seduced By Science: How American Religion Has Lost Its Way*.² So rather than focus on where we might differ, I shall proceed from what I take to be a strong commitment to the freedoms guaranteed by the First Amendment of our Constitution, specifically, the freedoms of speech and exercise of religion. It is a convergence of these two aspects of freedom that Professor Goldberg points to in his lecture this morning and in his book. Accordingly, I want to briefly sketch an argument for an intellectually acceptable space for a religious perspective in our attempts to arrive at the "right" course of action in response to the challenges presented by today's sciences and technologies, including those addressed in this conference. What follows might be aptly called a brief for "epistemic fairness," if not full epistemic justice, in matters religious and scientific.

In its most general articulation my remarks are about inverting the place of values in a world of fact, and transforming the question, "whence the place of values in a world of fact?," into the question of, "whence the place of facts, scientific facts, in a world of values?" More specifically, it is about the relationships among the sciences, humanities, ethics, and theology, and the question of legitimate, epistemic authority within the matrix of these relationships. In particular, I want to provide some reasons for the legitimacy of an intellectual space for religious perspectives in the public discourse from two sides of the fact/value question.

If your conception of the structure of the sciences is linear with chemistry well-founded upon a quantum theory of the atom,³ and with a cell biology built upon a biochemistry, proceeding upward through psychology to a widening constellation of political science, sociology, and other social sciences, then one side might be construed as top-down and takes its departure from the prevailing, postmodern tendencies in the social sciences. The other side is

1. Steven Goldberg, *Religious Contributions to The Bioethics Debate: Utilizing Legal Rights while Avoiding Scientific Temptations*, 30 FORDHAM URB. L.J. 35, 39-43 (2002).

2. STEVEN GOLDBERG, *SEDUCED BY SCIENCE: HOW AMERICAN RELIGION HAS LOST ITS WAY* (1999).

3. OXFORD CONCISE ENGLISH DICTIONARY 1170 (10th ed. 1999) (defining quantum theory as a theory of matter and energy based on the concept of the quanta).

from the bottom up and takes its departure from the results of the recent philosophy of science.

The top-down reasons for a religious perspective turn on diversity arguments and the relatively recent acceptance of multicultural perspectives in the social sciences and humanities. If feminist, gay and lesbian, African-American, as well as the “older” Marxist, Freudian, and other secularist perspectives are admissible into the court of intellectual discourse and debate, then does not a kind of epistemic fairness entail that various religious perspectives should likewise be admissible? Inasmuch as religion is an essential dimension of most cultures, religious understandings of many public issues should be included in the debate in a pluralistic society. And *a fortiori*, since virtually all of the social or human sciences today acknowledge that social dimensions such as gender, race, and culture constitute portions of an individual’s identity, they must also admit, as no less legitimate, the religious dimensions for those individuals for whom religion is an inseparable social dimension of their identity and world view.

Perhaps, something like John Dewey’s “a common faith”⁴ would be a sufficient pluralist response to the secularized absorption of the religious within a liberal polity. Or, one might be tempted to turn to Richard Rorty’s call to a contingently emergent opening to a “solidarity” among religious voices.⁵ In light of the recent strengthening of diversity and multicultural currency in the intellectual marketplace, however, I do not think Dewey’s secularizing pluralism would be an intellectually honest response. Further, Rorty’s postmodern opening might become an irony, which quickly crowds out any space for religious, i.e., theological, perspective in the polis. Although Dewey was no positivist, his understanding of science suffered from a “scientistic” tendency.⁶ The scientistic tendency to exclude the religious voice even in today’s postmodern-minded academy is a persistent remnant of Enlightenment thinking that construed religion as an oppressive force from which all must

4. See generally JOHN DEWEY, A COMMON FAITH 27 (1934).

5. Richard Rorty is Professor of Comparative Literature and of Philosophy at Stanford University. See <http://www.stanford.edu/dept/complit/facultybio.html/rortybio.html> (last visited Nov. 5, 2002).

6. Scientistic, not to be confused with scientific, refers to the rigid mindset that excludes any and all non-scientific explanations as on-objective and less than rational. For a careful epistemological analysis of this problem, see TOM SORELL, SCIENTISM: PHILOSOPHY AND THE INFATUATION WITH SCIENCE 11, 26 (1991). A related work that takes up the metaphysical version of this problem, see PHILLIP E. JOHNSON, REASON IN THE BALANCE: THE CASE AGAINST NATURALISM IN SCIENCE, LAW AND EDUCATION (1995).

be liberated.⁷ Indeed, the terrorist attack that destroyed the World Trade Center⁸ painfully reminds us that the Enlightenment concern is not without some merit; but within the horizon of postmodern diversity, its lesson is inclusion, not exclusion, of the religious—overcoming the ignorance and prejudices among the many nations, cultures, and races in respect to one another, and their respective diverse religious understandings of the world.

One objection to the above case for religious perspectives as legitimate in the public discourse is that its top-down line of reasoning is in the wrong direction and fundamentally misguided. The social sciences have never attained the objective status of the empirically tested theories of the natural sciences. So one would expect to diverge into diversity from the more subjective social sciences. Accordingly, one should not grant much impartial, objective weight to its prevailing positions. Rather, one should begin from the “bottom-up,” from a foundation of solid science, starting with physics and chemistry as a firm ground for a molecular biology. In this way, one would not be hampered by subjective opinions however sophisticated, for the scientific knowledge attained in the natural sciences are bona fide objective and rational. Moreover, this view holds that the proper jurisdiction of bona fide science is a world of facts quite distinct from the subjective realm of value within which a religious perspective belongs, if at all. A consequence of this position is that science has no legitimacy in the realm of the *ought*, but neither does value—save the epistemic value of the good of pure research in itself—nor religious values especially, have any normative jurisdiction in regard to pure research whether it be the genome project or stem cell research. There is, however, one exception to this general rule of the good of pure science in itself, namely, the acceptance of moral boundaries

7. The latter persists into the postmodern mind despite its critique of modernity because the heart and soul of enlightenment modernity is an “autonomous reason” originated from and grounded upon Descartes’ *cogito*. RENÉ DESCARTES, *Second Meditation*, in *MEDITATIONS ON FIRST PHILOSOPHY* 25 (1641), reprinted in 2 RENÉ DESCARTES, *THE PHILOSOPHICAL WRITINGS OF DESCARTES* 16-17 (John Cottingham et al. trans., 1984). This means that the source of our freedom is the very reason, an autonomous reason, which has come developed into a scientific reason, which holds the place of a high court of value-neutral intellectual appeal. The temporary insanity defense is a bold reminder of this essential tension within the core of modern thought. In this truncated light on a simplified glimpse of the heart of the modern, postmodern thought may be understood as modernity’s having arrived at a fundamental choice between rationality or freedom, and choosing freedom.

8. Dexter Filkins, *After the Attacks: Alive; Entombed for a Day, Then Found*, N.Y. TIMES, Sept. 13, 2001, at A9.

for experimentation on human beings. But, the question of the status of a stem cell or perhaps even the human genome *qua* human is more than biology, and thus lies at the interface between so-called objective science and subjective interpretations. So while Professor Goldberg may be correct about the overreaction of some religious leaders, his assertion that “there is nothing in the human genome project that would change Descartes’s view” is highly questionable, for it presumes the disembodied Cartesian “soul” as the seat of consciousness, including a religious consciousness, remains intact today.⁹ Far too many thinkers today, religious and secular alike, reject the Cartesian soul, or mind if you prefer. This is because it resorts to a hard and fast Cartesian dualism, of fact and value on one hand, and the associated “is/ought” distinction that has not withstood critical scrutiny on the other.

So where does the rejection of Cartesian dualism leave the question of religion? Does it land us in the “problem [of] giving science an unduly large role in our thinking” as Professor Goldberg has warned?¹⁰ It does so only if we ignore the critical findings of the last forty years of the philosophy of science. In the old portrait, science was construed as value-free, objective knowledge because of its method, the so-called hypothetical-deductive logic of testing its proposed theories against a theory-neutral evidential base of empirical fact. Rationality was synonymous with logicity, and objectivity with empirical fact.¹¹ This may be so only with respect to those aspects of science amenable to this model of objective rationality: features internal to what was called the “context of justification” were of cognitive significance. Social, psychological, or moral factors in the genesis of a hypothesis were considered irrelevant to the question of whether a theory was true or rationally warranted. In general, such value dimensions of science were relegated to a distinct “context of discovery” which was presumed to be external to science *qua* knowledge. In this way the agnostic or atheist could square with history and acknowledge the role of religious motives in the founders, most notably Galileo, Kepler, and Newton for

9. See Goldberg, *supra* note 1, at 40 and accompanying text.

10. *Id.*

11. A.F. CHALMERS, *WHAT IS THIS THING CALLED SCIENCE: AN ASSESSMENT OF THE NATURE AND STATUS OF SCIENCE AND ITS METHODS* chs. 1-4 (3d ed., Hackett Pub. Co. 1999) (presenting a standard view of the scientific method in the light of recent philosophy of science).

whom the vocation of the natural philosopher was to read the mind of God in the Book of Nature.¹²

A major line of argument against such logical objectification of scientific rationality originated with Pierre Duhem's thesis of the non-falsifiability of isolated scientific hypotheses. In his words:

In sum, the physicist can never subject an isolated hypothesis to experimental test, but only a whole group of hypotheses; when the experiment is in disagreement with his predictions, what he learns is that at least one of the hypotheses constituting this group is unacceptable and ought to be modified; but the experiment does not designate which one should be changed.¹³

The "whole group" to which Duhem refers involves a complex network that includes: background knowledge, "hard core" theories (for example, Aristotle's two domain laws of natural motion or Newton's three laws of motion), auxiliary hypotheses (such as the explanation of the workings of the radio telescopes in astronomy and legitimate "observed results" as evidence), and the hypothesis under test.¹⁴ The logic of falsification cannot target the hypothesis under consideration, nor compel its rejection. The logic can guarantee only that somewhere something is amiss. It does not tell us where to look, or how to locate the source of the trouble. Indeed, one could introduce new auxiliary hypotheses in order to absorb the shock of failure and to immunize against the otherwise fatal effects of a recalcitrant experiment. For example, one of the objections to the Copernican theory, which requires the Earth to rotate at about one thousand miles per hour, was the "recalcitrant" result that a body falling from a high tower did not land sufficiently far to the west of the tower.¹⁵ Galileo responded to this critique by con-

12. In his *Letter to the Grand Duchess Christina* (1615) discussing the relationship between the new science and faith, Galileo remarks that "nor is God any less excellently revealed in Nature's actions than in the sacred statements of the Bible." GALILEO GALILEI, *DISCOVERIES AND OPINIONS OF GALILEO* 183 (Stillman Drake trans., Doubleday 1957). See generally ARTHUR KOESTLER, *THE ACT OF CREATION* 125 (Macmillan 1964) (noting Kepler's finding that the doctrine of the Trinity alluded to the three-part system of the sun, stars, and the space between them); RICHARD S. WESTFALL, *THE LIFE OF ISAAC NEWTON* 205, 290 (1993), available at <http://www.grisda.org/belausen/papers/aid.htm> (discussing Newton's statement that the purpose of his book, *General Scholium Principia*, was to establish the existence of God).

13. PIERRE DUHEM, *THE AIM AND STRUCTURE OF PHYSICAL THEORY* 187 (Philip Wiener trans., Princeton Univ. Press 1954) (1914).

14. See *id.* at 183-88.

15. See ALEXANDRE KOYRE, *GALILEO STUDIES* 132-35 (John Mepham trans., Humanities Press 1978) (1939); GALILEO GALILEI, *Reply to Ingoli*, in *THE GALILEO AFFAIR: A DOCUMENTARY HISTORY* 182-84 (Maurice A. Finocchiaro ed. & trans., Univ. of Cal. Press 1989).

jecturing his theory of circular inertia as an auxiliary hypothesis to explain the apparent anomaly.¹⁶ Though Galileo's circular inertia was mistaken, the tower problem generated the development of a series of hypotheses of inertia by Descartes, Huygens, and Newton.¹⁷ The sequence of such auxiliary hypotheses is designed to "protect" certain fundamental theoretical principles. The latter is similar to Kuhn's paradigmatic theory or Lakatos's "hard core" of the research program.

Given the provisional status of any theory and the theory-laden nature of empirical observations, it becomes clear that the rational judgment, even in the light of history, is not exclusively due to the logic of testing the research program against a pure empirical evidential base. However, it does not follow that a logic of experiments is not an essential part of rational theory choice; it only follows that logic is not enough. No account of scientific rationality that squares with the history of science has succeeded in eradicating the subject's judgment in the rational appraisal and choice of theories. The judgment of the experienced scientist, like Aristotle's *phronesis* in the individual's moral judgment, is an essential aspect of scientific rationality.¹⁸ Pierre Duhem recognized this at the end of his penetrating analysis of crucial experiments and in his argument against falsifiability, where he concluded: "The sound experimental criticism of a hypothesis is subordinated to certain moral conditions; in order to estimate correctly the agreement of a physical theory with the facts, it is not enough to be a good mathematician and skillful experimenter; one must also be an impartial and faithful judge."¹⁹

Since Duhem first argued his thesis, subsequent philosophers of science, most notably W.V. Quine, Thomas Kuhn, and Imre Lakatos, have developed the argument and expanded the thesis. Even Karl Popper, the champion of falsifiability, has successively revised his position in response to Duhemian criticism such that it more and more resembles that of Lakatos.²⁰

16. See KOYRE, *supra* note 15, at 129-31.

17. See RENE DESCARTES, *Principles of Philosophy* 37-40, in 1 THE PHILOSOPHICAL WRITINGS OF DESCARTES 240-42 (John Cottingham et al. trans., Cambridge Univ. Press 1985); Wallace Hooper, *Inertial Problems in Galileo's Preinertial Framework*, in THE CAMBRIDGE COMPANION TO GALILEO 146-74 (Peter Machamer ed., Cambridge Univ. Press 1998) (describing Huygen's theories on inertia).

18. ARISTOTLE, *Nicomachean Ethics*, at bk. VI (David Ross trans., Oxford Univ. Press 1980).

19. DUHEM, *supra* note 13, at 218.

20. See W.H. NEWTON-SMITH, *THE RATIONALITY OF SCIENCE III-VI* (1981) (examining this development in Popper Lakatos and Feyerabend); see also Ernan Mc-

Kuhn and Quine, Lakatos and Laudan, Newton-Smith and even Feyerabend have each, in their respective way, developed a Duhemian philosophical program for enlarging the functioning unit of rational appraisal from a single isolated hypothesis to a complex, programmatic network of theories (conjectured in response to a core problem) variously characterized as paradigm, conceptual scheme, research program, and research tradition.²¹

As a result of the philosophical work of W. V. Quine, Karl Popper and his followers, and the historically honest reflections of Thomas Kuhn, the two major interpretations of the old view, logical empiricism and early Popperian falsificationism, are no longer held to be tenable for very logical, that is syntactic and semantic, reasons today. A new philosophy of science has replaced the old one with some challenging results for our understanding of scientific rationality. Those results include the following theses: there is no theory-independent fact; there are no value-neutral theories; the functional unit of rational appraisal is not a single empirically testable, isolated proposition, but rather the entire web of scientific propositions which bear on the hypothesis in question; no logic in combination with an evidential base is sufficient for determining rational theory choice without the judgment of the experienced scientist. This is not to say that logic and evidence are not a necessary component of scientific rationality; it is to say that without the judgment of a human subject, which is not reducible to a logical algorithm, it is insufficient. Moreover, these results open up a dimension of value as an essential ingredient in what the old portrait called the objectivity of science. Furthermore, once we recognize that the scientific knower can not be an independent cogito, but rather must be a social subject—a community of partial, incomplete knowers, then a moral dimension of epistemic virtues of integrity and trust enter into the intrinsic constitution of scientific knowledge as such. In line with the new philosophy of science Philip Kitcher's most recent work develops a portrait of scientific inquiry, "elaborates[s] and defend[s] the integration of the value of knowledge with moral and political values."²² Although Kitcher does not explore religious values, I do not see why in principle such values could not also be considered in a value-minded philosophy

Mullin, *The Shaping of Scientific Rationality*, in CONSTRUCTION AND CONSTRAINT: THE SHAPING OF SCIENTIFIC RATIONALITY 1-49 (Ernan McMullin ed., Notre Dame Univ. Press 1988) (summarizing the development of the unit of scientific rationality).

21. See NEWTON-SMITH, *supra* note 20, at III-VI.

22. PHILIP KITCHER, SCIENCE, TRUTH, AND DEMOCRACY xiii (2001).

of science. The unmistakable result is that from the bottom-up we would arrive at a point from where we can see that it is a question of the place of facts in a world of values.

