BOOK REVIEWS

Truth and Objectivity, part 2: Trust

A Social History of Truth. Civility and Science in Seventeenth-Century England. STEVEN SHAPIN. University of Chicago Press, Chicago, 1994. xxxii, 483 pp., illus. $29.95 or £23.95. Science and Its Conceptual Foundations.

Trust in Numbers. The Pursuit of Objectivity in Science and Public Life. THEODORE M. PORTER. Princeton University Press, Princeton, NJ, 1995. xiv, 311 pp. $24.95 or £19.95.

Testifying before the U.S. Senate Committee on Rules and Administration in May, retired Air Force General Charles W. Sweeney, "the only pilot to have flown on both the Hiroshima and Nagasaki Missions," expressed astonishment and indignation that the Smithsonian Institution in the exhibition that had been planned around the B-29 *Enola Gay* wished to portray the Pacific war "unobjectively," and concluded his testimony by declaring that "the issue is one of trust." Trust has indeed become the characteristic issue of postmodern society. Of the 50 books published since 1968 that the Library of Congress has identified as dealing largely with that subject, fully half have come out in the last five years. Their authors find trust the key to the success or failure of every institution of contemporary social life: international organizations, multi-ethnic countries, representative governments, business enterprises, labor relations, and marriage—much that we may expect to find conveniently packaged by Francis Fukuyama in his latest, *Trust: Social Virtues and the Creation of Prosperity* (*1*).

Trust is the issue, too, for the two scholars whose books are here under review. Both Shapin and Porter see trust as the fundamental social value dangerously lacking in Western democratic societies of the late 20th century. It is through concern over its decline that they come to their respective subjects, truth and objectivity. The authors of the works considered last week, in part 1 of this review—however instrumentalist, pragmatic, or voluntarist their orientations—are principally concerned with knowledge, and hence concern themselves with truth and objectivity as qualifications of knowledge. Shapin and Porter, however, being concerned principally with trust as a condition of social order, have a nominally agnostic attitude toward knowledge, and hence toward truth and objectivity. They, like the authors of the works treated last week, are exercising their postmodern freedom to define. But rather than defining the qualifications of knowledge, Shapin and Porter proceed a step farther in postmodern pragmatism, exercising their freedom to define "the good," that is, to moralize.

"Knowledge is a collective good," Shapin states (p. xxv) in his extensive prefatory discussion. "In securing our knowledge we rely upon others, and we cannot dispense with that reliance. That means that the relations in which we have and hold our knowledge have a moral character, and the word I use to indicate that moral relation is *trust*." Shapin proceeds then in his first, theoretical, chapter to insist upon the indispensability of trust and truth-telling to any and every social order, quoting Cicero, Montaigne, and so on through the ages to the sociologists Niklas Luhmann and Anthony Giddens. (He does not refer to the burgeoning literature on lying as a practice prevalent in all societies and even—Cretans apart—taken as the norm in some.) Indeed this initial chapter becomes a hymn to truth and trust—obviously, but only in the last pages of the book admittedly, inspired by our present social-cultural malaise.

Part 1 of this two-part review considering recent revaluations of science by historians and sociologists appeared in last week's *Science*; it dealt with *Rethinking Objectivity*, edited by Allan Megill (Duke University Press), and *Telling the Truth About History* by Joyce Appleby, Lynn Hunt, and Margaret Jacob (Norton).

Shapin's *Social History of Truth* is not a narrative history but a collection of loosely integrated essays whose theme is Robert Boyle as exemplar of a variant of aristocratic culture, and whose thesis is that the origins of modern science are gentlemanly: the conditions for producing experiential knowledge, that is, for achieving consensus about facts of nature, were established in 17th-century England when those concerned to produce such knowledge took for themselves the rationale, social practice, and self-image of truth-tellers that was then the hallmark of the gentleman. "I describe," says Shapin, "how the cultural practices attending the English gentleman fit him for the role of being a reliable spokesman for reality. A relatively well-working solution to problems of order in one uniquely authoritative domain was purposefully transferred to the new domain of experimental philosophy, where it was constituted as a solution to problems of order in special scholarly practice" (p. xxviii). In so arguing, Shapin is carrying forward—or, rather, backward—an explanatory line begun in an earlier book coauthored with Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (*2*). In that book he construed the modes of knowledge production promoted by Robert Boyle and the Royal Society as specific responses to the dissensus of the English interregnum, 1640–1660, and cognate with the political settlement that restored limited monarchy. In the present book, Shapin offers to explain from where the resources for such an epistemic program came, that is, the social or cultural preconceptions and practices from which it was fashioned and from which it drew its plausibility and authority.

A scientist reading Shapin will hardly fail to note how little utility the elaborate 17th-century discussions of credibility had for the resolution of any actual scientific question, or to wonder at the hostility of the gentle Boyle and his social peers toward certainty and exactness as qualities of knowledge, qualities that were claimed especially by the mathematicians of the day for their knowledge and that were to become the hallmarks of modern science soon after Boyle left the scene. But other criticisms of the historical adequacy of Shapin's thesis, adumbrated in his earlier book and in subsequent essays, have already been published. Lorraine Daston, who herself earlier emphasized dependences of scientific civility and scientific modes of reasoning upon precedents in extra-scientific spheres of European civilization, uses much of her contribution to *Rethinking Objectivity* (see part 1 of this review) to take issue with Shapin's equation of modern science with Boyle, the Royal Society, and what happened in England. "Boyle's emphasis on modesty and civility, and his dislike for acrid controversy merely echoed sentiments that had been earlier and elsewhere expressed, in late sixteenth- and early seventeenth-century natural philosophical circles in Italy, France, and the German-speaking lands" (p. 53). Daston emphasizes, contra Shapin, not merely "the pan-European scope of the perceived problem" but also "the diversity ofthe proposed solutions"

(p. 54). It must, however, be recognized that the consequence—perhaps even the purpose—of such a broadening of the cultural-geographical base is to separate knowledge production from the "patch of social space" in which it takes place, thus shifting the scene of action into the minds of the scientists and transforming social history into intellectual history.

But Shapin himself, as with most of those considered in this review, no longer stands where he did ten years ago on the question of truth and objectivity. He too has retreated; indeed he has retreated much farther than most—without, however, making any admission of that alteration of his position. Notwithstanding Shapin's representation of his stance as that of the modernist sociologist of knowledge—by which stance he explains placing "truth" in his title but taking truth-telling as his subject—his book proclaims implicitly his participation in postmodernity. In a bit of a semantic shell-game Shapin reveals that it is not really with truth-telling that he is concerned, but with credibility, and then that it is not really with credibility but with trust—as though nothing were lost and nothing introduced through these "moves." But trust is a concept that now, in postmodernity, has come to be understood as morally superordinate to truth-telling, admitting as it does the possibility of *responsible* lying—a possibility not considered by Shapin.

"Philosopher and Pupils." Painting by Willem van der Vliet, 1626. [From the dust jacket of *A Social History of Truth*; Brodie Castle Collection, National Trust for Scotland]

A still genuinely modern Shapin could very well have allowed truth-telling simply to stand as an ascriptive characteristic of the gentleman and hence of the scientist, in much the same way as in modernity expertise was an ascriptive characteristic of the formally qualified expert. It is then not as a modern trusting in expertise but as a postmodern suspicious of the expert's motives that Shapin insists on looking for trustworthiness behind the ascribed quality of truthfulness, insists on asking after its true basis in virtues of the individual and on finding it revealed only through direct personal acquaintance. Only in his epilogue does Shapin—while still denying any taint of postmodernity—make a breast of his concern and intent. "There are few sentiments more characteristic of modernity [for "modernity" the reader should substitute "postmodernity"] than the view that modern [substitute "postmodern"] social life is a disaster and that its anonymity is the most telling sign of its ruined state." Over against this pessimistic appraisal Shapin asks us to consider "the communities of scientific knowledge-producers. Here it is far from obvious that the world of familiarity, face-to-face interaction, and virtue is indeed lost. It seems quite likely that small specialized communities of knowledge-makers share many of the resources for establishing and protecting truth that were current in the pre- and early modern society of gentlemen" (p. 414). This idyllization of contemporary scientific life leads Shapin finally to the perverse position that "Scientists know so much about the natural world by knowing so much about whom they can trust" (p. 417)—the concluding sentence of his book.

The priority given to the revival of trust has brought Shapin in effect to abandon his earlier stance of critical sociologist, that is, of one who draws our attention to the possibility of choices between different bodies or systems of knowledge and to the social determinants of the choices actually made. Because he is not concerned with choices between knowledges but rather with the conditions of social life that conduce to uncontested knowledge, such nominal agnosticism as Shapin retains from late-modern sociology of scientific knowledge becomes in this book, ironically, an uncritical scientific realism. Widely known as first author of *Leviathan and the Air-Pump*, in which modern experimental science was "distrusted" by being construed as of a piece with the political settlement of Restoration England, Shapin now accepts (that is, trusts) whatever knowledge scientists themselves have come to trust. The Shapin of a decade ago, of *Leviathan and the Air-Pump*, is one of the very few on "the academic left" whom the scientists Gross and Levitt in their attack on that presumed faction (3; see part 1 of this review) took seriously, that is, sought to refute rather than ridiculed. Had Gross and Levitt waited only a little longer—waited for Shapin's present presentation—they would have found little with which they should wish to take issue.

Appleby, Hunt, and Jacob, authors of *Telling the Truth About History* (see part 1 of this review), claim to be building upon the social-constructivist relativism of their generation, when in fact they are retreating to the social-constructivist objectivism of the preceding generation. That generation, and Robert K. Merton in particular, saw science—the production of objective, and asymptotically true, knowledge—as the collective result of the adherence of members of a social group, the scientific community, to appropriately defined behavioral norms. For Appleby, Hunt, and Jacob, for feminists generally, and for all who believe they know what direction of social development would constitute progress, a retreat to this position is intended to provide a basis for their future-oriented, "progressive" projects (just as it was for Merton and his mid-century contemporaries). If, however, the main task appears not as promotion of social progress but as prevention of social collapse, that is, if the perceived problem is the crumbling of the normative structure of society, then the projection of yet more social norms offers little hope, and we may expect the retreat to go yet a further step back, to a call instead for the revival of personal virtues. Such is Shapin's stance, and such is what is occurring very widely today (4). But such was also the situation in the United States in the two generations before World War II, when the common point of view of the social and intellectual elite was that all civilization was the product of breeding and character. From that individualistic point of view, science, the production of true and objective knowledge, was a manifestation of the moral character and personal virtues of the man of science, of a devoted, disinterested, self-denying searcher after truth. Indeed, it has often been remarked that Merton's social norms were largely a translation of the virtues conventionally, but unrealistically, attributed to the individual scientist into expectations enforced within the scientific community. Returning then to Shapin, whose stance is the opposite of progressivist and who sees present society as in crisis, we find him retreating back beyond Merton to the outlook of pre-World-War-II scientists (and not a few post-war scientists too), namely that salvation would be attained if only all the world lived in trusting communities as scientists do.

Shapin's postmodern nostalgia for pre-

modern society is shared by Porter. Porter's story too is one of paradise lost—and of a little piece of it retained today in the scientific laboratory. "The laboratory, like the old-regime village, is the site of personal knowledge" (p. ix). And the two authors' stories are complementary. Whereas Shapin (following and citing Nietzsche) tells us that truth-telling is a manifestation of strength, bespeaking personal freedom and an aristocratic social order, Porter (following but not citing Nietzsche) tells us that objectivity—the elimination of individual will and judgment through counting and rule-following—bespeaks the weakness and vulnerability of experts in a democratic political system. Shapin the historical sociologist gives us a minutely explicated account of a gentlemanly culture of trust and its adaptation to science in 17th-century England, asking us to repeat his conclusions from it as we confront our present plight; Porter the historian picks up where Shapin has left off—where gentlemen have handed science over to experts and trust has been traded for the modernist value expertise—and ranges over the historical devolution to our present state. But whereas Shapin provides a set of coherent essays on the culture and science of one place and period that he himself has studied in depth, with the intent, to be sure, of saying something about science in general, Porter's book is a chronologically disordered assemblage of historical material—drawn from wide reading about objectifying enterprises, ranging from engineering to accounting, from the early 19th to the mid-20th century—whose rationale is a conception of objectivity and a view of the modern world.

Porter's "working definition of objectivity . . . implies nothing about truth to nature. It has more to do with the exclusion of judgment, the struggle against subjectivity" (p. ix). Indeed, for Porter the project of modern science in its broadest conception is "what I call the accounting ideal" (p. 50). Although for this purpose "It is enough that there be rules, perhaps quite conventional ones, that limit the exercise of discretion" (p. 197), in practice objectivity is most often connected with the attachment of numbers to natural and social phenomena. "How are we to account for the prestige and power of quantitative methods in the modern world?" Porter asks (pp. viii–ix). "My summary answer to this crucial question is that quantification is a technology of distance." (Anthony Giddens, widely known for this thesis, as also for his stress on trust, does not appear in Porter's bibliography.) "Perhaps most crucially, reliance on numbers and quantitative manipulation minimizes the need for intimate knowledge and personal trust" (p. ix). "The appeal of numbers is especially compelling to bureaucratic officials who lack the mandate of a popular election, or divine right. . . . Scientific objectivity thus provides an answer to a moral demand for impartiality and fairness" (p. 8). (Porter carries this line of argument also in his contribution to *Rethinking Objectivity*.)

What a generation ago Porter's teacher C. C. Gillispie saw as the "edge of objectivity" (5), the salutary advance of the cold, clear light of science—of something very near to truth—over the dark terrain of wish and myth, over a world theretofore construed religiously and moralistically, Porter, the postmodern, sees as the dark shadow of rule-bound, quantifying, rationalistic moralism (called "objectivity") advancing over the bright terrain of premodern trust. In Porter's recounting the case studies exemplifying his thesis warrant his skepticism about these strategems to construct a surrogate for the premodern—prelapsarian—society of trust. But with objectivity divorced from truth, indeed from reality, Porter cannot explain, and avoids asking, why it is that such a "technology of distancing" succeeds in satisfying not only "a moral demand for impartiality and fairness" but also other, modernist, demands for effective prevision and control—that is, what it is about the world that makes this disembedding technology effective.

But what is all this "moral" talk about, anyway? Why has Porter redundantly prefixed "moral" to a "demand for impartiality and fairness"? Why does he open his first chapter with the declaration (p. 11) that "The credibility of numbers, or indeed of knowledge in any form, is a social and moral problem. This has not yet been adequately appreciated"? Why does he redundantly distinguish the moral, this particular dimension of sociality, and draw attention (as Nietzsche had and has become commonplace today) to its role in knowledge production? The question obtrudes the more irresistibly in that Porter nowhere in his book goes beyond bare assertions of the moral as a dimension of knowledge.

Turning back to Shapin, we find much the same case. Almost anywhere we open his book, the word "moral" meets our eye. "Here I offer a moral history of scientific credibility," "trajectories of comets proceeded on a moral field," "solutions to problems of epistemic and moral order," "a moral economy of truth"—all from two introductory pages (pp. xxix–xxx). "I want to indicate how limitations on the place of mathematics figured in describing, warranting, and maintaining the moral order of the English experimental community," "the desired moral order of the experimental community," "what the physical world was like and what the moral order of those who

Vignettes: Principals

Most of the recent ethical problems [in science] that explicitly or implicitly have been raised by the media, by various government sources, or by the public at large, have been associated with the crème de la crème of the academic community. Scientific research is never a populist activity. Difficult and superb research is invariably performed by the elite, usually at elite institutions. Elitism invariably engenders jealousy. It is no wonder that *Schadenfreude* flourishes when the elite stumbles, but at least there is a touch of justice in such gloating when it focuses on the misdeed of a privileged individual: the principal scientist. The high moral tone of such gloating is related to the perception that any laboratory digression is ultimately the principal investigator's responsibility; because the appelation "principal" carries with it both privilege and duty.

—*Carl Djerassi*, in *From the Lab into the World: A Pill for People, Pets, and Bugs* (American Chemical Society)

In the center of the gateway stood an imposing figure, a large and exceedingly well-built man made even more massive in appearance by the flowing academic gown and the mortarboard which he wore. . . .

"That is the Principal," whispered the Mechanic into Alice's nearest ear.

"Do you mean the Pauli principle?" asked Alice rather wildly. She had been taken off-guard by his sudden appearance.

"No, no," hissed the Mechanic, "he is the Principal of the Academy. Though of course Pauli's principle is the principal principle of the Academy, he is its Principal." Alice wished that she had not asked.

—*Robert Gilmore*, in *Alice in Quantumland: An Allegory of Quantum Physics* (Copernicus/Springer-Verlag)

testified about it ought to be"—all from two pages in the thick of the book (pp. 312–13). Even in the acknowledgments we read of a friend who has "taught me some common sense about the moral economy of modern science" and of an editor who has provided him "a moral education." And for all that—with all that—Shapin proffers not even Porter's one word of acknowledgment that in pushing "moral" into the center of attention, making it the axis around which all historical apprehension turns, he is doing something different from what historians and, especially, sociologists had been doing, or had thought of themselves as doing, through most of this century.

Shapin's expressed antipathy to the notion of postmodernity notwithstanding, he is in his "foregrounding" of the moral dimension of social life obviously and emphatically postmodern. And what is it that has brought "the moral" into such prominence on the contemporary, postmodern, cultural horizon, and more particularly and remarkably on the contemporary intellectual horizon? Is this not largely a consequence of the disappearance of truth from our horizon?

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3. Paul R. Gross and Norman Levitt, *Higher Superstition: The Academic Left and Its Quarrels with Science* (Johns Hopkins University Press, Baltimore, MD, 1994); reviewed in *Science* **264**, 985 (1994).
4. See for example William Bennett and his *Book of Virtues: A Treasury of the World's Great Moral Stories* (Simon and Schuster, New York, 1993) and F. Fukuyama (*1*).
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Publishers' Addresses

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Duke University Press, Box 90660, Durham, NC 27707–0660. Phone: 919-688-5134. Fax: 919-688-4574.

W. W. Norton and Co., Inc., c/o National Book Co., 800 Keystone Industrial Park, Scranton, PA 18512–4601. Phone: 800-223-4830; 717-346-2029. Fax: 800-458-6515.

Princeton University Press, California/Princeton Fulfillment Services, Inc., 1445 Lower Ferry Rd., Ewing, NJ 08618. Phone: 800-777-4726; 609-258-4897. Fax: 800-999-1958; 609-883-7413.

University of Chicago Press, 11030 S. Langley Ave., Chicago, IL 60628. Phone: 800-621-2736; 312-568-1550. Fax: 800-621-8476; 312-660-2235.