The Offenses of Sociology

The Impossible Science. An Institutional Analysis of American Sociology. STEPHEN PARK TURNER and JONATHAN H. TURNER. Sage, Newbury Park, CA, 1990. 222 pp., illus. $36; paper, $17.95. Sage Library of Social Research, vol. 181.

Of the two Turners who authored this brief history of American sociology, the senior one (Jonathan) thinks it a tragedy that sociology has failed to become a science—in spite of the possibility, in principle, of its becoming one. The other Turner apparently disagrees, although reasons are not offered. But the tone of this institutional history suggests that the tragedian dominated its writing. Surely not high tragedy; the tone is gently rueful rather than dramatic. The retrospect makes it seem inevitable that the conditions under which American sociology developed as a discipline and the institutional resources it gained, then lost, then replaced with other resources, prevented and continue to prevent it from becoming an "integrated science."

From its earliest inception before the turn of the century, American sociology carried the burden of alternative conceptions of its nature: as a "pure" life science inspired by evolutionism and organicism; and as a means of solving "social problems" through social reforms, radical or gradual. Students still become sociologists from motives that roughly parallel these two conceptions: out of a detached curiosity about how the social world works, and out of a desire to change it. During the early history of American sociology the difference was not as consequential as it became later. In the early days, there were few students, fewer faculty, and still fewer academic departments, and these were usually dominated by liberal Protestants, often with divinity degrees, who believed that discovering the truths of social life would support their faith in liberal reform. The Rockefeller philanthropies were instrumental in supporting research programs at the University of Chicago (the first department of sociology) and at Columbia and in helping to establish the Social Science Research Council; the high Protestantism of the Rockefeller interests had elective affinities with the outlooks of prominent sociologists. In a nice historical tidbit, Turner and Turner tell of how, after the great popular success of Robert Lynd's *Middletown*, the divinity-school-trained author was awarded a Ph.D. by Columbia University (after a few perfunctory required courses) and appointed to its sociology faculty.

Rockefeller support waned when the research it supported did not seem to be adding up to much, and the American Sociological Society (later "Association," to avoid the embarrassing acronym), which might have played a leadership role in creating an integrated science, opted instead to become an umbrella organization sheltering the diverse interests and intellectual enterprises that went by the name of sociology. There was, to be sure, a science establishment in sociology that increasingly emphasized method and statistical as well as mathematical analysis. This "mainstream" flowed with considerable strength in the 1950s and '60s, aided by the influential partnerships in theory and research represented by the Samuel Stouffer–Talcott Parsons pair at Harvard and the Robert Merton–Paul Lazarsfeld collaboration at Columbia, and by generous research funding from the federal government in the aftermath of the intellectual panic over Sputnik. But the mainstream was never powerful enough to marginalize other (perhaps less rigorous) sociological agendas, and the large, strongly reform-minded student cohorts of the late '60s added further strength to those sociologists who continued to believe that sociology had more important things to do than become a "hard" science.

In the 1970s the academic marketplace collapsed, federal research support diminished, and student enrollment began a long decline that has only recently been reversed. But sociology is fairly firmly established as a heterogeneous academic discipline in almost every university. Its hard science emphasis varies from campus to campus and region to region but is hegemonic in relatively few places. Meanwhile, the field continues to generate regional associations, subspecialties ("sociologies of . . . "), and specialized journals to publish the research of groups of scholars who may have a lot in common with each other but relatively little in common with other groups. The Turners see little reason to believe that this situation will change much in the future they can foresee. Hence (except for occasional efforts at grand theoretical synthesis) sociology is an "impossible" science driven by fluctuating sources of support—private foundations, the federal government, student numbers, social problems, university politics—that are likely to sustain it as the mixed, and vulnerable, intellectual enterprise it is, without strong ties to central institutions or powerful independent professions of the society, such as political science has with law, economics has with business, or anthropology traditionally has had with the colonial policies of imperialist nations.

In fewer than 200 pages of text Turner and Turner have produced a remarkably fair and evenhanded account of the development of American sociology. It necessarily sacrifices depth to breadth; it goes into none of the issues it covers at any length. But it is unique in its focus on institutional history: on strong departments and journals and associations and research centers and funding sources instead of on schools of social thought or philosophies of science.

The authors, of course, may have an overidealized conception of an "integrated science." My impression is that many mathematicians or biologists do not share common universes of discourse, and the history of science is replete with integrations, disintegrations, and reintegrations. But in explaining why sociology has not become an integrated science after a hundred years of sporadic effort, Turner and Turner say not a single word about whether Americans, as a people, would support that effort. American individualism teaches us to believe that we make ourselves and our society through choices; science wants us to think of behavior as the caused outcome of combinations of forces (quantified variables) that impinge on individuals at the point of "choice." It is remarkable how little technical sociological thinking has been filtered into the consciousness of ordinary Americans—and how much and how easily psychological thinking has. American culture is full of "vulgar" psychology, but vulgar sociology seems limited to those circumstances in which persons must apologize for doing what they have to do instead of what they might want to do. Sociology's focus on the ways in which groups and collectivities constrain persons has long been deeply offensive to the American psyche and its ideals of freedom and triumph over circumstances.

Built on the myth that knowledge is power, science promised prosperity and the control of nature. Sociology promises only more social control (which alienates believers in freedom) or radical social and cultural policies (which alienate business elites and

their supporters). Knowledge without power generates irony, which has been an important mode of discourse among sociologists. It is relatively rare in the discourse of the powerful and in scientific journals. So that even if the ASA had opted to drive its social reformers and other committed visionaries out of the discipline and even if every sociology student were well-trained in mathematics, in formal hypothetical thinking, and in the design of controlled experiments, sociology might still be an improbable, if not an impossible, science. *The Impossible Science* is well worth the attention of readers of this journal.

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Inflating Universes

Particle Physics and Inflationary Cosmology. ANDREI LINDE. Harwood, New York, 1990. xviii, 362 pp., illus. $60; paper, $29. Contemporary Concepts in Physics, vol. 5. Translated from the Russian by Marc Damashek.

The intellectual merger of particle physics and cosmology has been one of the scientific triumphs of the past decade. The seeds for this merger were planted back in the '70s with the establishment of the big bang model and with the realization that the early universe was sufficiently hot and dense that the physics governing it was dominated by nuclear and elementary particle effects. The recent confirmation of predictions from cosmology about the number of fundamental particles by experimental results from the Large Electron Positron and Stanford Linear Colliders (LEP and SLC) has completed the merger. Intellectually, however, it was probably the idea of inflation that most attracted particle theorists to cosmology. Although others such as Gliner, Kazansas, Sato, and Starobinsky also played with some of the ideas involved, inflationary cosmology really took off in 1980 when Alan Guth showed that the type of fields predicted in grand unified theories could drive a rapid expansion of the early universe. This solved a number of the longstanding initial-condition problems of the standard big bang model and stimulated a real revolution in cosmology. It was immediately recognized that the cosmological initial conditions could be a natural consequence of the unification of the forces, and that one might even use the cosmological consequences of a unified theory to ascertain its validity. However, one important hurdle existed in Guth's original formulation—though he could get the rapid expansion to occur, Guth was not able to get from that phase back into the more slowly expanding universe in which we find ourselves now.

This problem was resolved by Andrei Linde working in Moscow (and independently by Paul Steinhardt and Andreas Albrecht working in the United States). Linde's solution became known as "new inflation," and he went on to show that other formulations of inflation might also work. In fact, he showed that essentially any scalar field existing at early times in the universe could cause inflation, and since all unification models seem to have some sort of scalar field, they all lead naturally to some sort of inflating phase. Linde dubbed the idea that any simple scalar field could cause inflation "chaotic inflation," and the production of multiple inflating epochs by multiple scalar fields has come to be known as "stochastic inflation." When coupled with ideas about quantum gravity, stochastic inflation leads to multiple inflating, causally disconnected universes. Linde's work, along with his dynamic personality, wry sense of humor, and prodigious publication rate, has made him one of the world's leading cosmologists. There is little doubt that Linde, although young, is assuming the mantle of the late Yakov Zel'dovich as the Soviet Union's leading cosmologist, and now that he has accepted a position at Stanford University he is also becoming one of America's leading cosmologists.

Linde's book *Particle Physics and Inflationary Cosmology* clearly and succinctly presents the development of inflationary cosmology in the language of modern quantum theory. (Also recently published, by Academic Press, is a collection of Linde's original papers entitled *Inflation and Quantum Cosmology*). The monograph is written primarily for those approaching the subject from the particle physics rather than the astrophysics side of cosmology and is at a level appropriate for the advanced graduate student. The book has fewer typographic errors and linguistic awkwardnesses than are typical for monographs translated from the Russian, but more than are usually encountered in other works in theoretical physics. The Russian references are particularly complete, which is a boon to those of us less familiar with that literature. This is, however, at the cost of being somewhat less complete with regard to the Western references.

The book focuses on the connection between particle physics and inflation, and the reader will not find other aspects of the particle-cosmology connection, such as dark matter, nucleosynthesis, baryosynthesis, and other more phenomenologically oriented subjects, discussed in any significant way. However, the discussion of inflationary cosmology is extraordinarily thorough. Various potentials and their effects on inflation are treated in great detail. The physics of phase transitions in a hot universe is well described. The derivation of scale-free fluctuation spectra at the end of inflation is made clear. The discussions of both the new and the chaotic inflationary scenarios emerge as natural consequences of the framework developed earlier in the book.

Linde's treatment of inflation in quantum cosmology provides a natural stepping-off point for his recent stochastic inflation. In his last chapter Linde lets his imagination run wild, and it's fun to see where it goes. He claims that the studies of the universe and of consciousness may be intertwined. He even speculates that consciousness, like space-time, may have its own intrinsic degrees of freedom. He draws some interesting parallels between the study of consciousness and the recent interest in the fundamental problems of the origin of space-time and such questions as why it is four-dimensional. He muses that an examination of consciousness, and other fundamental problems such as life and death, from a physics perspective rather than a philosophical or theological one, may be needed, and that perhaps apparently disparate sets of problems are not unrelated. Obviously such speculations as this, and his equating of vacuum energy with life, are not presented with the rigor of the rest of the book, but they do provide a way of ending what is basically a hard-core physics monograph with a truly vast cosmic perspective.

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Paleoecological Troves

Packrat Middens. The Last 40,000 Years of Biotic Change. JULIO L. BETANCOURT, THOMAS R. VAN DEVENDER, and PAUL S. MARTIN, Eds. University of Arizona Press, Tucson, 1990. viii, 469 pp., illus. $55.

"In some circles," write Betancourt, Van Devender, and Martin, "the paleoecologist is considered an unfortunate ecologist, one who has the vantage of time but lacks too many pieces of the puzzle for a coherent view" (p. 435). In this volume, we are challenged to dispute this paradigm and juxtapose the clairvoyance offered by modern ecology against the less focused but broader vision of paleoecology. The result is a fascinating introduction to the world of packrat (*Neotoma* spp.) midden analysis in a series of well-written papers on the ecology of *Neotoma* and the paleoecology of the