

## A PROVOCATIVE PREFACE

In his magisterial two-volume *Types of Economic Theory* Wesley Clair Mitchell, Columbia University American institutionalist economist, business-cycle economic historian, historian of economic theory and founder of the National Bureau of Economic Research, wrote that the process that constitutes the development of the social sciences is an incessant interaction between logically arranged ideas and chronologically arranged events.

Since empirical science is also an evolving cultural institution, this memorable institutionalist refrain can be modified to apply to the history of philosophy of science: The process that constitutes the development of philosophy of science is an episodic interaction between logically arranged ideas in philosophy and chronologically arranged developments in science. For the positivists the most formative development was Newtonian physics. In fact it might be said that modern philosophy is the philosophy of Newtonianism.

But for the contemporary pragmatist philosopher of science the most important developments are the two great scientific revolutions in twentieth-century physics – Einstein’s relativity physics and Heisenberg’s quantum physics – with the latter’s the more influential for philosophy. These physicists’ rejection of the twentieth century’s positivism had ushered in the postmodern era with its relativized semantics and ontological relativity theses nearly half a century before the label “postmodernism” was even coined.

The *Twentieth-Century Philosophy of Science: A History* is a revised and enlarged edition of my 1995 print book titled *History of Twentieth-Century Philosophy of Science*, which is now out of print. The greatly expanded “Introduction” chapter set forth herein as **BOOK I** summarizes the fundamental principles of the contemporary pragmatist philosophy of science, and includes discussion of the recently emergent specialty called “computational philosophy of science”. **BOOK I** is also now both an e-book and a print-on-demand book titled *Philosophy of Science: An Introduction*. Each of the remaining chapters, **BOOKS II** through **VIII**,

focuses upon selected authors who have influenced twentieth-century philosophy of science.

**BOOK VIII** on mechanized discovery systems is distinctive, because its subject still has little representation in the literature of academic philosophy. This specialty called “computational philosophy of science” is demanding, because contributing to it requires a working competence both in computer systems analysis and in basic research in an empirical science. However, few academic philosophers have acquired such competencies, even though the system designs are manifestly relevant to philosophy of science. To date **working** discovery systems used in science (including my **METAMODEL** discovery system) have been developed by scientists working in their specialized sciences.

Few universities even encourage much less prepare students for computational philosophy of science. Computational philosophy of science is finally becoming institutionalized in academia. In “MIT Creates a College for Artificial Intelligence, Backed by \$1 Billion” *The New York Times* (16 October 2018) reported that the Massachusetts Institute of Technology will create a new college with fifty new faculty positions and many more fellowships for graduate students, in order to integrate artificial intelligence systems into both its humanities and its science curricula. The article quoted L. Rafael Reif, President of MIT, as stating that he wanted artificial intelligence to make a university-wide impact and to be used by everyone in every discipline [not excluding philosophy of science]. And the article also quoted Melissa Nobles, Dean of MIT’s School of Humanities and Sciences, as stating that the new college will enable the humanities to survive, not by running from the future, but by embracing it.

Computational philosophy of science is the future that has arrived, leaving many a tenured academic complacently ensconced in his backwater. In the twentieth century’s latter decades computational work has gradually been producing a paradigm shift not only in the sciences but also in philosophy of science, especially philosophy in the linguistic-analysis tradition. But if computational analysis is not fully embraced as the cutting edge in academic philosophy of science due to philosophers’ intellectual lethargy or arrogance, then the mechanization agenda will be taken over by currently contributing cognitive psychologists with psychologistic views.

This book has its origins in my independent philosophical reflections during and especially after my thirty months in the graduate school of philosophy at the University of Notre Dame, a Roman Catholic university in South Bend, Indiana. Having received an M.A. degree in economics I had contemplated that my doctoral dissertation for a Ph.D. degree in philosophy could set forth a computerized artificial-intelligence discovery system. Nearly all of the discovery systems described herein were written as doctoral dissertations – all except mine. The Notre Dame Philosophy Department’s Reverend Chairman Ernan McMullen and the faculty he hired demanded that I recant my metaphysical realism (See: **BOOK I**, Sections **3.36** & **3.37**). After initiating a denial that he wanted “to play God”, the Reverend Chairman Ernan McMullin, who was hired personally by the university president, Reverend Theodore Hesburg, questioned my seriousness, accused me of having a “bad attitude”, threatened that if I persisted with my ideas I could never succeed with his faculty, and then issued his ultimatum: Get reformed or get out! But I refused to play the recanting Galileo rôle, and I got out. Notre Dame will always be better at football than philosophy, because their philosophy school is a backwater committed to training their students to teach their orthodox philosophy in other Catholic schools rather than produce original and consequential work.

After leaving Notre Dame University I undertook development of my computerized **METAMODEL** discovery system at San Jose City College in San Jose, California, while taking nondegree coursework in applied numerical methods in **FORTRAN**. San Jose City College is a two-year associate arts degree community college. Within a year I had successfully completed development of the computer system, and using the system I successfully simulated the discovery known in history of economics as the “Keynesian Revolution”. The central thesis of historian of science Herbert Butterfield’s (1900-1979) *Origins of Modern Science: 1300-1800* (1958, P. 1) is that the type of transition known as a “scientific revolution” was not brought about by new observations or additional evidence, but rather by transpositions in the minds of the scientists. Specifically he maintains that the type of mental activity that produced the historic scientific revolutions is the “art of placing a known bundle of data in a new system of relations”. 1980 Nobel-laureate econometrician Lawrence Klein noted a similar type of revision in his *Keynesian Revolution* (1949) thus indicating my project’s feasibility (pp. 13 & 124). I later published my findings in my *Introduction to Metascience: An Information Science Approach to Methodology of Scientific Research* (1976).

For more than thirty years afterwards I applied my **METAMODEL** discovery system occupationally as a research econometrician working in both business and government. My professional work in economic analysis also occasioned my evolution from a romantic neoclassical economist into a pragmatic institutionalist economist, an evolution enabled by my discovery system and vindicated by its practical empirical achievements. My discovery system made my research career an exciting and successful exploratory empiricist adventure while benefiting my several satisfied employers and clients.

The contemporary pragmatist philosophy of science is consequential for basic research in the empirical sciences. And computational philosophy of science greatly enhances this enabling effectuality. In 1976 the U.S. Commerce Department published an extensive collection of longitudinal annual time series data in *Historical Statistics of the United States*. In that same year I drew upon those statistics and applied my discovery system to sociologically relevant longitudinal data describing the history of the American national society spanning the fifty-two-year period 1920 through 1972. From those inputs to my discovery system I developed a quantitative post-classical functionalist macrosociometric model describing the stability conditions, patterns of interinstitutional interaction and outcomes of changes in institutional consensus in the American society during the twentieth century.

I wrote a paper, “A Post-Classical Quantitative-Functionalist Theory of Macrosocial Change in the American National Society”, that included a brief description of the contemporary pragmatist philosophy of science and the discovery-system-generated macrosociometric model. I then submitted the paper from 1978 through 1982 to four peer-reviewed academic sociology journals, namely *Sociological Methods and Research* edited by George W. Bohrnstedt of Indiana University, *American Journal of Sociology* edited by Edward O. Laumann of the University of Chicago, *American Sociological Review* edited by William H. Form of the University of Illinois, and *Social Indicators Research* edited by Alex C. Michalos of the University of Guelph, Ontario, Canada. All four journals rejected the paper, and Michalos refused to disclose his reasons for rejection. **Appendix I** following **BOOK VIII** is the text of the submitted paper setting forth the U.S. macrosociometric model and describing its findings with simulations and shock studies. **Appendix II** reports the referees’ criticisms, my rejoinders and the

editors' rejection letters. And **Appendix III** is my critique of the rôle concepts and practices of the editors of those four journals.

These issues are larger than between a single writer and his critics, or they could just be dropped. These referee criticisms and editor practices are an exposé of academic sociology's institutionalized retardation. The Swedish Royal Academy still does not recognize sociology as having matured into a real science, and thus does not award their Nobel Prize to sociologists, as they have done to economists for the last sixty years.

Consider the following Cassandra omens over the last thirty years appearing both in sociology's academic literature and in the popular press:

- In 1989 Joseph Berger reported in "Sociology's Long Decades in the Wilderness" in *The New York Times* that universities have disbanded their sociology departments and that the National Science Foundation has drastically cut back funding for sociological research. He reports that over the previous two decades the number of bachelors degrees awarded with majors in sociology has declined by nearly eighty percent, the number of sociology masters degrees by sixty percent, and the number of sociology doctorate degrees by forty percent. Data that I obtained independently from the United States Department of Education, Office of Educational Research and Improvement, corroborate Berger's reporting.

- In 1993 University of Buffalo sociology professor Mark Gottdiener criticized sociological theory in his paper "Ideology, Foundationalism and Sociological Theory" in *Sociological Quarterly*. He reported that academic sociology is merely about power games among theorists seeking to construct "grandiose narratives" to sustain their status in an intellectual community.

- In 1998 University of Virginia sociologist Donald Black gave an address at the American Sociological Association's annual meeting. In his address published in *Contemporary Sociology* as "The Purification of Sociology", Black called for a Kuhnian-like scientific revolution against classical sociology with its social-psychological reductionism.

- In 2012 in "Education for Unemployment" Margaret Wenthe reported in the *Globe and Mail* that there are three sociology applicants for every sociology job opening, and concluded that sociology students have been "sold a bill of goods". Later in 2015 she lamented that sociology professors

are fooled into believing they might have a shot at the ever-shrinking tenure track, and that even if successful they are but “masters of pulp fiction”.

- In 2013 Yale University sociologist and cognitive scientist Nicholas Christakis wrote a *New York Times* OP-ED article titled “Let’s Shake Up the Social Sciences”. Therein he maintained that while the natural sciences are evolving, the social sciences have stagnated thereby stifling creation of new knowledge, and that such inertia reflects insecurity and conservatism.

Twentieth-century *fin-de-siècle* sociology has corrupted into the decadence of a compost heap due to its anachronistic philosophies of science including particularly its romantic dogmatism with its social-psychological reductionism. To date twenty-first century sociology offers no better prospects.

Academic sociology needs a reforming revolution that is much more fundamental than Black’s proposed “purification” of sociological theory. More specifically it needs a pragmatist institutional revolution – a contemporary philosophical consciousness that will purge academic sociology of its intolerant obstructionist enforcers with their prepragmatist semantic concepts of “theory”, “law” and “explanation” rooted in nineteenth-century German romanticism. Like the twentieth-century economists, today’s sociologists must learn to recognize that the macro perspective that is not just an extension of the micro perspective in their classical social-psychological theory.

However the realpolitik is that there is little likelihood of any such revolution purging sociology’s complacent incumbents from their academic sinecures. These often tenured professors are the rearguard that knows such an institutional revolution would marginalize them and cost them their status and opportunities in academia, thus making them victims of the Schumpeterian “creative destruction” inflicted by innovation. Consequently it remains for the Grim Reaper to rid sociology of these obstructionist reactionaries. As Nobel-laureate physicist Max Planck grimly wrote in his *Scientific Autobiography*, a new truth does not triumph by convincing its opponents, but rather succeeds because its opponents have died off; or as he also said, science progresses “funeral by funeral”.

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