

## Transformations in Social Research

**Taking Society's Measure.** A Personal History of Survey Research. HERBERT H. HYMAN. Edited by Hubert J. O'Gorman with the assistance of Eleanor Singer. Russell Sage Foundation, New York, 1991. xxiv, 257 pp. \$34.95.

The title *Taking Society's Measure* aptly and parsimoniously describes the subject matter of this book. It also succinctly defines the technique of survey research itself.

"Survey research" is an inclusive term used to describe a rather wide range of methods of social research. With its roots in sampling theory, experimental social psychology, market research, and political polling, survey research may be defined as the study of a population sample by means of interviews or questionnaires; the transformation of the categorized responses into numerical form; and the characterization of various aspects of the population—for example, its age and income distribution, its attitudes toward some controversial issue, or its behavior—by percentage distributions. As with other scientific methods of data collection, the method is of analytical value in testing or elaborating hypotheses.

Survey research was developed in the United States in the 1930s, but the name itself seems not to have been used until the war years, when survey research first emerged as a large-scale governmental activity. It was used extensively for such purposes as ascertaining civilian and military morale, determining the effectiveness of information and education campaigns, and studying the attitudes of the public toward events and policies. In the postwar years, it has been used extensively for these purposes, as well as for much commercial and academic/scientific research.

There are a number of ways to recount the history of an intellectual movement: Hyman's principal method is autobiography. With the publication of this book, practitioners of survey research and historians of science have two authoritative historical accounts to read, admire, and quarrel with, the other being Jean Converse's *Survey Research in the United States* (University of California Press, 1987). Both books provide well-documented accounts of survey research as it has been developed and carried out. Although the subject matter of the two books

overlaps considerably, the treatment of the topic is so different that libraries and research scholars will want to own both.

Hyman was a prominent member of five of the six research organizations whose histories provide many of the book's principal data and whose names serve as its chapter titles. He might as well have worked in the sixth—the justly famous War Department unit that conducted extensive survey research among American soldiers during the war—since both its director, Samuel A. Stouffer, and its star-studded staff were among his closest colleagues in the postwar era. This is autobiography in an analytical rather than a gossipy mode, enriched by an "insider" perspective that is perhaps the book's most distinctive and useful feature.

It is autobiography nonetheless, and it suffers from the limitations of that genre. Like the young Italian Fabrizio del Dongo in Stendahl's *The Charterhouse of Parma*, who participated only in one exciting skirmish of the Battle of Waterloo, the young American Herbert Hyman provides a vivid description of his own wartime experiences—not a comprehensive and balanced description of the entire war. We should forgive Hyman, as we forgive other autobiographers, for occasionally inflating the importance of what he and his colleagues were doing and for sometimes neglecting the contributions of others.

Because it is both history and memoir, *Taking Society's Measure* contains an abundance both of striking personal anecdotes

and of vivid portraits of contemporaries. But the enduring value of its autobiographical method lies elsewhere: in its description of how simple opinion polling was transformed during the war years into the complex field of survey research. For example, when Hyman, armed with a new Ph.D. in psychology from Columbia University, went to Washington in 1942 to work with Rensis Likert in the Department of Agriculture's Division of Program Surveys, no true surveys were being carried out there. Hyman notes that "standardized instruments, rigorous sampling, and quantitative analysis—sine qua non of any sample survey—were completely lacking" (p. 4). Likert's group of young social psychologists, anthropologists, and sociologists had to develop a scientifically sound methodology out of the nonrigorous methods in use by the division at that time. In particular, it significantly improved the application of probability sampling techniques and it encouraged the use of "open-ended" questions in interviews. In tracing this history, personal anecdotes constitute primary data.

More generally, to a surprisingly large extent the primary methods that dominated the social sciences in the postwar years and dominate them up to the present were forged in confusion and haste during wartime. Moreover, many of the key figures who subsequently assumed leadership in the social sciences received invaluable training and experience in these wartime research organizations. Hyman's book is one of the few extended accounts we have of the enormous impact of World War II experience upon the contemporary social sciences.

During the war years, Hyman was employed by two other U.S. government social research organizations: the Surveys Division of the Office of War Information, concerned largely with surveying the impact of various governmental information campaigns, and the Morale Division of the U.S. Strategic

### Prices of Books

Average per-volume prices of books reviewed in *Science* 1986–1991. The average prices per page for the technical books in the natural sciences for the years covered were 12.2¢, 12.5¢, 16.1¢, 16.9¢, 17.8¢, and 17.0¢. (Data are for hard-cover books except where books were available only in paperback.) For earlier data from *Science* and other relevant information see *Science* 211, 933 (1981); 235, 95 (1986); 239, 81 (1987); 243, 99 (1989).

Category	Price (dollars)					
	1986	1987	1988	1989	1990	1991
All books	47.02	47.37	54.05	54.58	54.43	54.08
Technical books in natural sciences	53.57	59.06	71.70	73.73	75.57	73.19

Bombing Surveys of Germany and Japan. Often his associates were the same young social psychologists who moved from agency to agency. The group included Rensis Likert, Daniel Katz, Richard Crutchfield, David Krech, and Ernest Hilgard—all of whom became prominent scholars in the postwar years.

Of all his wartime experiences, the postwar bombing surveys of the German and Japanese populations made the deepest impression on Hyman. He directed numerous studies that required both innovative research designs and interviewing under extreme conditions. People who often had lost family members and their houses were questioned about the psychological impact of the destruction. The interviews revealed that bombing up to a critical level of intensity decreased civilian morale; beyond this level, bombing served to increase and strengthen morale. Almost 25 years later, during the U.S. bombing of Vietnam, this evidence on the futility and cruelty of saturation bombing was ignored by the military, and the total tonnage dropped during that war greatly exceeded that dropped years earlier on both Germany and Japan. To his credit, Hyman tried unsuccessfully at that time to remind the nation of the lessons that had been learned in World War II.

In the postwar era, Hyman worked both at the National Opinion Research Center (NORC) of the University of Chicago and at the Bureau of Applied Social Research (BASR) of Columbia University. NORC was established in 1941; during the war it carried out hundreds of surveys for government agencies; and since the war it has become a major university-affiliated social research organization. Among his other activities at NORC, Hyman conducted numerous surveys and directed a major study of the interview process (Hyman *et al.*, *Interviewing in Social Research*, University of Chicago Press, 1954).

In 1951, Hyman became a professor of sociology at Columbia University and an associate director of BASR, one of the nation's oldest and most influential university-affiliated social research organizations. Here he directed a number of surveys and published, among other books, *Survey Design and Analysis* (Free Press, 1959), which became a standard textbook in the field. In 1969, he left Columbia to be a professor of sociology at Wesleyan University. He died in China in 1985 while lecturing on the use of survey research in developing countries.

The wealth of substantive and methodological knowledge contained in this autobiography cannot be adequately described in a brief review. It is not too much to say of

Hyman—as has been said of Samuel Stouffer—that he and survey research grew up together. He was “present at the creation” of survey research as it is now practiced throughout the world, a method whose diffusion he fostered by teaching abroad and by working with international agencies. This modest book offers eloquent testimony to its relevance as a mode of communication between a democratic government and its people.

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## Physical Topics

**A Physicist on Madison Avenue.** TONY ROTHMAN. Princeton University Press, Princeton, NJ, 1991. xiv, 147 pp., illus. \$19.95.

**Science à la Mode.** Physical Fashions and Fictions. TONY ROTHMAN. Princeton University Press, Princeton, NJ, 1991. xii, 207 pp., illus. Paper, \$12.95. Reprint, 1989 ed.

How one longs to overcome the popular image of a physicist as a breed apart, a cold, calculating scientist incapable of communicating in layman's language, content to remain aloof and preoccupied with research, wherever it may lead. We all know of many individual exceptions, but surprisingly few have managed to communicate with the public by developing popular writing to the point where such barriers are broken down. Tony Rothman is such a physicist who writes well and lucidly. His hallmark is a rare attention to detail combined with abhorrence of any hint of condescension and an emphasis on the lighter side of physics.

In a series of physics-oriented vignettes, Rothman covers topics ranging from workday experiences to reflections about the beginning of the universe. *A Physicist on Madison Avenue* features Rothman's valiant battle to impress the sales staff of *Scientific American* with normal distributions and histograms in a frustrated attempt to account for monthly variations in sales: did animal covers lose sales or did red covers improve sales? Sadly, the outcome may never be known, insofar as a statistical analysis awaits a future, more mathematically literate, generation of sales executives and publishers. The author's musical inclinations are featured in an illuminating discussion of the application of physics to musical instruments. From plastic violins to platinum flutes, musicians will go to any length to extract the ultimate refinement in sound

quality that harmonic analysis cannot yet quantify. Some regularities have emerged: for example, the bore of a wind instrument must be cylindrical, conical, or “bessel” to produce a harmonic scale. Consequently, no new instrument has succeeded since the saxophone for the past century and a half, and others, like the crumhorn and sackbut, have shared the fate of the dodo and the dinosaur.

Rothman comes out on the anthropic side in a free-ranging discussion of the debate between proponents of anthropic principles and those who prefer theories with elements of predictability. In its weakest and least objectionable form, the anthropic principle asserts that the presence of intelligent observers restricts the class of possible universes to one closely resembling our own. Rothman reminds us of the many guises of the anthropic principle, with unforgettable acronyms that include WAP, SAP, PAP, FAP, and CRAP. It is difficult for me to tell which of these is tongue-in-cheek and which is for real. One is tempted to toss all anthropic arguments into the rubric of pseudo-science because of overuse that has heralded proofs that extend from physics, including the uniqueness of the fundamental constants of nature and the closure of the universe, to metaphysics, with the imminence of nuclear Armageddon and the existence of a supreme deity.

A highlight of *Science à la Mode* is the story of Evariste Galois, the brilliant founder of group theory who was killed at the age of 20 in a duel over an infamous coquette. Did he really spend his last night frantically scribbling down the theory of equations, annotated periodically with the phrase “I have not time,” before the dawn appointment? Or was Galois a political loose cannon, a dangerous republican firebrand challenging the entrenched establishment, who was set up by a female agent provocateur for the fatal duel? Rothman reveals that previous biographers, including E. S. Bell, Leopold Infeld, and Fred Hoyle, unduly romanticized Galois's life and death to create a legend that, without detracting in the slightest from his mathematical achievements, deserves debunking.

Other chapters are devoted to topics in cosmology. We learn about the many options that confront a cosmologist. Despite appearances, Rothman reminds us that the universe need not be isotropic or even homogeneous in the large. Inflation is lucidly explained as a phase of the very early universe that isotropized all we can see, but at a price. It predicts that the mean density of matter is far greater than is directly observed. The modern cosmologist invokes his version of epicycles: dark matter distributed