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Evolution of Mathematical Concepts: An Elementary Study by Raymond D. Wilder

Review by: Elman R. Service

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Silva (Chapter 13). Problems of conceptualization are presented by Almond and Verba (Chapter 22) and by Donald Campbell (Chapter 25). Any anthropologist planning to translate questionnaires for use in more than one society will find the same two chapters of value and may well benefit even more from the treatise on translation by H. P. Phillips (Chapter 24). The analyses of the concepts of power and alienation by co-editor Etzioni (Chapter 11) are sophisticated and fully applicable to primitive societies. Anyone planning to use data from national statistical bureaus should carefully study the critique of such so-called "aggregate" data by E. K. Scheuch (Chapter 23).

To me, the most interesting aspect of the book lies in its evidence of poor communication between comparative methodologists of the various social and behavioral specialties. The barriers are not so much between anthropologists, sociologists, and the like, as they are between students of primitive societies and students of modern nations. The only contributor who here displays any acquaintance with the whole literature of comparative social studies is Stein Rokkan. And even he fails to cite Köbben (1952) or to pay any heed to the fundamental problems of comparative method that Köbben so well reviewed. None of the students of civilized societies here represented displays any awareness of the work by students of primitive societies on these problems—all of which are applicable to cross-national or cross-historical comparisons. In this respect, Etzioni and Dubow are not as well educated as is the sociologist Robert Marsh. Marsh (1967) presents a far more unified introduction to comparative studies. (For still other reviews of comparable method see Naroll 1970 and Naroll and Cohen 1970.)

The consequence of this barrier is that students of civilized societies may spend years or even decades laboriously retracing the steps of their colleagues who study primitive societies. Thus we find Marc Bloch in 1928 (Chapter 3) and E. T. Silva in 1966 (Chapter 13) independently rediscovering Galton's problem. Silva in 1966, like Hobhouse, Wheeler and Ginsberg in 1915, labors long to attain the valid insight that Galton's problem and the unit definition prob-

lem are but two sides of the same coin. Marc Bloch for his part correctly perceives that the road to the solution to Galton's problem is to look for similarities among widely scattered peoples. But neither Bloch nor Silva takes the matter any further. Similarly, it never seems to occur to Almond and Verba (Chapter 22) that, hard as it is to develop vocabularies and concepts equally meaningful in West Germany and in Mexico, it is even harder to do the same thing for Zuni, Navaho, Mormons, Spanish-Americans, and Texans, as did Kluckhohn and Strodbeck. Not that Almond and Verba completely ignore anthropology. They do cite (p. 353) a paper by Henry and Spiro in a book called *Anthropology Today*, edited by one A. L. Krocher (*Sic!* and also *Sic transit gloria mundi*).

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Evolution of Mathematical Concepts: An Elementary Study. RAYMOND D. WILDER. New York & London: John Wiley, 1968. xviii + 224 pp., figures, bibliography, index. \$8.00 (cloth).

Reviewed by ELMAN R. SERVICE
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The first paragraph of the preface to E. B. Tylor's *Anthropology* (1904) contains these lines:

the real effect of Anthropology is rather to lighten than increase the strain of learning. In the mountains we see the bearers of heavy burdens contentedly shoulder a carrying-frame besides, because they find its weight more than compensated by the convenience of holding together and balancing their load.

So it is with [Anthropology], which connects into a more manageable whole the scattered subjects of an ordinary education. Much of the difficulty of learning and teaching lies in the scholar's not seeing clearly what each science or art is for, what its place is among the purposes of life. If he knows something of its early history, and how it arose from the simpler wants and circumstances of mankind, he finds himself better able to lay hold of it than when, as too often happens, he is called on to take up an abstruse subject not at the beginning but in the middle [p. v].

Wilder's book fulfills Tylor's claim for the cross-disciplinary usefulness of anthropology better than any other attempt known to this reviewer. The author is a world-renowned topologist, formerly research professor of mathematics at the University of Michigan (now emeritus), and author of the widely-used text *Introduction to the Foundation of Mathematics*. Years ago Wilder became interested in Anthropology and audited courses by L. A. White. In 1950 (pub. 1952) his invited address before the International Congress of Mathematicians was his first attempt at what might be called the anthropology of mathematics, and he subsequently wrote four other such articles (1953, 1959, 1960, 1969) before the present book.

The major focus of this book is on the evolution of number and the later connected evolution of geometry and the cultural forces operative on them. These developments are subsequently related to the modern specializations of "higher mathematics." Most discussions of mathematics treat the subject as though it had developed in terms of its own self-contained logical nature, pursuing its innate trajectory. Professor Wilder treats the evolution of mathematics in his way, but also, and importantly, as an aspect of cultural evolution in general and, for the later, more professionalized era, in functional relation to the other sciences as well as in its practical applications.

This book should interest a broad spectrum of readers. A professional mathematician uses his amateur interest in anthropology to write a distinctive introduction to mathematical theory. As such it should appeal to anyone with mathematical training. On the other hand, I am a professional anthropologist with no expertise in mathemat-

ics at all, but the book held my attention and taught me a great deal, an unexpected pleasure. It can be recommended, therefore, to anthropologists whatever their degree of mathematical training—and it works just as Tylor said it would.

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Game Theory in the Behavioral Sciences.

IRA R. BUCHLER and HUGO G. NUTINI, eds. Preface by Ira R. Buchler. Pittsburgh: University of Pittsburgh Press, 1969. xiii + 268 pp., figures, tables, chapter references, annotated bibliography, index. \$8.95 (cloth).

Reviewed by DAVID KRONENFELD
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Twelve papers, nine of which were presented at a conference on applications of game theory in anthropology in 1966, a minimally annotated bibliography by Shubik, and a somewhat disjointed introduction by Buchler and Nutini make up this book.

Three papers are detailed and interesting explorations of particular aspects of game theory, even if not about traditional anthropological problems. Schelling ("Some Thoughts on the Relevance of Game Theory to the Study of Ethical Systems") explores the social-behavioral implications of moral or ethical rules that constrain behavior according to consequences. Rapport