Book Review

Reliability and Risk Analysis—Methods and Nuclear Power Applications. By Norman J. McCormick. Academic Press Inc., Orlando, Florida (1981). 456 pp. $39.50.

This is an excellent book. It is very clear, well written, and comprehensive. It has the good judgment to adopt at the outset the "subjective" view of probability as a numerical scale for quantifying degrees of confidence. It pulls together a very interesting body of material ranging from the mathematics of probability and reliability to the social psychology of risk acceptance. It summarizes the published risk studies of nuclear plants (water, liquid metal, and gas cooled) and those of chemical plants, dams, waste storage facilities, and conventional power plants. It also summarizes the studies of "everyday" risks such as those from fires and floods, flying in airplanes, drinking diet soda, breathing coal plant effluent, being unmarried, and eating too much.

All this material comes together in a very well organized, thoroughly readable way. Its presence in a single volume allows one to see the wide scope of work and controversy surrounding the issues of risk. It enables one to gain a perspective on the relationships of the various topics and an appreciation of the relative degrees of risk from different sources.

The only real shortcoming of this book is that it was published in 1981 and presumably written from 1979 to 1980. The intervening few years have seen an explosion of activity and very rapid progress in the areas of reliability and risk. Among much else, they have seen the emergence of the toxic waste disposal issue, the establishment of a society and journal of risk analysis, and the publication of several major nuclear plant probabilistic risk analyses and of the U.S. Nuclear Regulatory Commission's *Probabilistic Risk Assessment Procedures Guide.* In these studies, the theory, philosophy, and methodology of risk assessment have advanced well beyond the 1980–1981 stage.

The field would be well served by a book that digests and incorporates these new developments. Perhaps, since he does it so well, Professor McCormick could be persuaded to undertake this task in a new edition.

Stan Kaplan

Pickard, Lowe, and Garrick, Inc.
2260 University Drive
Newport Beach, California 92660

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About the Reviewer: Stan Kaplan, through his consulting firm, Kaplan and Associates, is active in areas of probability, risk, and decision theory and has been a major contributor to probabilistic risk assessment methodology as exemplified in the Zion and Indian Point nuclear station studies. Dr. Kaplan attended the College of the City of New York as an undergraduate and completed his graduate studies at the University of Pittsburgh. At present his firm is closely associated with Pickard, Lowe, and Garrick, Inc.