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In This Issue

Readers of *Statistical Science* will know that D. A. Freedman is no stranger to controversy. In the very first issue (Volume 1, Number 1), an article by Freedman and W. C. Navidi expressed views about the potential shortcomings of regression models for adjusting the census that sparked some heated discussion on both sides of the question. Now, in this issue, Freedman and H. Zeisel, Professor Emeritus of Law at the University of Chicago, study the models and methods that have been used to assess the cancer risk to humans from exposure to low doses of chemicals such as the pesticide DDT. Their findings are highly controversial, and once again spark a heated discussion on both sides of the question. Freedman and Zeisel remind us that the assessment of the risk to humans must be based on two extrapolations: A quantitative extrapolation of risk from high doses in laboratory animals to low doses in humans, and a qualitative extrapolation based on the idea that chemicals that are carcinogenic in animals should be considered as carcinogenic in humans. They review the literature and find the evidence for each of these extrapolations to be unsatisfactory.

Several of the discussants disagree with the authors' evaluations and their strongly negative view of risk assessment as a science, but at the same time, as Norman Breslow writes, "Few scientists would dispute their claim that current procedures used for routine risk assessment on the basis of limited animal data lack a solid scientific foundation." J. K. Haseman feels that the authors raise no new points regarding the scientific merits of quantitative risk estimation that have not already been extensively debated. He questions the techniques of the authors and writes, "some would argue that statisticians and lawyers debating science is no more meaningful than biologists debating p values." Suresh H. Moolgavkar and Anup Dewanji discuss the biological basis, and the lack of such a basis, for various stochastic models that have been presented in the literature to represent the carcinogenic process. J. Kaldor and L. Tomatis are also in general agreement with the authors that "the quantitative assessment of cancer risk entails a number of biological assumptions which have not been verified empirically," but feel that Freedman and Zeisel have distorted "several important issues concerning the use of animal experiments as indicators of potential human hazard." William DuMouchel seems to sum up the view of many readers when he finds himself agreeing with the authors that much more scientific theory is needed to justify the extrapolations that have been made, but more optimistic than the authors about the potential contribution of statistics in helping to solve the mouse-to-man problem. Together, the article, the discussion, and the rejoinder provide a thought-provoking, stimulating, and, yes, controversial picture of cancer-risk assessment.

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In this issue we present the first articles in an occasional series of "Golden Oldies." In this series, we will republish classic articles from the probability and statistics literature, together with contemporary discussion of the articles and their authors. We begin the series with, not one, but *two* famous articles by Harold Hotelling: "The teaching of statistics," which was originally published in *The Annals of Mathematical Statistics* in 1940 and carried a footnote stating that it was presented as an address at the meeting of the Institute of Mathematical Statistics at Hanover, New Hampshire, September 10, 1940; and "The place of statistics in the university," which was originally published in the *Proceedings of the (First) Berkeley Symposium on Mathematical Statistics and Probability* in 1949. In these famous articles, Hotelling points out that the great increase in the development of statistical theory and the application of statistical methods has resulted in statistics courses being taught in many different departments in the university, by instructors who "are all too often not specialists in the subject." Nine discussants, leaders in the fields of statistics and economics, comment on Hotelling's insight and on the changes in the educational structure that have and, more strikingly, have not occurred since these articles were written. They give a valuable picture of how we currently teach statistics, and they write of Hotelling as a person and of their relationship with him. For example, Kenneth J. Arrow comments that as a graduate student at Columbia University he switched from the Department of Mathematics to the Department of Economics on Hotelling's advice, so he could study mathematical statistics in a "more tolerant" environment. The move was obviously successful. Arrow won the Nobel prize in Economics in 1972. We also take special pleasure in noting that one of the discussants, Harold Hotelling, Jr., is the son of the author of these classic articles, and that another discussant, W. Edwards Deming, also served as a discussant of the 1940 article when it was *originally* published.

These "Golden Oldies" and their discussion are preceded by an article on the life of Hotelling by Adrian C. Darnell, who is presently engaged in a large