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JACK CARL KIEFER 1924–1981[1]

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On August 10, 1981, we learned of Jack Kiefer's death. The initial shock gave way to a dismay that has not been dissipated by time, so that the loss and sorrow is felt as deeply now as then. Though what I say comes from my own experience and emotion, it is no exaggeration when I express a communal feeling that we have lost a central figure in our profession and in our lives. The personal memories that continue to flash, of times and events peripheral to our work, nonetheless connect with it and remind us that science is not a coldhearted private activity.

Each of us who knew Jack was aware of a wonderful spirit which pervaded not only his being but also the contributions he made to our field. The complete integrity and honesty we find in his written work was ever present in his personal life. The principled and nondogmatic view he had of life was the same view he had of science. Everything he did was expressed with such grace and style that our despair is due not only to having lost an intellectual force but, even more, of having lost a presence and vitality which revealed what a creative spirit is about.

His dedication to distinguishing right from wrong in science, be it in setting straight statistical methodology in the classification of mushrooms, or in combatting misunderstanding of the implications of mathematical facts about experimental designs, was the same dedication he brought to working actively to right the human wrongs of the Vietnam War and of the repression of Jews and dissidents.

The spirit which he brought to local politics in Ithaca and Tompkins County was the same spirit that covered his continual and effective activities in the Institute of Mathematical Statistics, his department, college and university (perhaps with less success since he failed to win election to the New York State Assembly as the Liberal Party candidate in 1968 though, intelligent statistician that he was, Jack had assigned zero prior probability to that event).

Jack didn't stop at arbitrary boundaries but was compelled to push to the frontiers of anything he touched in order to understand what we knew and, most importantly, what it was that we did not know. His work in statistics stands as testament to the scope of this quality—there is no shallow generalization, only deeper and deeper exploration no matter how intricate and formidable the task.

Even his hobbies would carry him well beyond casual dalliance. Jack's introduction to the fascination of mushrooms by Jacques Deny in the early 60's grew rapidly into a passion and eventually brought him from amateur status to

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[1] These three articles were presented as Invited Addresses at the Jack Kiefer Session held at the August 1982 joint meeting of the IMS and ASA in Cincinnati, Ohio. The session was chaired by Ingram Olkin.

The complete bibliography of Kiefer's works, referred to in these articles, appears on pages 424–430 and was prepared through the efforts of Roger Farrell and Ingram Olkin.

professional standing as a mycologist. A Dorothy Sayers mystery could lead him, along with a friend and colleague, Bob Walker, to construct a mechanical change ringer that rang all the peals of the Nine Tailors. Obliged to organize the Cornell Mathematics Colloquium one year, he would introduce each speaker with a limerick or poem specially written to suit the occasion.

Jack was born in Cincinnati in 1924 and grew up in an energetic and intellectual environment. In 1942 he went to M.I.T. to study electrical engineering and economics. This was interrupted by military service during World War II. It was through economics and Harold Freeman at M.I.T. that Jack became interested in statistics, although he nearly went into show business, having written, produced, and directed student musical comedy shows. His masters' thesis at M.I.T. on sequential search for the maximum of a function grew into the famous Fibonacci Search Algorithm which ultimately appeared in 1953.

In 1948 he came to the Department of Mathematical Statistics at Columbia where Abraham Wald was preeminent in a department that included Ted Anderson, Howard Levene, Henry Scheffé and Jack Wolfowitz. He wrote his doctoral thesis in decision theory under Wolfowitz and came to Cornell in 1951 with Wolfowitz. From the beginning he was a central figure in a whirl of statistical and mathematical activity involving other statisticians such as Bob Bechhofer, Walt Federer, Phil McCarthy, and Lionel Weiss, and probabilists such as Kai-Lai Chung, Gil Hunt, and Mark Kac. Numerous visitors in the 1950's including Julie Blum (whose recent death we also mourn), Aryeh Dvoretzky, Willy Feller (who had been on the Cornell faculty earlier), Esther Seiden, Milton Sobel, and Frank Spitzer (who later joined the Cornell faculty) added to the richness of the Cornell environment.

In 1957 Jack married Dooley Sciple and they had two children, Sarah and Daniel, born in 1960 and 1962.

For many years Jack suffered greatly from an arthritic hip condition and in 1971 he underwent a chancy operation to insert artificial joints in both hips. The success of the operation enabled him to resume many of the activities that had been so severely curtailed.

Jack received any number of honors during his career. He was a Fellow of the Institute of Mathematical Statistics and the American Statistical Association, President of the Institute of Mathematical Statistics (1967), the Wald lecturer in 1962, a Guggenheim fellow, and was elected to the American Academy of Arts and Sciences. In 1975 Jack was elected to the National Academy of Sciences, two years after being named the first Horace White Professor of Mathematics at Cornell.

Jack served on numerous editorial boards of statistics journals and on a large number of committees of various institutions and organizations. Everyone in the profession knew that you could count on Jack to give immediate and incisive responses to requests for opinions on a paper, on individuals or on almost any professional matter.

After 28 years Jack left Cornell in 1979 to join the Statistics Department at Berkeley. He was a Miller Research Professor there at the time of his heart attack and death in 1981 at the age of 57.

These facts tell us how distinguished a figure he was in statistics but they

omit the quality and elegance which suffused his work and lectures. The facts do not describe how, in an hour's lecture, he could synthesize and compress a subject and, with unusual clarity and perception, bring the audience to the boundaries of the area. The facts do not tell how he would come to Northwestern, Purdue, or UCLA for a visit to lecture on inference or design and impress the audience about the contributions of others, as if theirs were at least as important as his own, which rarely, if ever, was the case.

The facts do not tell how devoted a husband and father he was—of how he would bring his son Daniel to Chicago for a crucial four game series between the Chicago Cubs and Philadelphia Phillies, or how he would drive 25 miles to post a letter to his daughter Sarah in France so that it would reach her a day earlier.

While we can read the legacy of accomplishment Jack left and recognize the consistency and force which make it a model of a lifetime of scientific inquiry, it does not tell us about the support and inspiration he leaves to his students and associates. His students (Corrie Atwood, Larry Brown, Ching-Shui Cheng, Ker-Chau Li, Gary Lorden, David Moore, Praesert Na Nagora, Bill Notz, Doug Robson, Sally Sievers Nerode, Jerry Sacks, Dick Schwartz, Josefa Lopes Troya, Yehuda Vardi, Gloria Zerdy) all know how encouraging and considerate he could be. They knew that you could bring him a manuscript one day and, astonishingly, have it back in a couple of days with detailed annotations and penetrating comments written in the margins. He never diminished their work but only imbued them with the spirit of excellence that was stamped on everything he himself did.

He was encouraging not only to his students but also to his associates and colleagues, nearby and far away. His advice was continually sought and given about work and career, about organizing conferences, about editorial matters, and just about anything else. He was a prodigious correspondent whose letters never failed to be filled with all sorts of interesting items hastily written up the sides and across the top of the page. He would spend uncountable hours on the telephone with friends and colleagues. One wondered where he found time to do anything for himself.

The spontaneity and diversity of mind and wit that made being with him such fun, whether at the Purdue Decision Theory Conference, or at the Bay Meadows race track, or at a Greek night club in Chicago, will not be forgotten. All his characteristics and all the facts of his life portray an unusual man whose imprint will never vanish.

But for those who were close to Jack there was something beyond the admiration and respect we felt for him, beyond the gratitude for his help and the urge for approval by a leading intellect, and beyond the pleasure of interchange of thoughts and good times. Perhaps it lies in the regard and affection he had of our own individuality; perhaps it was his compassion always expressed with such sincerity. Ultimately, I think it can only be defined as the love he had for each of us and the love we had for him. Jack Kiefer was more than just a great statistician; he was part of the fabric of our lives. And that is why we miss him so.

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