

A Conversation with George Box

Morris H. DeGroot

George E. P. Box was born in Gravesend, Kent, England, on October 18, 1919. He received a B.Sc. in 1947, a Ph.D. in 1952, and a D.Sc. in 1961, all in mathematical statistics from London University. He was employed as a statistician at Imperial Chemical Industries from 1948 to 1956, and from 1957 to 1959 he was Director of the Statistical Techniques Research Group at Princeton University. Since 1960 he has been a professor at the University of Wisconsin, where he was the founding chairman of the Department of Statistics. In 1971 he was appointed Ronald Aylmer Fisher Professor of Statistics, and in 1980 he became Vilas Research Professor of Mathematics and Statistics. He was President of the American Statistical Association in 1978 and President of the Institute of Mathematical Statistics in 1979. He received the Shewhart Medal from the American Society for Quality Control in 1968 and the Wilks Memorial Medal from the American Statistical Association in 1972. He was elected a member of the American Academy of Arts and Sciences in 1974 and a Fellow of the Royal Society in 1985. In 1975 he received an honorary doctorate from the University of Rochester.

The following conversation took place during the annual joint statistics meetings in Chicago in August 1986.

“WE CAN’T GET A STATISTICIAN. . . . WHAT DO YOU KNOW ABOUT IT?”

DeGroot: How did you get interested in statistics and come into the field of statistics?

Box: Well, I was in the British Army during the second World War, in the engineers. I had been studying chemistry, so they posted me to the chemical defense experiment station which was where they did work on chemical warfare. I was in the physiology department, where they were working on how you should treat people, particularly the civilian population, if there was extensive bombing with gas. We had a lot of good people there. For example, Gaddum was there, who was probably the best pharmacologist in Great Britain at that time, and a number of people of that sort. I was working for a physiologist who was actually in uniform, a colonel called Cullumbine. I was a lab assistant doing biochemical determinations. We did a lot of experiments on animals to try to find out what would happen if you gassed an animal and then you gave various treatments. But our results were all to hell, and I said to Cullumbine one day; “You know, we really need to have a statistician look at these data because they are very variable.” And he said, “Yes, I know, but we can’t get a statistician; there isn’t one available. What do you know about it?” I said, “Well, I don’t know anything much about it, but I once tried to read a book called *Statistical Methods for Research Workers* by a man called R. A. Fisher. I didn’t under-

stand it, but I think I understood what he was trying to do.” And he said, “Well, if you read the book, you’d better do it.”

Now this was about 1942 so there were still three years of the war to go. There was an educational corps in the Army that had some arrangements with correspondence schools, and they would send you a correspondence course on anything you wanted. So the first thing I did was to try to get one on statistics. They said, “We don’t have one on statistics, but we will try and get you a reading list.” So they got me a reading list; I don’t know who wrote that list but I suspect that either Fisher or Yates was advising them, because every book was Fisherian. *Statistical Methods for Research Workers* was the first book, *Design of Experiments* was the second book, Fisher and Yates’ *Tables* was the third book, and then there were all these derivative books. There was Snedecor. There was a book by Goulden, which is a very good book on designed experiments. It was particularly useful about things like partial confounding. And then there was a book by Linquist on statistical methods in education that was all about the analysis of variance and stuff like that. There was a book by Donald Mainland about statistics in medical studies. And there was a book by Chapman and Shoemaker on forestry and range management with a very nice piece in it about least squares. So I started reading these books. The only book I had with any theory in it was a little book on statistical methods, which had recently been written