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A Conversation with Charles Stein

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Charles Stein was born in Brooklyn, New York, on March 22, 1920, and received a B.S. in mathematics from the University of Chicago in 1940. His graduate studies at Chicago were interrupted by the Second World War, and he served in the U. S. Army Air Force from 1942–1946, attaining the rank of Captain. He received a Ph.D. in mathematical statistics from Columbia University in 1947 and joined the faculty of the Statistical Laboratory of the University of California, Berkeley, where he remained for the following two years. He was a National Research Council Fellow at the Institut Henri Poincaré in Paris during 1949–1950, and an Associate Professor of Statistics at the University of Chicago from 1951–1953. Since 1953 he has been a member of the faculty of the Department of Statistics at Stanford University, where he is now Professor of Statistics.

The following conversation took place in his office one afternoon in October 1984.

"I HAD ALWAYS INTENDED TO BE A MATHEMATICIAN"

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

Stein: Well, I first took a couple of courses in probability and statistics at the University of Chicago, probably as an undergraduate, from Walter Bartky. And then I took the first three actuarial exams when I was unemployed after graduating in 1940. I failed the third one on probability and statistics, partly out of discouragement from thinking that I had done very badly on the first two. Then when I came back to the University of Chicago, I took more courses in probability and statistics.

DeGroot: You went back as a graduate student?

Stein: As a graduate student for two quarters in mathematics.

DeGroot: How long was the interim? You said you were unemployed.

Stein: I was unemployed for a year, and then I was a graduate student in mathematics for two quarters. At that time I wrote something that was intended to be a master's thesis, if I ever got around to getting a master's degree. It was on the distribution of the ω^2 criterion of von Mises in the case of two samples. I just took the paper of Smirnov and almost line by line extended it from the one-sample case to the two-sample case. Very unimaginative work and, fortunately, it was never published. [Laughs] Later, Murray Rosenblatt did it under proper supervision and did it right. Then I was in the Air Force during the Second World War, mostly in the headquarters at the Pentagon in meteorology. There I did a lot of statistical work. I was in a group with Kenneth Arrow, Gil Hunt, George Forsyth, Murray Geisler, and several others who are probably quite good mathematicians but somehow I haven't kept up with them.

DeGroot: Did the interest that developed from working on those problems lead you back to graduate school in statistics?

Stein: Yes. Of course, I had always intended to be a mathematician but I found that if I had gotten my degree in pure mathematics I would have had to accept guidance in my choice of topic; whereas I had already, just as a result of casual conversation with Kenneth Arrow and scanning some work of Wald, published the paper on the two-sample test for Student's hypothesis with power independent of the variance. [*Ann. Math. Statist.* **16** (1945) 243–258]

DeGroot: So your intention was to become a doctoral student in statistics and to use this work as the basis of a thesis?

Stein: Yes, and I did. I went to Columbia University as soon as I was discharged from the Air Force in February 1946, and I got my degree in a year and a half. Then Neyman offered me a job at Berkeley, so I was definitely in statistics.

DeGroot: Was Wald at Columbia when you were there?

Stein: Yes, Wald was there; Hotelling had just left; Wolfowitz was there. P. L. Hsu was visiting; Doob was visiting; B. O. Koopman was there, in another department. Ted Anderson came the following year.

DeGroot: And you had contact with them even though you came with your thesis already finished?

Stein: Yes.

DeGroot: Let me just go back a little bit. What