

A Conversation with John W. Tukey

Luisa Turrin Fernholz and Stephan Morgenthaler

This conversation with John W. Tukey took place on June 20, 1995, at Princeton University's Jadwin Hall. The questions were asked by Luisa T. Fernholz, Stephan Morgenthaler and others among the public present. The conversation was taped and what follows is a typescripted and slightly edited version of these tapes. The conversation was previously published in *The Practice of Data Analysis* (1997).

JOHN W. TUKEY'S HIGH SCHOOL AND COLLEGE DAYS

Q: I am going to start with a somewhat personal question. We heard yesterday that you did not have a formal education, but were educated at home. Could you tell us a little bit about that?

A: Okay, well, by the time I was five, my parents had settled in New Bedford. My father was head of the Latin Department in the high school. In those unregenerate days a married woman couldn't be a teacher in Massachusetts. So, my mother wasn't a teacher, but she was a substitute. And I have heard it claimed, that between the two of them, they ended up teaching everything in this high school, except bookkeeping and physical education. I think you have to add chemistry to that. And rumor says that my mother decided that it would be bad for me to go to school because, either I would get very lazy, or I'd be a problem, or something. And, so, there wasn't too much formal education. But I spent a lot of time in the public library. New Bedford had a wonderful public library in those days. Not only did it have the *Journal of the American Chemical Society*, but it had the *Transactions of the American Mathematical Society*. And I think the reason that I went to Brown as a chemist was because I could read the *JACS*, but I couldn't read the *Transactions*.

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Q: When you went to college did you regret being brought up in this isolated environment?

A: It wasn't that isolated, in the sense that I am not sure that the environment was more isolated than if I had gone to the high school. I actually went to the high school for one term in French and some mechanical drawing. I am not sure if I am the last person to enter Brown with credit for mechanical drawing or not.

Q: How did you enter Brown?

A: College board exams. And so I went in and ended up with advanced credits in mathematics and, I guess, German. So, I went to junior differential equations as my freshman math course. We had a cousin who was the head of the mathematics department in the high school. But, again, there wasn't too much formality. But I worked lots of problems in a calculus book, and that seemed to produce the necessary effects.

Q: You did your Ph.D. at Princeton in mathematics. Tell us about that.

A: I came to Princeton in 1937 as a graduate student in chemistry, and ended up being a lab assistant in one of the freshman inorganic courses. In Princeton you had to be a Ph.D. to be a lab assistant in physical chemistry, which worried me a little because I had been a lab assistant in physical chemistry for a year and a half at Brown. But, anyway, I fell over the fence the summer before I came to Princeton. I came in chemistry, but I spent a lot more time in old Fine Hall than in Frick; and I took prelims at the end of that year.

Q: Harking back to Brown once more, do you remember a particular professor or course you liked?

A: I don't think there was one that was an obvious dominant influence or anything of that sort. I knew most of the professors in the mathematics department and most of the professors in the chemistry department. I was there four years and, at one point, I was going to take a master's degree and an Sc.B. at the end of the four years. The department didn't like giving two degrees at the same time and so they decided to give me an Sc.B. after three years. But W. A. Noyes, Jr., who was later the editor at *JACS*, used to claim that he did the glass blowing for my thesis experiments in my fourth year. I was well enough tuned in on the scuttlebutt in the math department. There was a lady