UCLA Statistics Commencement

2:00 pm,16 June 2012

Rick, thank you for inviting me. It is nice to see you and the other faculty that I have known through the years.

Being a part time sports statistician I have taken note of the Kings victory. Congratulations. In fact for many years I have had had a life-size poster of Wayne Gretzky, wearing a Los Angeles Kings uniform, in my Berkeley office. Enjoy the victory. My Toronto Maple Leafs haven't been champions since 1967, but I still delight in that victory.

Rick asked me to talk about "how wonderful the field of statistics is". No problem. I am happy to have the opportunity. I have forever loved my career as a statistical scientist, and in truth don't understand why everyone doesn't wish to be a statistician, but there is that look. I mean the look one gets when someone asks what you do and you say "statistics". A previous UC President once told me, almost proudly, that statistics had been the one course he failed. Hmmmh.

What I am going to do this afternoon is to talk some about a great American scientist, Rick's statistical grandfather,

John Wilder Tukey

(Rick, perhaps you know this already, but you owe JWT for your having an Erdos number as low as 4.)

John Tukey /Mr. Tukey / Dr. Tukey / Professor Tukey / JWT/ The Tuke was famous for pungent sayings. I will mention some of these. He was born June 16, 1915 in New Bedford. Massachusetts. He was a proud New Englander, apple pie for breakfast and he

bought his house using cash. There are many Tukey anecdotes and I shall mention a few.

JWT was a unique individual, as well as a professor, an executive and a consultant. For him the collective noun for a group of statisticians was a quarrel. I watched him a lot because I had never seen anyone anything like him before in my life. He was called upon continually to provide advice for presidents and the like. He created words and concepts like: bit, software, Colonel Blotto, fft and his marvelous creation EDA. He delighted in vague concepts avoiding specifics like primitive people avoid being photographed.

John Tukey is typically associated with Princeton and Bell Labs. He did have associations with UCLA. I can mention Will Dixon, who started your Biostat/Biomath group here in 1950. Will was John's friend and had been a colleague at the Fire Control Office in World War II days.

Tukey was home-schooled precollege and had learned to read on his own at age 3. Both parents were teachers. His formal education involved BA and MA degrees in Chemistry from Brown University, followed by a Ph.D. in Mathematics from Princeton in 1939. At his graduate celebration JWT became renowned for serving milk, rather than the traditional beer. In that connection the famous mathematician John von Neumann is reputed to have said, "There is this very bright graduate student, and the remarkable thing is that he does it all on milk."

One can find specifics of his theorems and results elsewhere, but I am going to try to bring out his character and impact for you all by relating things others said about him and some he said concerning his work. I think that it is very important that young statisticians and others know that America produced a great

scientist who was a statistician, a member of our community. He defended us, and he defined much of our work.

I begin the quotes with one by the renowned physicist John A. Wheeler.

"I believe that the whole country - scientifically, industrially, financially - is better off because of him and bears evidence of his influence.

...

John Tukey, like John von Neumann, was a bouncy and beefy extrovert, with interests and skills in physics as well as mathematics."

The former President of Bell Labs, W. O. Baker said,

"John was indeed active in the analysis of the Enigma system and then of course was part of our force in the fifties which did the really historic work on the Soviet codes as well. So he was very effective in that whole operation.

...

John has had an incisive role in each major frontier of telecommunications science and technology: uses of transistors and solid state; digital coding and computers; ..."

Tukey was very much involved in the construction of the von Neumann computer. In particular A. Burks wrote me that

"John Tukey designed the electronic adding circuit we actually used in the IAS Computer. In this circuit, each binary adder fed its carry output directly into the next stage without delay."

And now some quotes of Tukey himself.

"Perhaps because I began in a hard but usually non-deductive science - chemistry - and was prepared to learn `facts' rather than `proofs', I have found it easier than most to escape the mathematician's implicit claim that the only real sciences are the deductive ones."

"Doing statistics is like doing crosswords except that one cannot know for sure whether one has found the solution."

"A consultant is a man who thinks with other people's brains."

"The stronger the qualitative understanding the data analyst can get of the subject matter field from which his data come, the better - just so long as he does not take it too seriously."

"most statisticians are used to winning arguments with subject-matter colleagues because they know BOTH statistics and the subject matter."

"The first task of the analyst of data is quantitative detective work,"

"Well, what I think you need is folk dancing." JWT to L. Goodman

I have a personal story to show off Tukey's quick wit. After a great earthquake the Earth can vibrate for months. Traces of those oscillations give information on the Earth's structure. The seismologist Bruce Bolt and I developed a method to estimate certain Earth parameters using such data, and most importantly estimates of uncertainties. I half-boasted to John, that with the next great earthquake Bruce and I would be in the morning papers with estimates. John's response was, "What if it is in Berkeley?" Indeed.

Now conclusions.

"I believe that the whole country - scientifically, industrially, financially - is better off because of him and bears evidence of his influence."

There are rewards

Statisticians are the free-est of all scientists - they can work on anything. This has the nice effect of leading to many possible jobs.
Statisticians have the power to win arguments and to avoid losing them. (assumptions).

And now the advice,

Learn the theory
In consulting contexts ask, "What is the question?" (repeatably)
Be lucky, remembering that you make your luck

Support your local hockey team

and remember

Statistics don't lie and they don't sit well either.

Congratulations graduates, parents and friends. Thank you for your attention.