Roger Thatcher (1926-2010)

This year, we commemorate Roger Thatcher's 100th anniversary, his wonderful sense of humour, his joy for life, and his boundless energy made him a very special person. But the most impressive feature of his character was his passion for research. He never held any academic titles or appointments. But he proved that he did not need an academic title to do research. He served science because he loved science. He was one of that vanishing generation of "universal" researchers, active in various fields of science. His works are still cited in research papers or in the textbooks of statistics, demography, economics, number theory, history of statistics, inventory control, census of population and several others.

If we slightly paraphrase what Albert Einstein said once about Max Planck, we can say: If for some reason, academics stopped getting paid for their research, the Temple of Science would become catastrophically empty. But the Temple would not collapse since real scientists like Roger would remain inside to continue with the work of construction.

Of course he had remarkable natural research abilities. I know this well since I discussed many of his research papers with him and we even collaborated in writing one of them. He enjoyed research because ultimately it presented the most challenging tasks for him, and he loved challenges and loved to answer difficult questions. Like his favourite characters from the ancient world - Diophantus, Euclid, Aristotle and others, who were experts in all the sciences - Roger was also a universal man. He published papers in many different fields: in statistics, in mathematics, in archaeology, in physics, in demography – what a horizon one must have to be able to write academic papers and publish them in scientific journals of the highest quality!

Here are a few examples of his remarkable abilities, his knowledge, insightfulness, competence and brilliance.

His work on the ***Laplace's*** "Rule of Succession" reached an important conclusion in settling arguments between the Bayesian and frequency definition of probability (I actually read this in Kendall and Stuart book when I was a student in Russia – long before I met Roger himself!).

Following the great scientists of the past, ***Bernoulli, de Moivre and Huygens***, he solved the Duration of Play problem (also known as "gambler's ruin).

His mathematical work included a paper which would appeal to ***Diophantus***: to find five integers such that the sum of any pair is a square. Roger thought that it would be fun to try to solve it by his methods. Which he did!

As they often say nowadays, Roger was standing on the "shoulders of giants". If you consider that these works were produced while he had a full-time very demanding job in the Civil Service you would realise what an unusual man he was.

Incidentally, Roger's work on the ***1981 Census*** as Registrar-General for England and Wales was another lasting achievement that would go in the history of this country. The Census was a great success, because it was cheap (only £1 per member of the

population), short (only 20 questions in the whole questionnaire) and accurate (only 0.45% of the population was missed). It's a record that will be hard to beat.

When Roger retired he became involved in research on ***human longevity*** (with a small group of two professors and a UN demographer). To answer the question if there is a definite limit on a human life span, one has to use data related to very old age. But the data at these very high ages is notoriously unreliable. So, the Group set about collecting reliable data on 32 million deaths at ages 80 and over - the largest database on old age mortality in the world. This is now known as ***Kannisto-Thatcher Database*** on Old Age Mortality and it is used by demographers all over the world. I am sure this will survive long after we are all gone.

But as so often happens in life, it is not the major work that catapulted Roger into the category of celebrities – it is his relatively minor work answering a very simple question: **how many people ever lived on earth?** If you click on Google with this question you will be referred to Roger's work. Roger reported this work at the International Statistical Institute meeting in 1983, and since then it has been included in book after book – the most recent one was discovered by my son in a book called "Why don't Penguins' feet freeze?" To his surprise the answer about the number of people ever lived was given by his Grandpa – 60 billion people – about 10 times more than population of our planet today.

After he retired he also joined the University of the 3rd Age (**U3A**) at Kingston and set up a Science and Philosophy Group. Here are several talks he gave to the group: Do animals think?; Evolution and Morality; How does the brain make decisions?; Chance and Necessity; Free Will and so on. I didn't hear these talks but I'm sure they were memorable: Roger had a special gift for explaining complex ideas in simple English –no doubt with a few jokes.

I have said today how much Roger's enjoyed jokes and mentioned his marvellous sense of humour. Here is the end of his talk to the British Society for History of Mathematics: "a very old lady, a centenarian, was being interviewed on local radio. She was one of those centenarians who look as bright as a button and she was obviously very happy. The interviewer asked "What is it that makes a centenarian feel happy?" She said "The reason why I'm so happy today is that I've just managed to get my daughter into an old folk's home".

I talked to Roger last time in January when he was already very ill. But, we had a very lively discussion about quantum mechanics. His spirit stayed with him all his life and helped him to make what he was, a great scientist and a great human being.

We can talk about his work and research for a long time. But the main thing to remember is how much he enjoyed his long, happy and interesting life. Thank you, Roger, for teaching us this.