Yesterday's Sensation: Tomorrow's Calibration. An after-dinner speech at DIS 2009

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Pleasant Company makes for a good dinner and a good conference. It is amazing that this conference has been organised, and organised so well, by only four people. Our thanks go to Claudia, Agustin, Juan and Cecilia.

Conferences are important as a way of developing the field, and it is good to come to one. Indeed, when one is young one is keen to go to any conference anywhere. Then one gets more picky, and goes only if one is allowed to speak. Then one goes only on the day one speaks. Then one goes only if one is allowed to choose who else speaks. Then one goes only to the dinner. The last phase is to send a message to the dinner! Here is my message.

I want to talk a bit about names and fame. Having basked in reflected glory as Kelvin Professor of Physics, I am now retired and have to stand on my own two feet. But happily it turns out that if you can't be called Kelvin, being called David Saxon is pretty good. A Google search pulls out two of us in Particle and Nuclear Physics. The older one, now deceased, was famous as the co-inventor of the Saxon-Woods potential and later as President of the University of California. When I was younger I was regularly mistaken for him. The Chinese were particularly respectful. But it had a certain down-side when I worked in Berkeley during the 'People's Park' riots.

The last time this confusion arose was as follows. I was alone in a bowling alley in Split in what was then Yugoslavia, having arrived by the night train too early for the Summer School. Amongst its novel (to me) features, the bowls had no finger-holes. A jolly bunch at the far end beckoned me over and thrust small glasses of colourless liquid into my hand when they learned I was there for the physics. They gave me their names, but were reduced to silence on hearing mine. I explained that I was not the David Saxon, but they insisted. It emerged that they were all repeating my thesis. There is no answer to that.

My Oxford thesis took me to work during riots at both Berkeley and Paris. Being afraid that I would lose my identity in a large group of say ten people, I had insisted on a thesis experiment on my own. I later found out that this meant I had no priority and had to travel to find facilities. Fate took revenge on my choice of Science rather than French at school. People at Saclay were very kind, but I felt like that character in the British television series Allo-Allo: they sent me because I can speak Fronch.

As a postdoc I went to Fermilab while it was still incomplete. It was managed in a courageous style. This optimism left some rough edges - such as the two so-called 'bastard' quadrupoles (wired up NNSS not NSNS) that found their way into so many beam lines, or the fact that fifth-generation main ring magnets had the highest failure rate. One episode that affected us was the shortage of magnet power supplies. The manufacturer declared that they could not be made to work. Nevertheless, they were delivered and paid for as the budget and calendar year closed. Our section's Christmas party was interrupted first by the

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demand to wind 200 sextupoles by hand (we started with our drinks unfinished) and then by the news that the power-supply company was nowhere to be found.

Magnet power supplies became very precious. A 48-hour beam run would begin slowly as power supplies were removed from other beam lines and trucked in to our Spartan power house. In the outer parts of the lab there were no drains and no running water. One morning during a lull in the inward flow of power supplies I wandered into the power house to see my loyal technician draining deionised water from a power supply into a bucket to wash the floor. In answer to my questions he replied, 'It is my Saturday job. I am a cleaner.' The over-temperature alarm bells quickly rang out and run ended very soon afterwards.

So we lost time and lost physics. But we studied Drell-Yan processes before Drell and Yan (working from a paper by Yamaguchi). The Drell-Yan paper served to reduce our searched-for cross-section by a factor of three through introducing colour. Deep inelastic scattering was born with huge errors and a cryptic notation, now happily replaced. DIS was regarded with some scepticism by the more conservative experimenters and the first mention of 'broken scaling' was greeted with spontaneous laughter. But I got to work on the first-ever identification of high-energy electrons and muons using a magnet and a calorimeter with depth segmentation, and I did design the magnet that found the Upsilon. Bringing on a new accelerator alters perspectives - in one day at DESY the best feature of the ZEUS calorimeter went from being its energy resolution to its time resolution.

The use of names to commemorate discoveries and inventions illuminates the history of science, but it has a perhaps fickle nature. Everyone knows that Mr Geiger invented a counter, but who knows that Sam Curran invented both the scintillation counter and the proportional counter? Fame can of course be well-deserved and Guido Altarelli remains undiminished by the evolution from the expansively named Altarelli-Parisi equations to a single letter in DGLAP.

Has the search for fame affected me personally? Many years ago I found a newspaper clipping stuck to my office door which said 'Erratum - in last week's edition of Nature the Nobel Prize for Physics was mistakenly awarded to David Saxon.' That wasn't me, by the way, and it still isn't. But it was later explained to me by a lady who knows how to get the Nobel Prize in Physics and I pass this on now. 'It is not a reward for lifetime's achievement. It is for doing one thing right. Mistakes, in fact, do not matter. And therefore, David, you still have a chance!'