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Pierre Gy Tribute

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I commenced work with CSIRO (Commonwealth Scientific and Industrial Research Organisation) in Australia in November 1971, working on nuclear methods for on-stream and bulk analysis of mineral commodities, particularly iron ore. My interest in sampling grew from the need to calibrate the nuclear methods for analysis that I was developing against accurate conventional analyses, and I discovered to my dismay that the sampling and subsequent analysis of the bulk samples that I was using for calibration purposes left a lot to be desired, and the resultant analyses were not accurate enough. This led to more than 40 years involvement in promoting and developing improved methods for sampling mineral commodities such as iron ore, coal and base metal ores and concentrates, as well as improving and/or developing ISO (International Standards Organisation) sampling standards for a range of mineral commodities, drawing of course on the remarkable work by Pierre Gy in the sampling area.

I first met Pierre at the First Australian International Bulk Materials Conference in Sydney in 1982, where he presented a paper entitled "Sampling of high capacity streams". This paper was a terrific summary of the key requirements for sampling moving streams and a "watershed" event for me, convincing me that I had to learn more about Pierre Gy's sampling theory and practice as elucidated in his seminal book entitled *Sampling of Particulate Materials—Theory and Practice*. I did not meet Pierre face-to-face again until August 2003 in Esbjerg, Denmark, at the First World Conference on Sampling and Blending (WCSB1) organised by Professor Kim Esbensen, but we did correspond from time to time over the intervening years. In fact in 1988 Pierre agreed to be one of the referees for my successful CSIRO promotion case, and he encouraged me to continue work on teaching the mining industry about correct sampling practice. To assist me in this task, he provided me with a complimentary copy of his most recent book at the time entitled *Hétérogénéité* Échantillonnage *Homogénéisation—Ensemble cohérente de théories*, which was still in French—a bit of a challenge for me to read with my limited French language skills! At Pierre's request, I also had the honour of presenting on his behalf an invited paper entitled "Theory of Sampling" at a TQM Symposium held in Melbourne, Australia, on 4–5 December 1995 that Pierre was unable to attend and present in person. Incidentally, I also received encouragement from Allan (Bon) Royle from the University of Leeds, whom I invited to a conference in Sydney as a Keynote Speaker. Bon had a strong association with Pierre Gy and played a major role in translating into English the entire French manuscript of one of Pierre's sampling books, which was a key factor in Bon being awarded the first Pierre Gy Gold Medal at WCSB1 in Esbjerg in 2003.

The task of revising ISO Standards to conform to Pierre Gy's sampling theory and correct sampling practices has been an arduous journey for me, requiring much persistence and patience. Considerable progress has been made, but there is still room for improvement. One of my first attempts at updating an antiquated ISO sampling standard to be consistent with the teachings of Pierre Gy was for coal and coke. I submitted a revised draft for discussion at the ISO/TC 27/SC 4 meeting held in Lexington, Kentucky, in USA. However, after my introductory comments pointing out the deficiencies of the existing standard and the need to revise the Standard according to Gy's theories and practice, the committee passed a "gag" motion that Australia would no longer be heard! The committee simply did not want to hear about Gy's sampling theory and rock the boat. Anyway, the strategy eventually failed and at the next meeting two years later the participants were prepared to listen to what needed to be changed to conform to correct sampling practices. Curiously, I am now the international chair of that very same committee and the latest revision of the ISO coal and coke sampling standards are in much better shape.

While our paths did not cross in Bougainville when the copper/gold mine was still operating, we both visited Bougainville Copper to assist with improving sampling practices. One of Pierre's proposals that was implemented was to use sector cutters on the ground to sample blasthole cuttings. Our mutual friend John van der Linden, who was Chief Chemist at Bougainville Copper at the time, tells a number of stories about Pierre's adventures trekking around Bougainville Island. In fact we almost lost Pierre on Bougainville while

Pierre Gy in Bordeaux.

engrossed in photography, which was one of his hobbies together with mountain climbing. John tells the story of Pierre stepping backwards to get a better view for a photograph and accidentally stepping off the edge of a cliff. Fortunately, Pierre was able to hang on to the edge of the cliff, presumably with the assistance of some of the prolific local vegetation, and was safely rescued.

The second time I had the honour of meeting Pierre Gy was at WCSB1 in Esbjerg in 2003. It was inspirational to be in Pierre's presence at the conference and to hear his personal account of his 50 years involvement in the theory and practice of sampling. At the end of the conference, the location of the next conference was discussed and it was great to have Pierre's support for holding WCSB2 in Australia, which I subsequently organised and chaired in association with The Australasian Institute of Mining and Metallurgy (The AusIMM). In Esbjerg I had promised a beautiful tropical environment for WCSB2 on the Queensland Sunshine Coast. However, what I had not anticipated was "tropical rain" over the whole three-day period of the conference! Still, this ensured good attendance at the conference itself. Unfortunately, Pierre was unable to make the long trip down to Australia for WCSB2. One of my treasured possessions is a copy of Pierre's book *Sampling of Particulate Materials—Theory and Practice* signed by Pierre Gy himself after the conference with the hand written message "To Ralph with congratulations on WCSB2. Best personal regards, Pierre Gy".

The last time I met Pierre was immediately after the WCSB7 conference in Bordeaux, France, in June 2015. A small group of delegates made a short visit to the nursing home where Pierre was residing at the time. Pierre was presented with a copy of the Proceedings signed by all the authors and he engaged in conversation with those present. At the WCSB7 conference dinner, I was most honoured to receive a Pierre Gy gold medal for "Excellence in Teaching and Application of the Theory of Sampling". It was a truly humbling experience to receive an award named after such an eminent person in the sampling domain. Thank you Pierre for your encouragement over the years.

It was very sad to learn of Pierre's passing in November 2015, which was not very long after my last meeting with him in June 2015. However, Pierre leaves behind an unparalleled sampling legacy for us to continue to teach and promote.