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Preface

Frigyes Solymosi: A tribute

I first came across the name of F. Solymosi when Patrick (P.W.M.) Jacobs, a friend at the University of Western Ontario, Canada, drew my attention to the book entitled "*Structure and Stability of Salts of Halogen Oxyacids in the Solid Phase*" a subject close to Patrick's and my heart (especially in the early 1970s) since we each were interested in the solid-state properties of the important explosive ammonium perchlorate. I had also been told of the "*ingenuity of the Hungarian worker Solymosi*" by my Soviet friend Vladimir Boldyrev who worked in Academagorod at the Siberian branch of the U.S.S.R. Academy in Novosibirsk. When my two papers were written with these eminent solid-state chemists [1,2], we frequently compared our observations and understanding of our subject with what Fritz Solymosi – no one seemed to call him Frigyes – had earlier proclaimed. It later transpired that Fritz also wrote articles with Vladimir and Patrick [3,4]; and so it was, without having actually been introduced to him, I felt I knew Fritz very well from his work and from what I had been told about his winning personality.

Quite coincidentally, my colleague in the University of Wales, Howard Purnell, of Swansea – I was then at Aberystwyth – told me round about 1972 that he had visited Szeged and had been charmingly looked after by Fritz, whom he (Howard) said was such a good footballer (soccer player) that he was considered for inclusion in the first league team! So I was keen to meet this man, not only for his scientific attributes, but also because of his multi-dimensional character.

Imagine my delight when, in the early autumn of 1973, I received an invitation to visit the great Professor Solymosi and Professor F. Marta at the University of Szeged in the depth of winter (November) 1973.

My visit there was to give two lectures in the Szeged Laboratories of the Hungarian Academy of Science – in addition to one in Eotvos University in Budapest – all devoted to solid-state chemistry, with some novel results from our high-resolution electron microscopy as well as from early investigations into X-ray induced photoelectron spectroscopy (XPS). The latter interested Fritz very much, especially when I showed that it was readily possible by XPS to detect sub-mono-layer amounts of oxygen on a graphite surface [5].

I was particularly struck by the scientific programme that Fritz and his colleagues pursued in their laboratories those days, and I was equally impressed by his depth of understanding of surface phenomena. Thereafter, upon my return to the UK, I always kept an alert eye open for papers published by the Solymosi group, the most highly cited (it has since been established) in surface science and catalysis in the whole of Hungary.

Ever since my first visit to Szeged – I have been there on two subsequent occasions (once when Fritz kindly arranged for my late wife and me to attend the Budapest Opera House to be entertained by a beautiful Mozart opera sung in the mellifluous Hungarian language) – I have kept in touch with Fritz through the innovative experiments that he and his colleagues have pursued over the years.

I remember well being impressed by the Solymosi, Erdőhelyi and Bánsági paper [6] which described the methanation of CO_2 on supported Rh catalysts. This is now a topic of much commercial relevance, for there are many sources of natural gas worldwide where methane and carbon dioxide co-exist. The other series of papers from the Solymosi group that has elicited much public acclaim is the aromatisation of alkanes and ethers that he succeeded to achieve with carefully selected and even more carefully characterised solid carbide catalysts. [7] More recently, the two papers that he published with Tamás Bánsagi (his long-standing and charming co-worker) on hydrogen production from methanol [8] and also from dimethyl ether [9] over supported noble metal catalysts, are of great technical interest because the quest to find cheap, reliable ways of generating hydrogen is at the heart of the promising hydrogen economy [10,11].

Throughout his scientific career, Fritz Solymosi has used the highest experimental and intellectual standards to further our knowledge of the myriad processes that can take place at solid surfaces. He has developed and deployed many new techniques and adapted established ones so as to retrieve information of a novel and important kind. He has carried out many difficult and demanding experiments – like his field ionisation study of perchloric acid on Pt and W surfaces, work that he did with Professor Jochen Block in Berlin thirty-five years ago. He discovered the phenomenon of strong-metal-support interaction (universally described now as SMSI) many years before it was re-discovered, amid much publicity, in the USA.

I have valued my friendship with Fritz Solymosi and his wife Agnes, an impressive and reflective journalist. They were the very first couple that Margaret, my late wife, and I entertained in the Master's Lodge in Peterhouse, Cambridge, when I took up my responsibilities as "Head of College" seventeen years ago. It is always a pleasure meeting him at scientific conferences and listening to the penetrating questions that he puts to speakers after they have made their presentations. It is good to know, as I discovered in a recent telephone conversation with Dr. Bánsági, that Fritz still exudes the same passion and enthusiasm he has for science, just as he did when I first met him in 1973.

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