

# Sir John Ivan George Cadogan CBE FIC FRS FRSE FRSC 8 October 1930 – 9 February 2020

## Eulogy: Professional Life

“John Cadogan was the most able, active and effective scientist, chemist, administrator, lecturer, organiser – and all wrapped into one person.”

“He was exceptionally quick witted, an excellent writer, and from early on an international figure in science for he was personable, witty, sharp and always insightful.”

This description by Sir John Meurig Thomas will be recognised by many here today. John Meurig began his close friendship with John in 1968. Together, they were a redoubtable force in British science!

John Cadogan lived a very Big Life, and operated at the highest levels. I will try to remind us of the scale of his achievements and influence.<sup>1</sup>

### Scientific Beginnings

John was a product of Swansea Grammar School. In 1948, he went to study chemistry at King’s College, when London was recovering after the War – a war that had devastated his native Swansea. He became a PhD student of Donald Hey (1904 –1987), who John admired greatly.<sup>2</sup> Hey was educated in chemistry

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<sup>1</sup> I thank John Meurig Thomas, Charles Stirling, and Bill Duncan for reflections and information.

<sup>2</sup> J I G Cadogan and D I Davie, Donald Holroyde Hey. 12 September 1904-21 January 1987 *Biographical Memoirs of Fellows of the Royal Society*, 34 (Dec., 1988), 294-320.

at Swansea University beginning in 1923, and rose to be an extraordinary chemist famous for his discovery and championing of free radicals, starting already in 1934. Free radicals were then very controversial and much disputed but they changed the direction of organic chemistry and found applications *everywhere*. In his PhD, John studied free radicals, and the generation and behaviour of organic radicals in solution continued as a mainstream of his research throughout his career.

A fellow PhD student of Hey, sitting at the next bench was Charles Stirling. Charles also became a highly distinguished organic chemist and lifelong friend; last week he wrote that

“Outside my family, John had more influence on me than any other person. ... I mourn his loss and am eternally grateful for his friendship and his huge benevolent impact on my life.”

Charles recalled John at King's:

“On my first Monday there, he announced that we were going to sing with the London University choir. I was totally musically illiterate and had never sung a note in my life. Typically, of John, he would not take no for an answer and this was the start of my lifelong interest and performance of serious music. In the choir, I met Eileen who became my wife ...”

When it was time for National Service, John managed to avoid military discipline and square bashing as he found a position at the Ministry of Defence

Chemical Defence Establishment at Porton Down. He found Porton to be full of bright people and to have a liberal, curiosity-driven research culture. He was told to explore phosphorus, which he did. It became a subject he continued to work on for the rest of his career. His work was pioneering and opened up the synthesis, behaviour and application of organic phosphorus compounds.

Charles joined Porton with a similar fellowship a year later:

“Again, we were in the same lab and in the evenings away from Porton, we sang with the Salisbury Musical Society choir and took book-binding evening classes with Mr Bailey, the librarian of Salisbury Cathedral.”

### **Academia**

After Porton, John returned to a lectureship at King’s College in 1956. Some six years later, he was offered the Purdie Chair of Chemistry at St. Andrews; he was 32 years old. Six years on he moved to the Forbes Chair at Edinburgh.

John enjoyed talking of these years and had lovely tales of the grand style of professorial life offered by these institutions – especially St Andrew’s – in those years; it was a life that he enjoyed greatly ... while attempting to reform and modernise!

### **BP Research**

His consultancy work with BP led him to leave academia in 1979 and move full time to BP as Chief Scientist at the BP Research Centre, Sunbury-on-Thames.

Three years later he was global Director of Research at BP. He set about creating a truly formidable research organisation for BP firmly based on

- (i) scientific talent and scientific adventure born of curiosity,
- and
- (ii) sharp analytical attention to the current and future problems of BP's business sectors (such as Exploration, ... ).

John's deep embedding of research into the operations of the vast business sectors of BP enabled him to grow the BP research budget from \$60 million to \$450 million per year. He put budgets of £3m at the disposal of his top scientists. BP produced all sorts results for all sorts of problems, such as super-fast efficient fire stoppers (important for the rigs), measures to manage large-scale oil spills, and solar technologies and green chemistry. For example, John allocated \$50 million for a programme devoted to reducing BP's huge energy usage in its production processes, and becoming champion and chair of BP's powerful solar photovoltaic sector.

As Director of Research at BP, he was much in demand, not least as a director or chair of many BP subsidiaries – from BP Chemicals to BP Advanced Composites to BP Venture Capital. The global nature of BP Research led to individual working days in the USA thanks to Concorde and BP private jets. But John was interested in all aspects of BP science, giving his research groups cameras and asking them to make videos to keep him up to date on what they were up to.

John received his knighthood in the 1991 New Year Honours. His time at BP ended in 1992.

After leaving BP, John was appalled when John Brown's promotion to chairman of BP created a new strategy in which the financial emphasis and acumen of Brown was focussed on share price: chopping the substantial cost of BP Research was an easy financial target. John found chopping BP Research an act of vandalism and folly that diminished the power of the company and introduced worrying long-term risks. John knew that the dismantling of BP Research meant that much expertise, inventiveness, technical understanding of the business sectors, corporate memory and culture would disappear. One of the greatest calamities was the *Deepwater Horizon* oil spill in the Gulf in 2010, where inadequate and outsourced expertise and BP technical audits played a role. John wrote to the then Chairman as soon as the story unfolded.

### **To Government**

John's next task was the result of William Waldegrave's excellent paper *Realising our Potential*. It created a Director General of the Research Councils in an Office of Science and Technology. John was the first DG and took on the job with relish from 1994 to 1998. With his knighthood secured, the usual Whitehall incentive *not* to talk too much truth to power was redundant. He could talk as loudly as needed! Here he formed strong partnerships with the Chief Scientific Advisors, Bill Stewart (1990-95) and Bob May (1995-2000). By 1998 his Office had around 50 people and a budget of £1.33 billion. John was particularly pleased to have made the case for Science receiving the largest percentage increase among all government departments in the first Comprehensive Spending Review for 1999–2001. Crucial to his arguments was the famous Appendix to the Comprehensive Spending Review which posed and answered in 100 short bullet points the Treasury's question: *What did the Research Councils ever do for us?* Top of the list was the annual design of the

flu vaccine. What worked for the business sectors in BP, John found could work in Westminster.

Again, he was called upon to serve Government by chairing the Defence Scientific Advisory Council for eight years, and the Defence Nuclear Safety Committee, also for eight years. Before entering the civil service, he was a member of the Royal Commission on Criminal Justice (1991–1993). His scientific advice led to a major change in the law enabling widespread use of DNA in criminal cases.

### **Academia Again**

Throughout his career, John supported the academic world through funding agencies, learned societies, and charities. He was President of the Royal Society of Chemistry, Vice-President of the Royal Society of Edinburgh and of the Royal Institution, and was twice on the Council of the Royal Society, to name just a few.

### **Wales**

John served Wales in many ways and was close to Swansea University through his deep friendship with Professor Howard Purnell.<sup>3</sup>

He was a member of the first Funding Council for Wales, HEFCW, and created and chaired its research committee with £6m to boost research groups in Wales. Welsh universities were relatively and seriously underfunded.

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<sup>3</sup> Sir John Meurig Thomas, Howard Purnell, *The Independent*, Wednesday 17 January 1996. <https://www.independent.co.uk/news/people/obituary-professor-howard-purnell-1324382.html>

He mobilised Wales' top scientists and led the campaign for the devolved Welsh Government to have a Chief Scientific Adviser, causing a public U-turn by the then First Minister. The current CSA is the third in that post.

When, at long last, the time came for Wales to create a national academy, the Learned Society of Wales, John became its President, first of the shadow Council charged with making it happen, and then of the formally constituted Council. I was privileged to be chosen by him to be the Society's General Secretary. His huge experience and knowledge, and vast network of people, was available to the Society. In those early days, I think that the authority of the Society was created and underwritten by John's evident total commitment.

With his run-in with the Welsh Government over a Chief Scientific Adviser for Wales fresh in his mind, he decided to tackle another irritating and longstanding problem. He persuaded the new Society to target the serious underfunding of the Welsh Universities. John gave the then Minister of Education and his officials a very hard time. The new Society meant business!

Something that was important to him was his manifesto *Curiosity-driven 'Blue Sky' Research: a threatened vital activity?* (June 2014). He questioned misguided assumptions about value of funding blue skies research; analysed and celebrated the impact it has on our economy and quality of life; and criticised the heavy contemporary emphasis on well-funded directed research programmes often cooked up by vested interests. To do this he collected and published testimony from many of the UK's top scientists and engineers.

There so much more to say: about more chemical topics<sup>4</sup>, patents, societies, initiatives, honorary degrees, fellowships and medals. There is his huge personal dedication to scientific outreach, lecturing to thousands of young people. Only last year he launched his company on the London stock exchange.

Chemistry World described John as an “Industry and academic chemistry titan”. A titan he certainly was.

**John V Tucker,  
2 March 2020**

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<sup>4</sup> He renewed investigation into vacuum pyrolysis to produce simple routes to valuable compounds from cheap starting materials and into stereochemistry, using chiral bicyclic compounds in enantiomer resolution and synthesis. Some of this work appears in patents.