

## Godfrey Stafford – a man with a vision

### An appreciation

I first met Godfrey in, I think, 1958 when, as a young (very young I hasten to say) postgrad, I made a visit to the Chilton site with one, Mike Moore, who was a key figure in Liverpool University's Nuclear Physics Lab where I had just completed and submitted my PhD. In those days, the newly created National Institute for Research in Nuclear Science's (NIRNS) Laboratory consisted of a growing large hole in the ground and a number of single storey temporary offices, and buildings that were going up quickly to house the 50 MeV Proton Linear accelerator for which Godfrey was responsible under the Lab's founding Director, Dr Gerry Pickavance. I have memories of meeting this energetic physicist who showed us round the PLA buildings; his energy, his piercing eyes and his South African accent have stayed with me ever since.

I was a member of a DSIR-funded team led by Clifford – later Sir Clifford - Butler drawn from Imperial College, Birmingham and Liverpool Universities to build what, in its day was to be one of the world's three largest liquid hydrogen bubble chambers. The device was to be installed and commissioned here at the Rutherford High Energy Laboratory before being disassembled and taken to CERN. I didn't realise it at the time that I was seeing, in action, an approach to doing science that was to become the permanent and impressive legacy of Godfrey who never viewed **HIS laboratory**, I think that that is the best way to describe it, as an ivory tower research institute similar in ethos to Harwell or the NPL. From its very beginnings, the Lab has been what French literati might call an *Institut san Murs*. It was, and I believe still is, dedicated to making it possible for Britain's university researchers to operate with world-class apparatus at the forefront of their fields. The concept has always been, and long may it

continue to be, that of partnership with neither Rutherford nor University staff calling the shots. I believe that this pattern was established with Godfrey's direction of the PLA and continued seamlessly as the Lab grew to accommodate wider and wider areas of science and technology.

As I shinned up the seniority ladder and returned from a spell in CERN with the Bubble Chamber in 1966, I became more closely involved with Godfrey when, in 1969 he succeeded Gerry Pickavance as Director. Godfrey was not always an easy man to work with; perfectionists never are. He set unimaginably high standards for himself and expected a similar level of performance from all of us. I mustn't jump ahead too quickly but when I was occupying the Director's office from 1986, a visiting researcher once remarked to me on the immaculate tiling, cleanliness and arrangement of the men's lavatories on the site – it is matters like this that are the pre-occupation of Directors – I replied by claiming no credit for this, it was one of my predecessors, Godfrey Stafford, who was of the view that whether it be a lavatory, laboratory a clean room or a car park, the highest standards must to be applied.

Under Godfrey, and since his time as Director the name of our Laboratory has changed several times but the '**Stafford-inspired' ethos** has never changed. Although the Lab has changed radically. Rutherford High Energy Laboratory, the home of Nimrod and the PLA was no longer an appropriate name when we merged with the neighboring Atlas Computer Laboratory. In any case, the centre of gravity of European particle physics research was moving to CERN, an institute strongly supported by Godfrey and influenced strongly by him to have the '**Stafford' ethos** making it a place for Europe's university physicists to have access to world-leading equipment, a role that it still fills although now, we should replace Europe's with the World's.

By 1970, my job had forced me more firmly into Godfrey's immediate sightlines. As head of Nimrod Division's Experimental Facilities Group I was responsible for much of the on-the-floor operation in Nimrod's experimental halls. When things didn't perform properly, the searing eyes and searching questions quickly probed for the weaknesses and caused effort to be redoubled. This is not by any means uniquely my experience; everyone from Division heads to transport drivers came, from time-to-time under the closest scrutiny.

When in the early 70s Godfrey realised that the use of neutrons for solid and liquid state studies was growing rapidly in the university community, he established a Neutron Beams Research Unit to apply the '**Stafford**' principle to supporting them. He pushed forward a study of the possibility of constructing a high flux beam reactor in the UK to complement the UKAEA's reactors at Harwell and at Aldermaston. The reactor was never built but the NBRU became a powerful engine for supporting the use of the Institut Laue-Langevin's beam reactor in Grenoble.

Growth in the Lab's widening horizons gathered speed under Godfrey's relentless pursuit of his mission. When five university groups all proposed to the SRC that a step functions in laser power should be funded at each place, Godfrey, led an initiative in the SRC and convinced the interested parties that the best solution would be for one super-laser to be built at the Lab. It was at this time that my own relationship with Godfrey became very close because he chose me to take a leading role in this project for the Lab until a suitable leader for academe, Professor Alan Gibson supported by Mike Key as it turned out, could be appointed.

Once again, Godfrey stuck to his vision. There were powerful figures in Harwell and Aldermaston who argued that a high power laser dedicated to the creation and study of ultra-dense plasmas would enter a restricted area of science and must be installed on a secure site (AERE) to which entry could be controlled. Godfrey successfully fought these powerful lobbies and the High Power laser facility was built on our open-access site and available to university users without any requirement for vetting and security clearance.

Hot on the heels of the Central Laser Facility followed the creation of an electron beam lithography unit and the merger with the Appleton Laboratory and another name change to its present Rutherford Appleton Laboratory. Increasingly, researchers from industry were merging seamlessly with the academic community.

Following the failure to get approval for a new high energy machine, EPIC, in the UK, a project into which Godfrey had invested a huge amount of energy, including the stimulation of world-leading advances in superconductivity, the closure of NIMROD became inevitable. Realising that without NIMROD, the future of **HIS LABORATORY** would be at risk, Godfrey, ably supported by Geoff Manning and the accelerator teams led by David Gray convinced the funding agencies that much of the NIMROD infrastructure and plant could rise, Phoenix-like, as ISIS, the world's most powerful spallation neutron source. He brought in Alan Leadbetter alongside Andrew Taylor to lead the scientific preparations for the new facility and the legend goes on even to today as, 30 years later, ISIS and RAL have lead the world in the use of short pulses of neutrons, and rather surprisingly muons, for the study of condensed matter, an initiative that extended the '**Stafford**' philosophy of supporting university and industrial research through world-

class centrally provided equipment to an ever widening community.

When Godfrey resigned in 1981 leaving RAL in the impressively capable hands of Geoff Manning, his commitment to HIS Laboratory did not diminish in any way. I know well that when I was appointed Director to follow Geoff in 1986, Godfrey was a regular visitor to my office for a cup of coffee and a chat but in reality to reassure himself that I was not driving His laboratory off the rails.

These visits continued throughout my 12 years in the hot seat and after my retirement, and right up to two weeks before his untimely death last year, we met from time to time with other retired colleagues to put the world to rights. Additionally, Godfrey and I were received graciously by Andrew on visits back to the Lab so that Godfrey (and I) could be reassured that the Stafford vision was still faithfully being followed.

Throughout this brief canter through my memories of Godfrey, I have been remiss not to mention the hospitality he showed with his wife, Goldie, and the friendship and committed mentoring of visitors, members of his staff and young scientists, all of whom, like me found behind the steely determination of a man who would have things 'done properly', a man of real warmth and friendship.

It has been one of the great privileges of my life to have known, served and worked with one of the world's great Laboratory Directors. Godfrey showed the world how to run a Laboratory.

Thank you, Andrew, for asking me to speak on this day of Celebration.