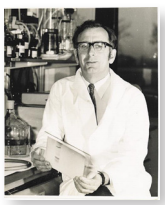
R.M.C. (Rex) Dawson, FRS, 1924–2021



Rex Dawson and his brother Douglas spent their early years growing up among an extended family in the village of Stoke Golding in Leicestershire. When he was 11 his parents moved to the nearby town of Hinckley where Rex went to the local grammar school. He left Hinckley with a scholarship to take an undergraduate degree in applied and theoretical physics at University College London and was awarded first class honours.

Rex began his research career doing a PhD in Dennis Richter's lab in Cardiff, studying a number of metabolites in brain and examining how they changed under various conditions (he once told me that the first thing he had to do when joining the lab was to build his own Geiger Counter!). Among the compounds studied were metabolites of phospholipids, and during a Beit Memorial Fellowship he extended this to the phospholipids themselves. He then moved to the Biochemistry Department in Oxford where he switched to a Betty Brookes Fellowship and it was there that he started to make a major impact on phospholipid biochemistry.

At that time (early 1950s) there was no simple way to study the metabolism of individual phospholipids as the only way to separate them was by laborious column chromatography, so Rex invented an entirely novel approach: he deacylated the phospholipid extract and then separated the glycerophosphoester 'backbones' by two-dimensional paper chromatography and ionophoresis. This revolutionized the study of phospholipid metabolism. In 1953 Lowell and Mabel Hokin had observed that acetylcholine stimulation of pancreatic slices increased the incorporation of ^{32}P into phospholipids, but at that point they could go no further (Mabel told me the first time I met her in the 1980s that "Rex saved us"). In 1954 Rex published his classic paper [1] demonstrating the complete separation of glycerophosphoesters, and also showing that acute ^{32}P labelling of brain or pancreatic slices resulted in the labelling of only the inositides (especially 'diphosphoinositide') and phosphatidic acid. The next year the Hokins used Rex's method to show that the same was true of their acetylcholine-stimulated ^{32}P incorporation, and thus the famous 'PI effect' was discovered.

Shortly after this Rex was recruited by Sir Rudolf Peters to join the Biochemistry Department at the ARC Institute of Animal Physiology in Babraham, just outside Cambridge, that he (Peters) was setting up. Rex was to spend the rest of his career there, during which numerous other breakthroughs followed. To take only a handful, the most highly cited, Rex's lab (independently or co-) discovered: phosphoinositide-specific phospholipase C [2]; triphosphoinositide (now known as PIP(4,5)P_2) [3]; the Ca^{2+}- and Mg^{2+}-dependent enzymes that respectively split or dephosphorylate PIP_2 [4]; phospholipid exchange proteins [5]; and the mechanisms of hydrogenation of unsaturated lipids by ruminants [6]. His classic work with Alec Bangham on the effects of the pressure and surface charge of phospholipid monolayers on phospholipase activity [7] set the ground rules which still govern our understanding of how lipid-metabolizing enzymes deal with their structured hydrophobic substrates. In the 1970s and 1980s his lab undertook many studies to understand the 'PI effect' and its enzymology, and it was in some of these studies that I became involved [8] when I joined his lab in 1975.

Rex's science was governed by rigour and incisive insight, and he left a lasting legacy that still impacts on our understanding of phospholipid function. His election as an FRS was widely welcomed, especially in the world of lipid biochemistry. Rex also made other important contributions to science. As Honorary Publications Secretary to the Biochemical Society he oversaw a reorganization and rationalization of the Society's publishing enterprise that laid the foundations of its financial security for decades. With Bill and Daphne Elliott and Ken Jones he edited *Data for Biochemical Research*, an encyclopaedia that for decades was the 'go-to' book for any biochemist wanting information on biochemicals, buffers, properties of molecules, etc. (His family recall long evenings sorting piles of filing cards as the information behemoth grew!)

Rex married Elizabeth Hodder in 1946. Their two children, John and Anne, and their grandchildren Lindsay, Jonathan, Amy and Emma, and James and Joseph gave him many hours of pleasure. In his later years, after Elizabeth died, Rex found solace in the companionship of June, whom he married in 2009. His main passions outside science were sailing (off the North Norfolk coast, the rougher the weather, the better!) and tending to his huge garden. When he retired in 1984 he threw himself into these activities with the same gusto as he did his science. But it was always a quiet gusto. He was a quiet and modest man, always supportive of those who worked with him: not least Norma Hemington who was his faithful technician for 30 years. His quiet, dry sense of humour often caught people unawares, even those who knew him well. A great scientist and a remarkable man who fundamentally changed our understanding of phospholipid metabolism and function. ■

Robin Irvine (University of Cambridge)

References

- 1 Dawson RMC. Biochim. Biophys. Acta 1954;14:374–9.
- 2 Dawson RMC. Biochim. Biophys. Acta 1959;33:68–77.
- 3 Dittmer JC, Dawson RMC. Biochim. Biophys. Acta 1960;40:379–80.
- 4 Thompson W, Dawson RMC. Biochem. J 1964;91:233–6.
- 5 McMurray WC, Dawson RMC. Biochem. J 1969;112:91–108.
- 6 Wilde PF, Dawson RMC. Biochem. J 1966;98:469–75.
- 7 Dawson RMC, Bangham AD. Biochem. J 1959;72:493–6.
- 8 Irvine RF, Hemington N, Dawson RMC. Eur. J. Biochem 1979;99:525–30.