FRANCIS PATRICK JOHN DWYER

Those who met Dwyer were immediately aware of a contagious enthusiasm and of the intense loyalty which he aroused in his collaborators. His sudden death on 22nd June, 1962 at the age of 51 at his home in Canberra was a loss to all.

At the time of his death Frank Dwyer was Personal Professor and Head of the Biological and Inorganic Chemistry Unit in the John Curtin Medical School at the Australian National University. His path into biological research was probably unique. Dwyer was born at Nelson Plains, N.S.W. on 3rd December, 1910 and received his early education at the Marist Brothers College, Maitland, N.S.W. He entered the University of Sydney in 1928, received a B.Sc. degree in 1930 and the M.Sc. degree with 1st Class Honours in 1933. He was awarded the D.Sc. degree in the University of Sydney for a thesis entitled "The Diazoamino Compounds and their Metallic Salts and Metallic Hydroxide Lakes". The University regulations for this degree were so strict that it was the first D.Sc. in chemistry for nearly 20 years. In these days of collaborative research it was fascinating to see how much Dwyer had achieved with his own hands and without many colleagues.

His initial interests were in organic chemistry and he intended to specialize in this subject. As it turned out the only way to start research lay in X-ray studies and with D. P. Mellor he examined the crystal structure of indium and the occurrence of β-cristobalite in opal. It was Mellor who aroused his interest in co-ordination chemistry and this was strengthened by encouragement from F. J. Lyons at the University of Sydney over many years.

In 1934 Dwyer joined the Inorganic Chemistry Department of Sydney Technical College and he held the post of Head Lecturer in this Department until 1946. His early work at the College was concerned with micro-analytical reagents and procedures with considerable emphasis on the estimation of cadmium and magnesium. This work marked the beginning of active research in chemistry at the Sydney Technical College and was to lead to the future research activities of the University of N.S.W. Dwyer became especially interested in the diazoamino compounds and their metallic derivatives. In these years he was joined by an enthusiastic young lecturer, R. S. Nyholm, who collaborated in a series of investigations on the metals of Group VIII. They gave special attention to compounds of bivalent and trivalent rhodium using techniques with arsines which had been developed partly by the late G. J. Burrows.

In 1946 Dwyer was appointed to a Senior Lectureship in Inorganic Chemistry at the University of Sydney. Here he continued

work on the Group VIII metals and gave outstanding services as a teacher and a research leader. He began his first important investigations into optical activity. And how he gloated over each new compound establishing a new record for activity! This interest was to finally lead him into biological chemistry. He displayed an outstanding ability to effect resolutions of active substances where many others had failed. In the same period he began the studies on the diasteroisomerism, configurational activity, stereochemistry of sexadentate compounds and electron transfer reactions.

In 1954 he visited North Western University as a visiting professor at their chemistry department and was also the George Fisher Baker Lecturer at Cornell University. Not long after his return to Sydney he was elected to a new Chair at Pennsylvania State University. This was a major blow to inorganic chemistry in Australia. There was, however, some delay in the immigration formalities and in this period Dr. I. W. Wark of CSIRO and others sought means of retaining Dwyer in Australia. The Australian National University was able, with CSIRO help, to offer an attractive position as visiting reader in biological inorganic chemistry in Canberra. Dwyer accepted this without taking up the post in the U.S.A. For his further outstanding contributions at the A.N.U. he was elected in 1960 to one of the first Personal Professorships in the Australian National University. His election to the Academy came in 1961.

Many of his colleagues have commented that recognition of Dwyer's work came late in Australia compared to that given overseas. Part of this slowness in recognition may have lain in his modesty and in his decision not to force his ideas onto others. In justice it can be seen that the Australian scientific community was well aware of his merits and he received numerous awards. The R.A.C.I. awarded him first its Rennie Medal (1940) and then the Smith Medal and Prize (1945). He gave the Liversidge Lecture to ANZAAS in 1959 and the University of Melbourne awarded him its David Syme Medal and Prize (1953) for distinguished work in natural sciences.

During his research career Dwyer published about 160 papers spread over the topics of X-ray analysis, micro-analysis, the triazines and diazoamino compounds the chemistry of platinum, palladium, rhodium, iridium, ruthenium, and osmium, the redox potential of simple compounds and platinum complexes, optical activity, kinetics of racemisation and substitution in the Group VIII metal complexes, configuration activity, electron transfer reactions and the effect of metal complexes in biological problems. I would stress that the last of these topics is illustrative of the courage and ability of the man. It was at the bench that Dwyer was at his best. He had a flare for preparative work and could always suggest a new way to tackle a preparation. He could well have left a new field alone, but instead, he elected to do the hard reading and find those personal contacts through whom he could make rapid inroads into a new field. His imagination was stirred not only by the importance of metals in

living systems, but also by the possibility of using synthetic inorganic complexes in biological systems. The potent curariform agents such as bis (2.2′2″ terpyridine) ruthenium (II) perchlorate came as extensions of much earlier and almost forgotten work, However, it was in the detailed knowledge of the geometry of these compounds that Dwyer and his associates were able to make rapid progress.

They demonstrated that stable metal chelates have considerable activity against a wide range of micro-organisms, including some which show high resistance to various antibiotics. The chelates were generally non-irritant to human tissues following their prolonged application at concentrations well above therapeutic levels. Hence, clinical trials are underway in Melbourne to determine the value of such substances in the control and treatment of topical infection due to a variety of pathogenic organisms; most work has been done with a chelate derived from nickel and a 1,10-phenanthroline base.

Dwyer had a fund of unfailing cheerfulness, a sense of humour, friendliness and modesty, but the greatest quality of all was his enthusiasm. Nothing ever seemed to daunt this and I would always leave him with my own flagging spirit raised sky high. There are many sad friends and scientifically his loss leaves a great gap. His widow and two sons and a daughter will miss him even more and the Academy extends its deepest sympathy to them.

K. L. Sutherland

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