

A Career in Chemistry

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I graduated as M.Sc. in 1949 and in August 1950 travelled to England to study for my Ph.D. with Professor F.E.King at Nottingham University on a British Celanese Fellowship working on elucidating the structure of extractives from hardwoods and graduated in June 1952. From October 1952 to September 1955 I carried out Post Doctoral Research with Professor H. Raistrick at the London School of Hygiene and Tropical Medicine on mould metabolites.

In October 1955, I returned to Sydney and then obtained a position starting in January, 1956 with ICI Australia who were recruiting staff in preparation for the new research laboratory being built at Ascot Vale, Vic. I started in the Research Department working on the synthesis of potentially biologically active compounds for evaluation at with ICI Australia's Research Station, "Merrindale" at Ringwood, East of Melbourne. Although we had some interesting leads nothing of importance came out of this program during the next five years. During this time I was promoted to Section Leader.

In 1961 I was seconded to Dyestuffs Division, ICI Ltd, in Manchester for two years. The first year was on a project to evaluate the economics of manufacturing a range of dyestuffs in Australia. This was done together with a member of with ICI Australia's Development Department, and the proposal proved to be uneconomic. The second year was spent learning the technology of organic pigment manufacture and development. During this year I spent time in the Works Experimental Laboratories for both phthalocyanine and azo pigment manufacture. Following this I spent about six months in Research Department on projects related to new pigment manufactures and improving properties of some existing pigments.

On return to Melbourne in 1963 I was initially involved in assisting the new Pigments Plant at Laverton to improve the properties of some of their products which customers were not readily accepting. I was also at this time given responsibility for ethylene oxide products including hydraulic brake fluids and non-ionic surfactants, as the new plant at the Botany Factory was about to come on line. As part of the work for the Pigments Plant I developed a novel process for making an improved quality beta-form copper phthalocyanine pigment required for colour printing. The ability to make this pigment was a factor in the forming of a joint company, Pigments Manufacturers Australia Ltd (PMA), with BASF, which took over the Pigments Plant.

The development of formulations for hydraulic brake fluids continued for a number of years as the specifications changed to meet the increased demands made by the use of automatic transmissions and heavier cars. Finally we developed the novel borate ester brake fluid which maintained its boiling point by reacting with absorbed moisture. This is now used worldwide

and was covered by patents. It was also the first time that with ICI Australia sold technology to the UK parent company, ICI Ltd. In 1974 I was promoted to Associate Research Manager and had the additional responsibilities for polythene, PVC and some research for Dulux.

During this next period ICI Australia had a joint research project with Mount Isa Mines in which they wanted to mine the pillars left to support the roof, when the very large ore body was mined. This was an important project as the pillars were approximately 100m long 80m wide and 200m high and had to be demolished in one go. There were a number of facets to be solved; but one requirement was the ability to pump the slurry explosive 400m through a 25mm hose to fill a fan of holes drilled around the small passages cut through the pillar. In addition the explosive had to be set as a gell within 10 seconds of leaving the hose and remain in the up holes for up to three months and retain its explosive power. My team developed a novel polymer which met these requirements and, together with contributions from other sections achieved the successful demolition of the first pillar using 350 tonnes of explosive, the largest underground explosion in Australia at that time. I was then appointed Associate Research Manager.

My group then developed a method for preventing the build up of a layer of PVC on the surface of the large autoclaves during the manufacture of PVC. After a few batches this build up on the internal surfaces was removed manually as heat transfer became inhibited and quality deteriorated. This reduced production and as process workers had to enter the autoclave to do this, it was a potential health hazard. A method of treatment was developed using a laboratory 5L autoclave and scaled up satisfactorily to a 35L autoclave. The factory was so enthusiastic at these results that they carried out a 200 batch trial on one of their production autoclaves. This treatment was adopted for all production and also incorporated into the new factory then being constructed at Laverton.

In the early hours of Friday 15th August 1980, the South Wing of the laboratories was burned down resulting from an unapproved experiment set hastily late in the afternoon. I was involved in the enquiry into the cause and to propose measures for the future as well as guidelines for the reconstruction of the damaged wing. I also had responsibility for supervising the reconstruction.

In 1985 I was appointed General Manager Research and retired in 1987. In 1989 I wrote a history of the ICI Australia Research Group up to 1985 which has been published. I was appointed in 1989, secretary of the Australian Industrial Research Group, an association of Industrial Research Managers which aimed to improve the management of industrial research and to advise government on matters relating to industrial research. I retired from this position in 1997.

I am a Fellow of the Royal Australian Chemical Institute, I was President of the Victorian Branch in 1976 and Chairman of the Industrial Chemistry Division for three years.

I was elected a Fellow of the Australian Academy of Technological Sciences and Engineering, in 1993 and currently I am Honorary Editor the Academy's magazine "Focus". This year I was awarded a Centenary Medal for service to Australian society in applied chemistry.