

## AWARDS, HONOURS AND ACHIEVEMENTS

- Arthur Child Award for the advancement of aviation in South Africa through innovation (1994)
- Merit Awards (2) of the Council for Scientific and Industrial Research (1988 & 1993)
- Elsie Ballot Scholarship (1967)

## DEFINING MOMENT

The transition from being a 'lab rat' into facing the challenges of the real world through learning to understand clients' needs and the value of teamwork.

## WHAT PEOPLE MIGHT NOT KNOW

He is an accomplished cabinet-maker who has produced first-class work and is currently the Chair of the active local Woodworking Association in Pretoria.

## THREE CAREERS ALL BASED ON INNOVATION

Neville Comins is a Cambridge PhD Physicist whose career has been devoted to innovation. Founded firmly on his expertise as a physicist and on the roots and substance of his discipline, he has long been engaged with the need for research to be developed into substance.

Born in Pietermaritzburg in the KwaZulu-Natal Midlands, he attended Merchiston Preparatory School and Maritzburg College before registering for a BSc degree at what was then the University of Natal (now the University of KwaZulu-Natal). On graduating in 1971, Comins was appointed to a Postdoctoral fellowship in the Pure Physics Division of the National Research Council of Canada, where he worked for two years before being offered a Research Officer's post in the Electron Microscopy Division of the National Physical Research Laboratory (NPRL) at the Council for Scientific and Industrial Research (CSIR) in Pretoria.

In order to broaden his experience and also to have the advantage of working with postgraduate students and leading experts in the field, Comins spent six months as a Visiting Scientist at Oxford in 1973. This decision turned out to be intellectually rewarding and extremely valuable as he chose to work with the group developing the 'weak-beam technique' led by Drs MJ Whelan, ILF Ray

and D Cockayne that was – at that time – at the cutting-edge of the application of electron microscopy to metals and semiconductors, combined with computational capabilities to quantitatively interpret the images. The work undertaken at Oxford was the start of a well-adapted transition from his previous field to electron microscopy. At the end of his six-month appointment he returned to CSIR, bringing with him considerable new scientific and practical experience. So began the first of his three careers – in each of which physics and innovation played key roles.

Initially, his work entailed two sets of responsibilities: the first was research work – some of which was aimed at solving an international debate about the behaviour of metal surfaces undergoing deformation, while he continued to apply the weak-beam techniques to complex dislocation configurations in copper alloys. Comins obtained excellent results leading to a paper in the *South African Journal of Physics* that, in 1981, won the prize for the best paper of the year. The second was supervising and developing methods for the Scanning Electron Microscope housed, as a national facility, at the CSIR. As the microscope was available to scientists who needed results in their particular fields, Comins found himself working with a wide range of researchers from fields including metallurgy, geology, dentistry, gas chromatography and a range of industrial and mining applications.

This second aspect of Comins' first career resulted in two important changes in his view of the world and his approach to work. This required developing the skill of listening and talking to both research and industrial scientists from a range of disciplines, in order to understand their real needs, as they were effectively his 'clients'. This was matched by realising the extent to which effective teamwork is key to producing valuable and usable results. Together, these lessons were life changing, defining moments in his career, lessons that lasted throughout his working life. In Comins' own words, this period "marked my transition from being a 'lab rat' into facing the challenges of the real world". During this phase of his career at the CSIR, Comins enjoyed a considerably wider and increasingly more demanding set of responsibilities. He was charged with establishing a Metals Division in the Nanoscale Physics Research Laboratory (NPRL), of which he subsequently became the Head, before being appointed as the Assistant Director of the newly formed National Institute for Materials Research (NIMR),



# NEVILLE RAYMOND COMINS

where his responsibilities included work on the extension of foundry activities to include vacuum techniques and precision casting, and on studies of high temperature alloys and alloy development for advanced industrial use.

This appointment led to Comins' second career, now as a leader in the field of Materials Science – a growing international topic – when, as part of the restructuring of the CSIR, he was appointed Programme Manager for Speciality Metals in the Division of Materials Science and Technology (Mattek). Here he was responsible for the growth of the programme and provided leadership and co-ordination for a series of project teams from four different programmes, two CSIR divisions and a number of universities in the field of aeronautical materials. This work achieved significant success in developing a local capacity to produce advanced investment castings and single crystal turbine components to meet demanding industrial standards, allowing performance enhancements in gas turbine engines.

## A VISIONARY PROJECT

Following the successes of the Mattek team, Comins was appointed Director of Business Development (Integrated Projects) at CSIR Corporate where he was responsible for stimulating the growth of interdisciplinary projects across the CSIR and with other institutions. This position effectively signalled the beginning of his third career, focusing on innovation. While Comins was director, the then Premier of Gauteng province approached the CSIR with a request to develop a Gauteng Trade and Industrial Strategy, in the form of concept projects.

Comins was appointed Project Manager for the science park development which followed and became Gauteng's Innovation Hub – the project being aimed at further developing the concept and establishing a major high-tech business initiative in the province. In this capacity, he acted jointly for the province, the CSIR and the University of Pretoria (UP). In 2001, he became the Chief Executive Officer of The Innovation Hub Management Company, (Pty) Ltd., and in 2003, a member of its Board. In these positions, he established and ran an excellent Management Team who created the Maxum Business Incubator to stimulate and support high-tech start-ups and small and medium enterprise development, the 'CoachLab' Leadership Programme (linking university post-graduate students and business) and the 'INNOV8' networking community.

The Hub became one of the first institutions to appreciate the necessity of achieving alignment of the 'Triple Helix' and was internationally recognised as being the first accredited Science Park in Africa when it achieved full membership of the International Association of Science Parks. In 2005, The Innovation Hub was nominated for the Visionary of the Year Project by the Intelligent Communities Forum (New York). When Comins 'retired' in May 2008, The Innovation Hub had all the available buildings fully occupied with technology companies and start-ups.

Comins' career-long position has been that research findings and scientific discoveries are just that, while 'innovation' is the process of making those findings and discoveries work positively for society.



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# Legends of South African Science II

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