

| WINSTON HIDE |

TOP THREE AWARDS

- Harry Oppenheimer Memorial Trust Fellowship Award
- National Research Foundation President's Award
- Associate Professorship at Harvard

WHAT PEOPLE DO NOT KNOW

My years at the University of the Western Cape were not without real challenges, and they demanded of me considerable reliance on my ethical principles. I am, a spiritually-orientated person, just as happy reflecting on my place in nature, as I am writing a scientific paper; and blessed with an ability to see, appreciate and help to develop the potential in others.



LIVING AND SHARING A LIFE OF SCIENCE

Winston Hide is a peripatetic entrepreneur – an entrepreneur who aims not to make financial profits, but to create groups and networks of researchers, the profits of which are more and better science and also support for, and the development of, younger scientists. Peripatetic, because from his youngest days he has been on the move¹ – from Pretoria, where he was born, to Cologne, London, back to Pretoria, then to Johannesburg, London (to school) and Cardiff (to university), while, as postgraduate student, postdoctoral fellow and Professor, Hide has moved from Wales, to Temple University in Philadelphia, Baylor College of Medicine, the University of Texas in Houston, the Smithsonian Museum of Natural History in Washington DC, Houston (again), San Francisco, the University of the Western Cape, Cambridge Massachusetts, and the University of Sheffield.

These travelling years do not, however, imply an absence of serious research, scholarship, and publications – and postgraduate student supervision. Quite the contrary. Since his own postgraduate work, Hide's association with a wide range of institutions has been in support of what has become a highly respected life as a researcher, teacher and manager of scientific ventures of many kinds.

Initially, the prognosis was not particularly encouraging. Asked how he came to enroll as an undergraduate student in the University of Wales, he explains: "I failed my school-leaving exams and had to find a backdoor into a university. I wasn't a very mature schoolboy." His experiences subsequently changed unexpectedly, however – several times. An initial shift was the result of his having developed a passion for Zoology (he had read Gerald Durrell's early novels as a young boy) and so he successfully majored in order to make a career in the discipline, hoping to work, eventually, in a museum such as the Smithsonian Museum of Natural History. After considerably greater achievements as an undergraduate than as a schoolboy, Hide's next unexpected change came as a result of his father persuading him that museum curatorships were unlikely to offer many op-

¹ Winston's father, Cyril Hide was a Science Counsellor in the South African Diplomatic Service as part of the CSIR.

portunities as far as careers go, and that he should, instead, study molecular biology, which he did.

The next change was more by way of an extension to molecular biology than a change in direction. By this time, as a Masters student at Temple University, Winston had a personal computer of his own and, to his delight, discovered that he could use his PC not only to record the sequence of DNA, but also interpret it. He was 'gripped,' and it was this development in his student years that convinced him that, with his profound interest in evolution, molecular evolution was the route he would follow. "I knew that I would always work 'in silico' [rather than 'in situ'] once I realised that I could analyse DNA sequences and use them to define the relationships between species." So began his career in bioinformatics.

Working on a PhD towards the end of the 1980s the next – and this time, expected – step. He didn't particularly enjoy his PhD topic, but as a postgraduate student, he was given opportunities to attend two high-level workshops on molecular evolution. These provided him with almost unique opportunities to extend his knowledge and enthusiasm – not least as one of the people he encountered in Los Angeles was Linus Pauling, who encouraged him always to think about the meaning of the research he was doing and about how he would go about publishing his findings.

Hide's three terms as a postdoctoral fellow started with a period working with Professor Wen Hsiung-Li at the University of Texas in Houston, and it was during this time that he co-published his first paper in *Nature* – entitled "Is the guinea pig a rodent?" Hide points out that "we were wrong about the guinea pig" but the methodology used represented a major breakthrough in the use of molecular data for understanding evolution and the paper generated a considerable trail of commentaries and responses. In recognition of its methodology, the paper was also listed as one of the top 50 scientific discoveries of the year, while the results were reported in the *New York Times*, the *Times* of London, *Figaro*, *The Economist*, the *Philadelphia Enquirer*, the BBC and National Public Radio (in the USA).

A second term of postdoctoral fellowship followed at the Smithsonian Museum of Natural History with Dr David Pawson – and a third (back in Houston) at the Baylor Human Genome Centre, working with Australian Geneticist Dr Richard Gibbs. These periods of postdoctoral fellowships were followed in 1994 and 1995 by spells in the commercial world of genomics, first as Director of Genomics at the MasPar Computer Corporation in Silicon Valley and then as a Consultant Systems Architect in Genome Bioinformatics at the RW Johnson Pharmaceutical Research Institute in San Diego.

RETURNING HOME

By this time, Hide was ready, in terms of both his range of research experience and his political ethics, to return home, to his country of birth, which he did in 1996 to a newly minted South African democracy. He accepted an Associate Professorship at the University of the Western Cape with the challenge of founding the South African Bioinformatics Institute (SANBI). Initial funding for SANBI came from the Foundation for Research Development – now the NRF – “Going home, and being accepted, was one of the most important steps in my life,” says Hide. Within four years, SANBI had graduated the first PhD in bioinformatics in Africa, and had held the first South African workshop on genomics, organised with Professor Sydney Brenner, Nobel Laureate. Hide also managed to help raise funds for a New Life Sciences Building at the University of the Western Cape – to house SANBI and other research entities.

Two years after founding SANBI, Hide was appointed to a Full Professorship (1998) and during his 12 years at the University of the Western Cape he was the Founder (or Co-Founder) of three further Units – the WHO African Regional Training Centre for Bioinformatics in 2003, the MRC Unit for Bioinformatics Capacity Development in 2000 and the South African National Bioinformatics Network (2003).

Hide, scientific entrepreneur, was also the Director of the European Molecular Biology Network Node for South Africa (from 1997) and the Director of Bioinformatics for the National Institutes of Health-funded AIDS Research Programme in CAPRISA. In 2003, he became the bioinformatics and ge-

nomics advisor to the WHO Tropical Disease Research Programme and also the Director of Bioinformatics for the South African AIDS Vaccine Initiative. In 2004, he was appointed as a Kerr Research Fellow in the Ludwig Institute for Cancer Research and in 2005, Director of the USA National Institutes of Health-funded Fogarty International Graduate Training Programme in Biomedical Informatics.

At this stage in his working life, Hide was open to the possibility of a period of sabbatical leave, and was attracted to the opportunity of a period as a Visiting Professor at Harvard's School of Public Health in 2007. In order to support his time away, Hide applied for an Oppenheimer Memorial Trust Fellowship Award. He was shortlisted, interviewed (“the most difficult interview of my life – I thought I'd never get it”), received the award, and was able to accept the visiting position in 2007. By 2008, he was appointed to an Associate Professorship in Biostatistics in the school.

CAMBRIDGE MASSACHUSETTS YEARS

So began the substantive “Cambridge, Massachusetts” years of his scientific life – a phase that continues today. It is, unsurprisingly, a phase that started not just with an Associate Professorship but with a founding: in this instance, the establishment of the Harvard School of Public Health's Bioinformatics Core, in 2008, of which he became the Scientific Director – always the scientific entrepreneur and generator of opportunities for others. “I seek to apply the development of people, tools and systems for delivering translation from biomedical knowledge into therapeutics,” – clarifying in just two lines the driving talent that is a critical feature of his working life. In that same year, he became an executive on the Programme for Quantitative Genomics (2010). A year later, Hide founded (and became the Director of) the Centre for Stem Cell Bioinformatics in Harvard's Stem Cell Institute. While fulfilling these responsibilities, he also became a Visiting Scientist (2013 – 2015) in the Translational Bioinformatics Programme at Biogen Inc, a multinational biotechnology company based in Massachusetts, which specialises in the discovery, development, and delivery of therapies for the treatment of neurodegenerative, hematologic, and autoimmune diseases for patients around the world. Hide also found time to assume

responsibilities as the Director of Bioinformatics for the Alzheimer's Genome Project supported by the Cure Alzheimer's Foundation – consistently delivering translation from biomedical knowledge into therapeutics.

In 2014, the Cambridge work still in full swing, Hide accepted a Chair in the University of Sheffield (in South Yorkshire) – beginning what might be called the ongoing “transatlantic” years of his career – ever peripatetic and still entrepreneurial. The Chair is that of Professor of Computational Biology, at the Sheffield Institute for Translational Neurosciences within the Department of Neuroscience of the University and coincided with his founding of the Centre for Genome Translation in the Institute, which he also directs. In his post at Sheffield, Hide has become the Academic Director of Connected Health Cities in Yorkshire and has recently also taken up a Visiting Professorship at MIT's Computer Science and Artificial Intelligence Laboratory.

Two critical riders consistently accompany Hide's accounts of the research entities and networks whose creation he has led (and often directed), and the students and young researchers he has encouraged and helped to develop. The first is the considerable credit that is due, and a valued debt owed, to colleagues with whom he worked in realising his many achievements. “So many were joint ventures,” he points out, “with people whose potential was clear to me.”

The second is to acknowledge four great leaders and scientists who have, in their turn, mentored and guided him. Prof Brian O'Connell (then Vice-Chancellor of the University of the Western Cape) was, Hide says, a wise and considerate mentor who provided him with constant support. Prof Russ Altman, Chair of the Department of Biomedical Engineering at Stanford showed Hide how to find and then nurture the potential in others. Prof Sydney Brenner encouraged Winston Hide to “go home” where he found himself accepted and so flourished; and Prof Salim Abdool Karim whose skills as a researcher and manager taught him the abilities he needed to manage diverse and sometimes quite difficult groups of colleagues. Each of the four changed his life in positive ways and laid the basis for his success as a leader in his field.

Apart from the roles that these great people played in Hide's life, and the turns of good fortune that led him to molecular evolution and bioinformatics, he acknowledges some other critical influences: as a student, learning to cook; meeting and marrying his second wife; and understanding and accepting the essential meaning of friendships in his life. A life, and science, that continue to be deeply lived and shared.

