David Vere-Jones

Professor David Vere-Jones has been awarded the prestigious Vaughan Jones Medal for 2014 by the Royal Society of NZ. Awarded biennially, this is the third award. He received it in person at the Science Honours Dinner in Wellington on 26th November.

David Vere-Jones is New Zealand's leading resident mathematical statistician. He has made major contributions to the theory of probability and statistics, their applications, and to the teaching of statistics and mathematics in New Zealand. He is highly regarded internationally, and has received numerous invitations to overseas institutions and conferences over the course of his long and distinguished career. He has well over 150 refereed publications.

Professor Vere-Jones has received numerous honours and distinctions. In 1995 he was awarded the International Statistical Institute Henri Willem Methorst Medal, and in 1999 he received NZ Science and Technology Gold ('Rutherford') Medal. He was elected as a Fellow of the Royal Society of New Zealand in 1982. He has been an ordinary elected member of the International Statistical Institute since 1978 and a Fellow of the Royal Statistical Society since 1969.

Research

His research areas have been concerned with Point Processes (the statistical theory of sequences of events that occur at discrete points in time or space, such as earthquakes, neuron firings, volcanic eruptions, etc.) and Markov Processes (including branching processes and queuing theory). A substantial body of theory owes its origins to him, either directly or via his students. Of particular importance and relevance to New Zealand is his pioneering work on the applications of point process theory to seismology. He received the *International Journal of Forecasting* Prize in 1997 for the best article in the preceding 5 years for his 1995 paper "Forecasting earthquakes and earthquake risk". He obtained Marsden grants (as principal investigator) on the projects *Non-linear modelling of fracture mechanisms* (1997-1999), *Statistical models for the approach to criticality in earthquake occurrence* (2001-2003), and *Hidden Markov models for earthquake processes with ancillary measurements* (2005-2009).

Contributions to Mathematical Sciences Education in New Zealand

Professor Vere-Jones has made substantial contributions to mathematical and statistical education in New Zealand. He was the Subject Convener for Mathematics for the University Entrance Board of the University Grants Committee (1978-85) and chaired the Education Committee in the Royal Society of New Zealand (1987-90). He was instrumental in setting up Victoria University's Institute of Statistics and Operations Research, in 1975, which promoted and coordinated research, teaching and consulting in those fields.

Professional Associations

Professor Vere-Jones is a former president of the N.Z. Mathematical Society (1974), which he helped found, and a former president of the N.Z. Statistical Association (1981-83). He was Chairman (in the 1980's) of the East Asian and Pacific Regional Committee of the Bernoulli Society (a branch of the International Statistical Institute). He was Interim President (1991-92) of the International Association for Statistical Education, which took over the role of the International Statistical Institute Education Committee which he chaired from 1987.

Professor Vere-Jones was a key member of a team responsible for writing a major review of the mathematical sciences for the Ministry of Research, Science and Technology. As Professor Jeffrey Hunter (review chair) wrote in the preface to their 1988 report, *Mathematics in New Zealand: Past, Present and Future,* "I wish to express my debt of gratitude to Professor David Vere-Jones who has borne the brunt of the writing of the final report. Without his efforts and dedication this project would have faltered."

A Short History

David Vere-Jones was born in London but came to New Zealand at the age of twelve. He studied at Victoria University of Wellington in the mid-fifties, and then won a Rhodes scholarship to undertake postgraduate research in probability theory at Oxford, supervised by Professor DG Kendall. After completing his doctorate he went, as an exchange Scholar, to Moscow University where he made contact with the strong Russian school on probability and, in particular, Professor Boris Gnedenko. These contacts led to life-long mathematical links and friendships. His two papers on non-negative matrices, although developed as part of Markov chain theory, are relevant to areas of mathematics quite unrelated to statistics. David returned to Wellington in 1962 and took up the post at the Applied Mathematics Laboratory of D.S.I.R. which he held until the mid-sixties. After short appointments at the Australian National University, Michigan State University and Manchester University, the call to Wellington was again answered by his appointment, in 1970, to the chair of mathematics at Victoria University. Under David's leadership, the group in statistics and operations research (latterly to become the Institute of Statistics and Operations Research) built up a strong national and international reputation in research, teaching and consulting. In 1988 he authored (with Dr D.J. Daley) an influential reference book *An Introduction to the Theory of Point Processes.* This was revised, extended and updated in 2003 and 2008. The resulting books *An Introduction to the Theory of Point Processes (Volumes I and II)* are the pre-eminent reference texts in the subject. David "retired" from the Victoria University of Wellington in 2000, becoming professor

emeritus. He remained an active researcher, founding Statistics Research Associates Limited in 1999 (with Dr RB Davies and Dr PJ Thomson) and was a director of this company until 2009. Under its auspices, David led a number of successful research projects on earthquake risk modelling with funding from the Marsden fund, the Institute of Geological and Nuclear Sciences (an ongoing involvement) and the NZ Earthquake Commission. He was Director of a research programme funded by the New Zealand Institute of Mathematics and its Applications on Hidden *Markov Models and Complex Systems.* In 2005 David was a joint author and reviewer for the Statistical Society of Australia sponsored review *Statistics at Australian Universities* with Professor AFM Smith (Queen Mary College, London) and Professor LR James (Murdoch University, Western Australia). This review has been influential in both Australia and New Zealand. David has also played a leading role in setting up an annual series of Statistical Seismology workshops with the first in China (hosted by the China State Seismological Bureau) and the second timed to coincide with his Festschrift on the occasion of his 65th birthday in 2001. These workshops continue to be held and have helped the formation of Statistical Seismology as a sub-discipline in its own right. He now lives on the Kapiti Coast north of Wellington, his wife Mary having died some years ago. They have three adult children and grandchildren. Many of us can attest to the kindness and generosity of spirit David extends to all with whom he has contact.

The Mathematical Sciences community is glad to applaud the award of this top award to one of our most famous and distinguished sons.

(This is based on the nomination statement for the award. I thank its author for permission to use it.)

Graeme Wake, Massey University at Auckland.