

## Russell Gordon Mein, AM (21-10-1942 - )



Russell Mein graduated B.E (Agric) with Hons from the University of Melbourne in 1965 and joined the NSW Water Conservation and Irrigation Commission as a Research Officer. His first 18 months was a secondment back to the University to research sub-surface flow to tile drains in sloping land. This work led to drain spacing guidelines for areas near Leeton, and a M.Eng.Sc degree (1967).

In 1968, Russell travelled to the University of Minnesota (USA) and completed a PhD (1971) in the Agricultural Engineering Department on the modelling of infiltration under steady rainfall.

Upon returning to Australia he took up a position as Lecturer in the Department of Civil Engineering at Monash in 1971 and had progressed to Professorial Fellow by 1995. His 31 years at the University included seven as Director and CEO of the CRC for Catchment Hydrology from 1995 to 2002. After

leaving Monash in 2002, he retained links as an Adjunct Professor, and worked as a private consultant until his retirement in 2008.

He was recipient of many honours and awards, including Munro Orator at the Hydrology and Water Resources Symposium (1999), the Jack Beale Lecture for the Water Research Foundation of Australia (1999), and the GN Alexander Medal for the best paper in an Institution of Engineer's publication (2002). His service to 'science in the field of flood hydrology and urban water resources and for contributions to research, teaching and professional practice' was recognized by the award of Member of the Order of Australia (AM) in 2005.

### Russell Mein's major professional achievements

#### ***Research***

In his PhD studies at the University of Minnesota (1968-71), he adapted the 1911 Green and Ampt infiltration equation (for ponded infiltration) into a two-stage model suited for rainfall input. This has had a major impact on the thinking of soil-water hydrologists since; the Mein and Larson 1973 paper in *Water Resources Research* is one of the most cited in hydrology. Subsequent research on modelling of hydrologic processes and of catchment models included a study of the precision of model parameters determined by optimisation; most models of the time were heavily over-parameterised.

#### ***RORB***

With the late Eric Laurenson, Russell was co-author and developer of the flood estimation package RORB. Version 1 was released in 1975; it has been maintained and updated since (current version is 6). Russell contributed to all aspects of the program and paid special attention to modelling urban catchments including retarding basins, worked examples and user workshops. RORB, and a number of different incarnations, has been used for flood estimation by the majority of engineering consultants in Australia for over 35 years.

#### ***Industry Guidance***

Russell's applied research has had a significant impact on the Australian industry, an example being the national flood guideline *Australian Rainfall and Runoff (ARR)*. He was chair of the Advisory Committee for the 1987 edition of ARR; the soon-to-be published revision will significantly reflect his contributions as Leader of the Flood Hydrology Program of the CRC for Catchment Hydrology.

### ***Post-graduate Supervision***

Russell demonstrated a capacity to nurture and develop people who have worked alongside him, including many undergraduate and postgraduate students. He supervised or co-supervised 47 post-graduate students [17 PhD, 15 Masters (research) and 15 Masters (coursework, minor thesis)] across a diverse range of topics including rainfall-runoff modelling, urban hydrology, reservoir yield, evapotranspiration, wastewater treatment, soil erosion, groundwater, infiltration and loss estimation and real-time forecasting. Russell's mentoring and technical guidance had huge impact on a generation of hydrologists; many of these people have progressed on to be leaders in academia, water agencies and consulting firms.

### ***Continuing Education and Workshops***

Russell had a strong belief in formal coursework, and was instrumental in founding and maintaining the postgraduate Masters in Water Resources Engineering at Monash University in the 1980s. He has been presenter/organiser for some 44 short courses for professional engineers, covering flood estimation, urban hydrology, Australian Rainfall and Runoff and yield analysis. These courses, spanning some 35 years, have made a major contribution to the skill base in hydrologic practice in Australia.

### ***CRC for Catchment Hydrology (CRCCH)***

Russell's involvement in the CRC was initially as a Deputy Director (1992-1995) and then Director (1995-2002). That the CRCCH succeeded in its bid to gain another seven years of core funding in 1999 was due in no small measure to his inclusive and consultative style. The quality of Russell's leadership is best summed up by the words of its Second Year Review in 2001: "*This Centre is regarded by the Panel as a model ... the CEO, Professor Russell Mein, is performing admirably and is universally respected by all staff, students and sectors with whom he works*". The legacy of the CRC, and Russell's leadership is demonstrated through lasting industry linkages, the huge number of postgraduates now within the industry, applied research targeted towards industry needs and new approaches and models that continue to impact the industry.

### ***Consulting***

Throughout his academic career, Russell maintained strong links with industry, including a short sabbatical at GHD consulting engineers. He has consistently been sought by a variety of Government and private agencies to provide expert reviews on significant flood and yield studies. Since retirement from academia (2002), this involvement has continued with a number of significant reviews for the National Water Initiative, CSIRO Land and Water, Melbourne Water, the Brisbane City Council, and several State Governments.

### ***Some key publications***

Mein, R.G. and Larson, C.L. Modelling Infiltration During a Steady Rain. *Wat. Res. Research.* 9: 384-394, 1973. [Designated a 'Landmark paper in hydrology', *Handbook of Hydrology*, McGraw-Hill, 1992]

Mein, R.G., Laurenson, E.M. and McMahon, T.A. Simple Nonlinear Model for Flood Estimation. *J. Hyd. Div., ASCE*, Vol. 100, No. HY11, 1507-1518, 1974.

Mein, R.G. and Brown, B.M. Sensitivity of Optimized Parameters in Watershed Models. *Water Resources Research*, Vol. 14, No. 2, 299-303, 1978.

McMahon, T.A. and Mein, R.G. *River and Reservoir Yield*. Water Resources Publications, Fort Collins, Colo., 368pp, 1986.

Mein, R.G. and Goyen, A.G. *Urban Runoff Civil Engineering Transactions*, I.E.Aust. Vol. CE30, No. 4, 225-238, 1988. [Keynote Paper at 1988 Hydrology and Water Resources Symposium Canberra].

Laurenson, E.M. and Mein, R.G. RORB: Hydrograph Synthesis by Runoff Routing, in "Computer Models in Watershed Hydrology" (V.P. Singh, ed.), Water Resources Publications, 1995, pp 151-164.

Mein, R.G., *Research into practice: making an impact*. *Aust J Water Resources*, Vol. 3, No. 2, 167-176, 1999. [The 1999 Munro Oration, Hyd. and Wat. Res. Symp., Brisbane, 1999],

Rahman, A, Weinmann, P.E, and Mein, R.G, The use of probability-distributed initial losses in design flood estimation. *Australian Journal of Water Resources*, IEAust, Vol. 6, No. 1, 17-30, 2002 [GN Alexander Medal, best paper in an IEAust publication, 2002]