

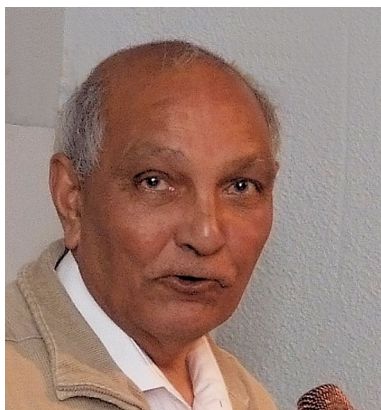


Professor Raghu Nath Singh

Rafael Fernández Rubio¹

Published online: 30 August 2021

© Springer-Verlag GmbH Germany, part of Springer Nature 2021



Prof. Raghu Nath Singh, at the IMWA Conference in Sydney, Nova Scotia, Canada (courtesy IMWA 2010)

Professor Raghu Nath Singh, one of the six founders of the International Mine Water Association (IMWA), passed away in Nottingham, UK on December 31, 2020, at the age of 81. After participating in the September 1978 Symposium on Water in Mining and Underground Works in Granada (Spain) and in May 1979 in the First International Mine Drainage Symposium in Denver (USA), he attended IMWA's inaugural meeting in Granada in November 1979. From the very beginning, he took on with full enthusiasm the task of propagating this association worldwide. His enthusiasm and great knowledge in conjunction with mining hydrogeology and rock mechanics contributed to many IMWA meetings in different countries around the world. He wrote many relevant articles, both in our journal and in the congresses and symposia of our association, of which he was a regular, contributing attendee. These are listed at the end of this obituary.

✉ Rafael Fernández Rubio
rfrubio@gmail.com

¹ School of Mining Engineering, Madrid Polytechnic University, Luna 45, 28120 Ciudad Santo Domingo, Madrid, Spain

Raghu was this journal's founder and first editor, starting it shortly after IMWA formed. At that time, it was the *International Journal of Mine Water* and was self-published by IMWA. Raghu also served as treasurer of IMWA from 1987 to 1989, and was elected a vice-president in 1994.

Born on 16th October 1939, Raghu received his bachelor's degree in Mining Engineering in 1960 from Banaras Hindu University in India, a Master of Engineering at Sheffield University, and a PhD from the University of Cardiff, UK and a D.Sc. from the University of Nottingham, UK. He also had a First Class Mine Manager Certificate of Competency to manage coal mines in India and the UK (Senior Engineer in mining for British Coal). He met Angela and her English family while in Sheffield, and they married there in 1967. Their first child, Hemendra, was born in the UK. Soon thereafter, the young family moved to the foothills of the Himalayan mountains, and two more children, Gyan and Jitu, were born.

In 1975, they moved back to Britain, where Raghu undertook his PhD at Cardiff University. On completion of his PhD in 1978, Raghu became a research fellow and lecturer at Nottingham University. At some point, Angela and Raghu divorced, though they remained good friends. I fondly remember one summer when his three sons stayed and relaxed with my children, my wife Ana María, and me on the Costa del Sol (Spain). Later, I and some of my sons would meet up with Raghu's family in Wollaton Vale in Nottingham, England.

It is gratifying to see how Raghu's children and mine have remained in contact, a cross-generational inheritance of the convivial spirit of IMWA. I subsequently enjoyed his company several times at my home in Madrid, where we had long and deep exchanges on water in mining, and joining him in collaborative consultancy work in various countries.

In 1989, Raghu became a Professor of Mining Engineering and Head of the School of Civil, Mining and Environmental Engineering at the University of Wollongong (UOW) between 1989 and 1994. It was there that he met and married his second wife, Cathy. Raghu remained a Professor at UOW until 2003. In the early 1990s, IMWA held two meetings

at the University of Nottingham. I particularly remember enjoying the company of Prof. Barry Whittaker, Prof. Raghu N. Singh, and Peter Norton, including time spent in what is claimed to be the oldest pub in England (the Ye Olde Trip Jerusalem, under Nottingham Castle) with its legends of the Crusader era.

On retirement, he returned from Australia to Nottingham with his wife, Cathy. His last attendance at an IMWA meeting was at the IMWA 2010 conference in Sydney, Nova Scotia, Canada, where he told me how difficult it was to attend, as he no longer had support from the University. Still, he was very happy to be there, among his many friends and colleagues.

Raghu was always a family man, coming from a large family in India where he was the second of five siblings. When his uncle died, his parents adopted their uncle's five children, and each was loved and looked after equally. And this, I think, marked his life in the purest concept of brotherhood, which he later universalized with his friends. Cathy was able to arrange a final mass gathering of his sons, their wives, and partners, and all his grandchildren to celebrate Raghu's 80th birthday, which was unforgettable for Raghu.

Prof. Raghu N. Singh for me fulfils the ideal of a professor. He combined his deep practical professional experience in mine operation with excellent scientific, teaching, and research skills. But behind all these fond and extraordinary memories, his is a story that deserves to be remembered, and I have done so here with the support of his most direct relatives and especially his oldest son Hemendra. I endorse the words of Ray Tolhurst, in an obituary published by the University of Wollongong: "Raghu will be missed by his friends ... throughout the wider mining industry, where he contributed a great deal". Let me add for my part that he contributed greatly to IMWA during his lifetime. Raghu: rest in peace, my friend forever! Your friends at IMWA will not forget you.

Publications of Ragu Singh in the IMWA Journals Between 1982 and 2013 (Provided by Christian Wolkersdorfer)

Aston TRC, Singh RN (1982) A new approach for determining permeability characteristics of rock using slug testing techniques. *Int J Mine Water* 1(3):33–42

Aston TRC, Singh RN (1983) A reappraisal of investigations into strata permeability changes associated with longwall mining. *Int J Mine Water* 2(1):1–14

Aston TRC, Singh RN, Whittaker BN (1983) The effect of test cavity geology on the in situ permeability of coal measures strata associated with longwall mining. *Int J Mine Water* 2(4):19–34

Atkins AS, Singh RN (1982) A study of acid and ferrous mine water in coal mining operations. *Int J Mine Water* 1(2):37–57

Bridgwood EW, Singh RN, Atkins AS (1983) Selection and optimisation of mine pumping systems. *Int J Mine Water* 2(2):1–18

Doulati Ardejani F, Sadeghiamirshahidi M, Singh RN, Kish TE, Reed SM (2013) Prediction of the groundwater rebound process in a backfilled open cut mine using an artificial neural network. *Mine Water Environ* 32(4):251–257. <https://doi.org/10.1007/s10230-013-0243-7>

Doulati Ardejani F, Singh RN, Baafi E, Porter I (2003) A finite element model to: 1. Predict groundwater inflow to surface mining excavations. *Mine Water Environ* 22(1):31–38. <https://doi.org/10.1007/s102300300005>

Doulati Ardejani F, Singh RN, Baafi E, Porter I (2003) A Finite element model to: 2. Simulate groundwater rebound problems in backfilled open cut mines. *Mine Water Environ* 22(1):39–44

Fawcett RJ, Hibberd S, Singh RN (1984) An appraisal of mathematical models to predict water inflows into underground Coal Workings. *Int J Mine Water* 3(2):33–54

Fawcett RJ, Hibberd S, Singh RN (1986) Analytic calculations of hydraulic conductivities above longwall coal faces. *Int J Mine Water* 5(1):45–60

Fernández-Rubio R, Singh RN (1983) Slope stabilisation using advance dewatering techniques in a large opencast mine in north-western Spain. *Int J Mine Water* 2(4):35–51

Indratna B, Singh RN (1994) Distinct element analysis of water inflow to underground excavations. *Mine Water Environ* 13(3–4):11–24

Ngah SA, Reed SM, Singh RN (1984) Ground Water problems in surface mining in the United Kingdom. *Int J Mine Water* 3(1):1–12

Reed SM, Singh RN (1986) Groundwater recovery problems associated with opencast mine backfills in the United Kingdom. *Int J Mine Water* 5(3):47–73

Shi L, Singh RN (2001) Study of mine water inrush from floor strata through faults. *Mine Water Environ* 20(3):140–147. <https://doi.org/10.1007/s10230-001-8095-y>

Singh RN (1983) Conference review—hydrogeological aspects of mining. *Int J Mine Water* 2(2):31–32

Singh RN (1983) Mine water abstracts. *Int J Mine Water* 2(2):43–61

Singh RN (1986) Mine inundations. *Int J Mine Water* 5(2):1–27. <https://doi.org/10.1007/BF02498098>

Singh RN, Atkins AS (1982) Design considerations for mine workings under accumulation of water. *Int J Mine Water* 1(4):35–56

Singh RN, Atkins AS (1984) Application of analytical solution to simulate some mine inflow problems in underground coal mining. *Int J Mine Water* 3(4):1–27

Singh RN, Hibberd S, Fawcett RJ (1986) Studies in the prediction of water inflows to longwall mine workings. *Int J Mine Water* 5(3):29–45

Singh RN, Jakeman M (2001) Strata monitoring investigations around longwall panels beneath the cataract reservoir. *Mine Water Environ* 20(2):55–64. <https://doi.org/10.1007/s10230-001-8083-2>

Singh RN, Reed SM (1988) Mathematical modelling for estimation of minewater inflow to a surface mining operation. *Int J Mine Water* 7(3):1–33

Singh RN, Sivakumar M, Atkins AS (1995) Application of executive information system to mine site water pollution control. *Mine Water Environ* 14(1–4):95–105

Sivakumar M, Singh RN, Morton SGS (1992) Mine water effluent quality in the Illawarra Region. *Mine Water Environ* 11(2):1–10

Sivakumar M, Singh RN, Morton SGS (1994) Mine water management and controls in an environmentally sensitive region. *Mine Water Environ* 13(1):27–39

Terezopoulos NG, Singh RN (1987) Ground water control by grouting in tunnels for a pumped storage scheme. *Int J Mine Water* 6(1):33–48

Vutukuri VS, Singh RN (1993) Recent developments in pumping systems in underground metalliferous mining. *Mine Water Environ* 12(1–4):71–94

Vutukuri VS, Singh RN (1995) Mine inundation—case histories. *Mine Water Environ* 14(1–4):107–130. <https://doi.org/10.1007/BF02914857>