



**Professor Emeritus David W. Murray (1931 – 2010)**

Department of Civil & Environmental Engineering  
University of Alberta, Edmonton, Alberta, Canada

**From the University of Alberta newsletter, Tuesday, January 25, 2011:**

### **Murray remembered for engineering contributions**

Known for being humble and generous, Dr. David W. Murray, a civil engineering professor with the Department for almost 50 years, lost his battle to Lewy Body Disease and passed away this summer - just days before his 80th birthday.

A native of Calgary, David completed his bachelor's in civil engineering at the University of Alberta in 1952 and, thanks to receiving the Athlone Scholarship, earned his MSc at the Imperial College in London, England in 1954. He married Pearl in 1956, who was his life companion for the next 54 years. His journey as a professor at the University of Alberta began in 1960. A few years after joining the Department, and with four young children in tow, David went on to complete his PhD at the University of California in Berkeley.

Studying abroad instilled in David a love of travel. Throughout his career, he invariably spent his sabbaticals abroad. "Our family saw a lot of the world because of him and his work," says Pearl. "We lived in Wales, Brazil and Germany – we travelled Europe from London to Istanbul and visited places like Machu Picchu in Peru. When we first were married, I was a farm girl who had never been beyond Alberta's borders! I can't believe how fortunate I have been to see the world as our family did."

David's early academic career focused on Finite Element Analysis. After serving as Chair of the Department from 1982 to 1987, David returned to research and took up pipeline structural analysis.

"After his term as Chair, David experienced a renaissance in his research," comments Roger Cheng, current Chair of the Department. "He really created a whole new area of research for our Department – and he made most of his contribution in this area after he had technically retired, as a Professor Emeritus."

David taught graduate students from all over the world including India, Egypt, Iran and China. His long international collaboration was with the Civil Engineering Department at Pontificia Universidade Catolica (PUC) in Rio de Janeiro. He cooperated with researchers in Brazil for over 15 years, supervised several Brazilian graduate students and had several extended visits to Rio de Janeiro. PUC recognized his contribution to their PhD program by awarding David an honorary professorship in 1991.

David's last graduate student defended his thesis in 2008, marking David's 48th year with the U of A Civil Engineering Department.

"His lifelong commitment to research and teaching, his world experiences that he shared with his family, I think it's a powerful example of a life well lived," say his wife Pearl. She is currently writing a book about his legacy, to celebrate his life.

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**Research Interests:**

Computer Analysis of Structures, Finite Element Methods, Numerical Simulation of Structural Behavior, Buckling of Energy Pipelines, Design and Assessment of Steel Pipelines, Analytical Tools for Steel Pipelines, Engineered Wood Products

**Research Link:**

The AltaPipe Group is a Research Group based at University of Alberta in the Department of Civil and Environmental Engineering (informally referred to as the PipeTech group at UofA). The group undertakes experimental, theoretical, and computational research in the areas of stress analysis, including thermal buckling, and pipe testing, in steel pipelines for different industry interests: oil, gas, petroleum, and nuclear, among others.

**Current Research Projects:**

Behavior, Design and Assessment of Energy Pipelines  
Soil-Pipe Interaction: Upheaval Buckling  
Soil-Pipe Interaction: Generalized Planar Soil-Structure Interaction  
Deformation Control Criteria for Pipeline Design  
Experimental Investigation of Hot-Tap Connections for Gas Pipelines  
Pipeline Anchor Tests

**Education:**

Ph.D. in Structural Engineering, University of California, Berkeley, 1967  
M.Sc. in Engineering, University of London, London, 1954  
D.I.C. in Civil Engineering, Imperial College, London, 1953  
B.Sc. in Civil Engineering, University of Alberta, Edmonton, 1952

**Professional Experience:**

1992 to present, Professor Emeritus, Department of Civil & Environmental Engineering, University of Alberta  
1982 to 1987, Chairman, Department of Civil Engineering, University of Alberta  
1970 to 1992, Professor, Department of Civil Engineering, University of Alberta  
1961 to 1970, Associate Professor, Department of Civil Engineering, University of Alberta  
1964-1967, Teaching Fellow, Department of Civil Engineering, University of California, Berkeley  
1960 to 1961, Associate Professor, Department of Civil Engineering, University of Alberta  
1957 to 1960, Assistant Professor, Department of Civil Engineering, University of Manitoba

**Professional Affiliations:**

Association of Professional Engineers, Geologists and Geophysicists of Alberta  
The Canadian Society for Civil Engineering  
American Society of Civil Engineers

**Honors and Awards:**

1952 · The Association of Professional Engineers of Alberta Gold Medal in Civil Engineering  
1952 · The Athlone Fellowship  
1991 · Honorary Professor, Pontifícia Universidade Católica do Rio de Janeiro, Brazil.

1992 · Certificate of Merit, Department of Civil Engineering, Pontifícia Universidade Católica do Rio de Janeiro, Brazil.

1995 · Life Member of the American Society of Civil Engineers

1996 · Life Member of the Canadian Society for Civil Engineering

1996 · Fellow of the American Society of Civil Engineers

1996 · Fellow of the Canadian Society for Civil Engineering

### **Invited Papers:**

(1) Murray, D.W., Simmonds, S.H. and MacGregor, J.G., "Some Aspects of Structural Response of Containment Buildings to Accident Conditions", Canadian Nuclear Association Symposium on Research Related to Radiological Safety in the Nuclear Fuel Cycle, Toronto, Ontario, May 1-2, 1979.

(2) MacGregor, J.G., Murray, D.W., Rizkalla, S.H. and Simmonds, S.H., "Behavior of Prestressed Concrete Containment Structures Due to Over-Pressure", Canadian Structural Concrete Conference, CSCE, Banff, Alberta, May 10-11, 1979.

(3,4) Murray, D.W., MacGregor, J.G. and Simmonds, S.H., "Experiments and Analyses to Predict Behavior of Prestressed Concrete Containment Structures", presented at: (a) IDCOR Containment Structural Capability Workshop, Chicago, Illinois, Feb. 24-25, 1982 and (b) International Workshop on Containment Integrity, Washington, D.C., June 7-9, 1982.

(5) Murray, D.W., "Observations on Analysis, Testing and Failure of Prestressed Concrete Containments", 4th International Seminar on Issues in Containment Analysis and Design, held in conjunction with SMiRT7, Chicago, Illinois, Aug. 29-30, 1983.

(6) Murray, D.W., "Discusser's Report: Finite Elements", Fourth RILEM International Symposium on Creep and Shrinkage in Concrete: Mathematical Modeling", Z.P. Bazant, Editor, Northwestern University, Aug. 26-29, 1986, pgs. 523-527.

(7) Murray, D.W. (1994). "Wrinkling of Line Pipe : Analysis and Experiments". Keynote address at A World of Shells Conference. Banff, Alberta.

(8) Murray, D.W. (1995). Local Buckling, Strain Localization, Wrinkling, and Post-buckling Response of Line Pipe. Keynote address to the International Conference on Stability of Structures (ICSS-95), PSG College of Technology, Coimbatore, India, June 7-9, 1995.

### **Publications in refereed journals:**

(more than 75 papers listed on the website: [www.altapipe.ualberta.ca/dwmcv1.htm](http://www.altapipe.ualberta.ca/dwmcv1.htm) )