DR GORDON LONG FTSE FRAeS CEng FIEAust CPEng wins 2008 AGM Michell Medal

The AGM Michell Award, presented for outstanding contribution to Mechanical Engineering, perpetuates the memory of Anthony George Maldon Michell (1870-1959), an outstanding Australian Mechanical Engineer.

The AGM Michell Medal is presented by the College annually for outstanding service to mechanical engineering through either:

- Major contribution to the science or practice of mechanical engineering,
- Long standing eminence in mechanical engineering science or practice,
- Notable and sustained leadership pertaining to mechanical engineering, within Engineers Australia, or
- A worthy blend of all that has been mentioned.

On 4 April 2008 Dr Gordon Long was the recipient of this award.

Dr Gordon Long has worked in the Aeronautical Industry since 1962. He has a first class honours degree in Engineering (Thermodynamics) and a PhD from Queens University, Belfast. He is a Fellow of the Academy of Technological Sciences and Engineering and of the Institution of Engineers, Australia. He spent 30 years in the Australian Defence Science & Technology Organisation (DSTO) – including nine years as Chief of the Structures Division, Aeronautical Research Laboratory, two years at the then Royal Aircraft Establishment (RAE) in Farnborough, U.K., and the last seven years of his full-time career as the Director of the Cooperative Research Centre for Advanced Composite Structures.

He has worked in structural dynamics and aeroelasticity, unsteady aerodynamics, wind tunnel testing, fatigue testing and composite structures. He was awarded the Paul Anderson Memorial Prize by the Institution of Engineers London, the Walter Atkinson Memorial Prize by the Royal Institute of Naval Architects, the Lawrence Hargrave Medal by the Royal Aeronautical Society, Australian Division (RAeS), and the L.P. Coombes Medal by the Institution of Engineers, Australia.

His early research in conjunction with R. Traill-Nash was in the measurement and analysis of dynamic influence coefficients of structures. This pioneering work was the precursor to the modern modal vibration analysis methods. He subsequently worked with D.E. Davies of RAE on theoretical unsteady aerodynamics. This work established within Australia the basis for flutter analysis and flight testing. He has worked on flutter clearance of aircraft ranging from the Australian Nomad to the F-111 and F/A-18. He established within Australia major facilities for ground vibration testing of aircraft, for the measurement of dynamic pressures on oscillating models in the wind tunnel and for flight flutter testing.

He has acted as adviser to the then Civil Aviation Authority (now the Civil Aviation Safety Authority), the Royal Australian Air Force (RAAF) and the Australian Aerospace Industry. His skills in structural dynamics have also been applied to vibration problems on 18 ships for the Royal Australian Navy (RAN). He developed special vibration absorbers that were successfully used to reduce overall hull vibration on six landing craft for the RAN.

Dr Long was a member of Subgroup H, Aeronautics Technology of The Technical Cooperation Program (TTCP) for seven years and chairman for four. This international program provided scientific management and direction to collaborative research programs encompassing all aspects of Aeronautical technology. As Chief of Structures Division of the Aeronautical Research Laboratory (ARL), he led the development of dynamic fatigue testing of full-scale aircraft structures. This technology was successfully used to test the F/A-18 empennage at DSTO in Melbourne. This test was the most complex fatigue test every carried out and has successfully combined high frequency buffet loading with very low frequency manoeuvre loading, to produce a more realistic fatigue testing method. In 1998, DSTO was jointly awarded with other members of the team, the von Karman Award of the International Council of the Aeronautical Sciences (ICAS) for this outstanding work. Also in that year, Dr Long was personally awarded the ICAS Daniel and Florence Guggenheim Memorial Distinguished Lectureship Award for his career achievements in aeronautics.

Dr Long chaired the committee which successfully bid to establish the Cooperative Research Centre for Aerospace Structures (CRC-AS) in 1990, which subsequently became the Cooperative Research Centre for Advanced Composite Structures (CRC-ACS). He became the Foundation Director in 1991 and under his leadership CRC-ACS grew to become the major research body on advanced fibre composite structures in Australia. With some 85 staff focussing on research in advanced composites, the Centre achieved world class standards and recognition in its early years. The Centre has proved valuable in setting research priorities for industry, which has reaped considerable commercial benefits. In parallel with the above activities, Dr Long has maintained a high profile in the Institution of Engineers, Australia (EA) and has worked on and led many committees to set up and run the major biennial Australian Aeronautical conferences. After retiring from full-time activities, he has continued his service to the profession as a consultant and also through the EA / RAeS Joint Board of Aerospace Engineering and its Joint Conferences Committee.

The College of Mechanical Engineers awarded the 2008 AGM Michell Medal to Dr Gordon Long in recognition of his contributions to Aeronautical Engineering and his sustained service to the profession.