

TAKEO YOKOBORI GOLD MEDAL

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I am deeply appreciative of the very great honour bestowed upon me through the generous award by the International Congress on Fracture, ICF, of the Inaugural ICF Takeo Yokobori Gold Medal here in Ottawa, Canada at ICF12.

Takeo Yokobori is the founder of ICF and our highly revered Founder-President and through this beautiful gold medal created by CANMET we pay tribute to his vision and work in founding ICF, as we equally pay tribute to George Irwin through the award to Paul Paris and Alan Cottrell through the award to Rob Ritchie neatly triangling the ICF arena.

ICF traces its roots beyond Sendai. We might start in the more recent understandings of structural integrity and fracture mechanics with the IUTAM Conference in Delft in 1924 when A A Griffith presented his new theory of Brittle Fracture, developed at RAE Farnborough in England with supporting contributions to this work from C E Inglis and G I Taylor. Another step in Cambridge would have been the book by Constance Tipper “The Brittle Fracture Story”. This thread led onwards to the work of A H Cottrell, J F Knott, A Kelly, R O Ritchie and M F Ashby in *Cambridge* and the work at Imperial College led by J G Williams – and indeed the *Cottrell Medal*.

Another place to start might be with the Ductile/Brittle Transition research at ONR in the United States led by the failures of the “Liberty Ships” in WW2 as well as the formation in 1958 of the E24 Committee of ASTM in the wake of the Polaris Missile fracture problems. This thread resulted in a series of STP’s, Special Technical Publications, in Fracture & Fatigue with many luminaries: George Irwin leading the pack with Paul Paris, Jim Rice, George Sih, Frank McClintock, Bill Geberich, George Hahn, Alan Rosenfield, Ben Averbach, Alan Tetelman, Jerry Swedlow and many other famous people whereby one key node of creativity was *Lehigh*, leading to the Irwin Medal.

ASTM played a huge role in this and ICF is fortunate to have continued collaborations with both IUTAM and ASTM in our work today. There are many threads in this ICF Story and I am simply touching on some of these today. Paul Paris has promised to write a definitive historical account covering these roots.

It was at the seminal 1959 Swampscott, USA International Fracture Conference organised by Ben Averbach of MIT and others (George Hahn and Alan Rosenfield notably) that saw the conception of ICF and at ICF4 we named Swampscott 1959 USA as ICF0. Averbach at Swampscott suggested to Yokobori that it would be nice to have another International Conference on Fracture in Japan and that the Swampscott delegates would all come to Sendai if he could arrange this, at a critical time in the development of our discipline.

ICF1 in Sendai in 1965 was followed by ICF2 in 1969 at which ICF was founded and the ICF Founding Council was established. ICF3 was in Munich and with the support of Jerry Swedlow, Ben Averbach, Ron Armstrong and E24 I made a bid for ICF4 to come to Canada. I was at the new University of Waterloo and received great encouragement from Archie Sherbourne, Tom Brzustowski and Alan Plumtree in making this bid which was successful. I became ICF4 Executive Chairman for the 1977 ICF4 with a Monday Morning line up of Plenaries of Mike Ashby (opening honour lecture), George Irwin, Paul Paris, Jim Rice, John Knott, David Embury, Tony Evans... with Bruce Bilby giving the closing honour lecture and an ICF Forum discussionled via an interview with Alan Cottrell. ICF3 had no real proceedings and I was determined that ICF4 should publish an archival hard-bound fully edited Proceedings and this was published by Pergamon (now Elsevier).

I wanted then to bring together ICM, ICSMA, ICCM and other related conferences under a Pergamon Book Series and this was accomplished quite well. Thereafter there have been fractures and ruptures with various groupings and in 2009-2013 especially we seek to create a new unified and collaborative approach in ICF though close co-operation with ASTM, IUTAM, ESIS, ISIEAM and many other organizations, led from ICF so that ICF Quadrennials can continue to be our Olympics.

This will be especially important at ICF13 and we are already closely planning with Yu Shouwen to maximize this potential in Beijing in 2013. Following this with ICF14 when at last we move to Greece where the Athletic Olympics began in 2017 in a Greek-UK collaboration on the legendary Island of Rhodes led by Emmanuel Gdoutos. Then I hope myself that Vancouver will be the site for ICF15 in 2021 in a close collaboration with ASTM led by Ashok Saxena. We need a long-term vision for ICF in this way with attention to the new cutting edge routes forward.

Let me conclude by thanking ICF for this Great Award recognized through the ICF Presidents Krishnamswamy Ravi-Chandar and Alberto Carpinteri --and especially the ICF12 team in Canada who have created such a wonderful benchmark quadrennial with many innovations of enduring benefit to ICF through the leadership of Mimoun ElBoujdaini.