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«Structures, Today and beyond 2000» The Second International Oleg Kerensky Memorial Conference in Glasgow May 1990

This Conference was organised by The Institution of Structural Engineers in association with the American Society of Civil Engineers and IABSE. It provided a succession of thought provoking contributions which challenged Structural Engineers to face the demands of Society in a rapid changing world of finite resources and ever increasing aspirations. The needs of the less fortunate sectors of Society were an important consideration. The audience were drawn from 18 countries. The opening address by *Sir Monty Finniston* drew attention to many of the problems of today which are faced by structural engineers together with the influences of an increasingly internationally integrated world engineering scenario of shared technologies, recognition of skills and qualifications, and of competition.

The discussion periods, which had seemed lengthy on the programme, could have been doubled and enabled plenty of audience participation. New horizons for Structural engineers commenced with the views of the Director General for Design Services at the British Government's Property Services Agency, Bryan Jefferson who is also a past president of the Royal Institute of British Architects. He outlined the challenges presented by present competitive forces for design and for construction as seen by a major Client who is also about to give independant operation to its design teams. Professor Patrick Dowling of Imperial College reviewed a vista of opportunities for the future covering traditional and new materials, land based then marine and then space structures, use of limit state methods in structural codes. computer technologies and robotics. These were placed in context with economic, political, social and other factors. Dr Nicolai Tutos of Stone and Webster, USA, opened up the potential for the future by the use of information technology with the integration of design intelligence with detailing and management. He outlined the possibilities which come from three dimensional modelling on computer.

Significant developments in the use of traditional structural steel, structural concrete, and masonry were described by Peter Brett of Peter Brett Associates, John Peyton of Cornell Wagner, and Dr Bill Curtin of Curtins Consulting Engineers giving examples which produced cost effective solutions using their chosen materials. Trational materials clearly respond to a new approach. Sir Jack Zunz of Ove Arup provided a stimulating assessment on Architecture and Engineering with their demands on humans to provide an environment satisfying to humans. The large and diverse factors now affecting design indicate the need both to widen our education and to provide courses of different lenghts and purpose suited to the required intellectural applications which the trained persons are required to make. The stature of engineers in society is proportional to the breadth of their contribution.

The second day provided a choice of programmes between attending a Research Jamboree or a visit to the

100 year old Forth Railway bridge and 26 year old Forth Road Suspension bridge and then further major presentations. The Research Jamboree included the presentation of 23 contributions in 4 sessions on Durability and Assessment, Analysis and Testing, Design for the Future, and Information Technology. The Jamboree provided active discussions on many topics of current research from around the world. The main session started with a review of current US activities concerning Quality in Construction presented by Stephen Mitchell, Vice President of the ASCE and was followed by James Armstrong, President of the I. Struct. E on Service and Quality. James Armstrong outlined the increasing pressures on engineers to satisfy the needs of their clients with concern for the growing interests of society for its environment and the pressures of population and resources. He pressed the need to identify and proclaim a Strategy for our activities. Equally thought provoking was a Discussion Forum on the Philosophy of Design led by Professors Philip Cooper from Leeds and lain MacLeod from Strathclyde with Colin Sanderson of the Scottish Sculpture Trust. They emphasised the needs to question what is required, develop visualisation skills, be aware of the resources and choices available. develop a critical eye, be concerned with aesthetics and form, and to recognise inter disciplinary influence.

The final day brought the choice of hearing Professor Fritz Wenzel of Karlsruhe University on New Techniques and Old Buildings followed by Dr Bill Harvey of Dundee University on New Bridges for Old or Geoffrey Hutton of Hutton and Rostron on Information technology followed by Chris Kaethner of Ove Arup on the quality of technical software. The audiences rejoined to hear Professor Horst Falkner from the University of Braunschweig deal with transportation in the future giving as am example a high speed magnetic levitation train system, Dr Kuniaki Sato from Kajima Corporation on the future prospects for building structures, and Professor Ted Happold from Bath reviewed the development of engineering skills over the past 100 years and the different challenges we shall face and the means we shall use in the future. The conference closed with David Quinion, Chairman of IABSE British Group, reflecting on the discussions and the themes raised rapid use of research, design life and use, gathering of experience, quality assurance, computers for engineers, education, guidance from nature, form and aesthetics, design and build, private financing, building physics. These were among the structural challenges for the future.

Most of the presentations are obtainable in a special issue of the Structural Engineer and separate volume of the Research Jamboree papers published by The Institution of Structural Engineers, 11 Upper Belgrave Sreet, London, SWIX 8BH priced £ 40 and £ 25 respectively.

(David Quinion)

34