

PREFACE

Aeronautics has played and will continue to play a major role in the world. It fulfils the important needs of our society to transport at great speeds and over long distances people, goods and information to anywhere on earth. Aeronautics is considered as one of the largest contributors to the world economy. This is because the well-being of our society depends on a complex communication and work-sharing system which in turn requires fast and long distance distribution of products and people as well as the speedy organisation of national and international business activities and leisure pursuits. Only education is deemed to have a larger impact on our economy and welfare than aeronautics.

The International Council of the Aeronautical Sciences - ICAS, contributes both to the furtherance of aeronautics and to education, particularly by means of the Congresses that it organises. In accordance with its constitution ICAS encourages the free exchange of information on all aeronautical problems of scientific interest and promotes international cooperation in the study of such problems.

ICAS serves as the federation of the world's scientific/technological aeronautical societies. It has now thirty-one Full Members and it is expected that during this year two more Full Members will join. In addition, it has a complement of several Associate Members such as aerospace companies, research establishments, scientific and academic institutions.

As a result of a suggestion backed by generous financial support by Daniel and Florence Guggenheim, ICAS was founded in 1957 when a number of the leading aeronautical societies in Europe and N. America enrolled to form ICAS and outstanding aeronautical scientists enthusiastically took part in its activities. ICAS is honoured that it can look back to a series of Presidents of the highest scientific reputation, starting with Theodore Von Karman (USA) and succeeded by M. Roy (France), J. Green (Canada), R Bisplinghoff (USA) and J. Singer (Israel).

ICAS bestows several Awards of great distinction. The Daniel and Florence Guggenheim Lecture, with which an Award is associated, is intended to highlight important scientific advances. It is a particular pleasure for me that at the 17th Congress Marten Landahl, Full Professor at MIT and formerly Full Professor at the KTH in Stockholm, has accepted the invitation to present this Lecture, and his topic is the very important and timely one of CFD and Turbulence. It will be given at the opening session on Monday.

ICAS is an international federation. Therefore two further Awards have been established recognising multi-national achievements. Firstly, the 'ICAS - Von Karman Award' is given for international collaboration of organisations in a successful development or research program. The recipients are outstanding representatives of the organisations involved. I am delighted that at the present Congress the Program Committee decided to make the Award for transatlantic cooperation on the high by-pass engine CFMI within the US/French GEAE/SNECMA Alliance. It will be a highlight of the Congress closing session to witness the award of Von Karman Medals to Mr B. Rowe and M. Louis Gallois and to hear their ICAS Von Karman Lecture.

Secondly, international cooperation depends on the vision and untiring efforts of exceptional individuals seeking to engage the active collaboration of fellow scientists and colleagues covering a wide range of backgrounds and countries. Maurice Roy, the second President of ICAS was such a man. As a memorial to him, ICAS jointly with the AAAF (French Aerospace Society) present at each Congress the Maurice Roy Medal to a person of high distinction who has made outstanding contributions to international collaboration and the mutual understanding of scientists and engineers of different nations. It is with great pleasure that I announce that at this 17th Congress the Award will be made to Professor Josef Singer on the occasion of the Banquet.

ICAS wishes to encourage young students of promise. Therefore we have established Student Sessions at each Congress where they can present the results of their work, usually based on their Master, Diploma or Doctoral

theses. Mrs Camille McCarthy, the widow of the late John McCarthy, has in memory of her husband, most generously instigated the ICAS McCarthy Award to be given to the author of the paper judged the best of the student presentations. John McCarthy was for many years a most valued and active member of ICAS Committees and his wisdom and judgement have been much missed.

The biennial ICAS Congress is a uniquely comprehensive forum for the world's aeronautical scientists and engineers. At this Congress there are seven parallel sessions at which about 250 papers are to be presented. About 500 abstracts, most of very high quality, were submitted and the Program Committee had therefore the difficult task of selecting only half for presentation. Each case was carefully debated, and it must be emphasised that the balance of the resulting Program was an important factor in the decisions taken. However, about 60 papers have been designated as reserve papers, as inevitably there are late cancellations, and these papers are published in the Proceedings if they have been made available by the authors. I must therefore give special thanks not only to the authors whose papers will be presented but to all the other authors accepting to be put on reserve and to those who understand that not all submitted papers can be incorporated to the program. They all contribute to the system of Congress-making and I highly appreciate their active interest in the Congress. We hope that they are all able to attend and will in any case have opportunities to contribute salient features of their work during the discussions.

Additional to the two named Lectures already referred to there are three invited General Lectures by distinguished experts. These are 'Flight Simulation and Digital Flight Controls' by D Chatrenet of France, 'Advance Composite Research and Development for Transport Aircraft' by J.G Davies and D.R Tenney from USA, and 'The X-31 - An Advanced Highly Manoevrable Aircraft' by M.R Robinson from USA and W Herbst from Germany.

I have already remarked that seven parallel sessions were needed, this is a reflection of the considerable progress in aeronautics that has taken place since the 16th Congress two years ago. Every effort has been made to

reduce overlap of related topics between simultaneous sessions but some overlap could not be avoided. However, it is believed that the residual overlap is not serious. It might be regarded favourably to some extent because it supports the inter-action of people and ideas that is part of the purpose of a congress.

My most sincere thanks go to the Program Committee and, in particular to its Chairman, Richard H Petersen, for their excellent work in preparing the Call for Papers, their careful choice of topics, their responsible evaluation of the abstracts, their selection and ordering of the papers and the provision of Session Chairmen. I commend the enthusiasm, devotion and skill with which they tackled these tasks. The success of the present Congress reflects their considerable achievements. I must also warmly thank the Session Chairmen, they are all distinguished and busy people in responsible positions but they have freely given of their limited time to help us sustain the efficient organisation of the sessions.

The Swedish Organising Committee and its Chairman, Dr Göran Lilja, have done everything possible to make the Congress a happy as well as efficient event. The selection of the venue, the social activities, tours and other domestic arrangements have been most thoroughly planned and organised. The experience of being guests at beautiful receptions in historic buildings will be long remembered by the delegates and their companions. On behalf of the Council as well as all the participants I wish to express sincere thanks to our Swedish hosts for their excellent arrangements and their warm hospitality.

Sadly, I have to report that last year our Council and Executive Committee Member, Dr Stig Lundgren died. It was he who kindly invited us to come to Sweden, to beautiful Stockholm. His enthusiastic involvement in ICAS activities was invaluable and will never be forgotten by his ICAS colleagues. He will remain in our memory as a great man and sincere friend.

I also wish to commend the wide-ranging activities of Professor Alec Young in his capacity as Officer and Executive Secretary of ICAS guiding the daily work and advising his colleagues. He is a focal point of contact for our member Societies and by virtue of his own outstanding reputation as an aeronautical scientist has helped to strengthen the acknowledgement of ICAS as a world forum for the aeronautical community.

It is my special pleasure to express my gratitude to the Royal Aeronautical Society for being host to the ICAS Secretariat for the past four years. The strong support ICAS has always enjoyed from the Society is a source of great encouragement. Coupled with thanks to the Society, I wish to express my sincere thanks and appreciation for the excellent services as ICAS Coordinators of Mrs Sue Arkell and Miss Maria Aprilante. Their tasks called for great professional skill and judgement and involved periods of very high workload, and they coped with these tasks with quiet efficiency, charm and good humour. Thanks are also due to my own secretaries Mrs Will and Mrs Etmüller for their friendly help.

All these people and organisations to whom thanks are due give me the comforting certainty that ICAS will continue to enjoy the assistance and enthusiasm it needs to perform its mission effectively and it can therefore look towards a prosperous future. It remains only for me to confidently wish all the delegates a most fruitful and happy Congress.

Boris Laschka
ICAS President