

Opening Remarks

by Chairman J. R. Paulling

On behalf of the Department of Naval Architecture and Offshore Engineering of the University of California and the American Towing Tank Conference, I take great pleasure in welcoming the 20th International Towing Tank Conference to San Francisco. While three years seems long, the time since the 19th ITTC in Madrid has passed quickly and has been a busy period for the ITTC technical committees as well as the conference organizers.

Although both the world wide shipbuilding and offshore construction industries are somewhat depressed at the present, our organization remains viable and has even experienced growth in membership. Since the Madrid conference we have added ten new member organizations from Japan, Indonesia, India, the UK, Canada and Texas, and three new applications are pending EC action.

Twenty-five years ago the major concerns were the choice of the most appropriate friction extrapolator and the conduct of self propelled model tests in a manner as free as possible from scale effect. The basic techniques for conducting ship model tests differed little from those of Froude's day, though the instrumentation had evolved with the aid of the available electronics. Today, our clients are coming up with new developments that place ever increasing demands on our capabilities for providing answers. Rather than limitations of model size and tank blockage effects, many tanks today are confronted with the limitations of their computing resources in performing CFD analyses of the problems associated with these new and unprecedented systems. Problems which at that time were strictly in the realm of R and D are now encountered routinely during the design of these systems. Examples may be found in the area of high performance craft such as SWATH and surface effect craft, or magnetohydrodynamic propulsion ("caterpillar drive" to the fans of Tom Clancy), which is now a fact. There are large seagoing ships having novel features that require innovative analysis and testing, an example of which is the open top container vessel. In the realm of ocean engineering systems, the TLP was a laboratory curiosity, and we now see two in service with three more under construction (representing quantum increases in size) and many more in various design stages. The design and testing of sailing yachts comprises a major effort with great challenges in many laboratories. Here the complexity and difficulty of the model testing program with its multiplicity of parameters, rivals the problems of raising money and managing the publicity of an America's Cup campaign.

Such systems are being designed and built in a climate that demands increased efficiency and increased safety of life and the environment. But these are obviously not conflicting demands: an unsafe, unreliable ship is neither efficient nor economical. The solutions to the special problems in the design of these systems or ships cannot be solved by routine model tests but require ingenuity, imagination and a thorough knowledge of both model testing and underlying hydrodynamic analysis. The ITTC is the most important international forum for the exchange of information on the latest research developments involved in the solutions of these problems.

The technical program of the 20th ITTC has been planned to provide an opportunity to address the relevant marine science and technology involved in responding to these needs. The ongoing

technical committee program structure provides the means of covering the most recent developments in the traditional areas of concern to our members and their clients. In addition, we have scheduled specialized workshop and poster sessions that are intended to highlight new and emerging problem areas and technologies.

As has been traditional with the ITTC, there is also a nontechnical component to the conference. We have planned a social program for members and guests that is intended to introduce some of the attractions for which Northern California is so well known. An excursion is scheduled to the city of Monterey which played an important role in California's early history, and which now contains a remarkable aquarium highlighting the local sea environment and aquatic life. Finally, the conference banquet will provide an opportunity to sample the ambiance and some of the famous wines of the nearby Napa Valley.

I am sure that you will find the 20th ITTC to be technically and professionally successful and I hope that your visit to San Francisco will be a memorable one.