

Notes from Abroad

CONVINCED that all of us harried, overly busy Americans have no time for dull articles or speeches dealing with platitudes and exhortations for changing people, journals, and the world, I am taking the liberty to devote this year's editorial to some impressions gained to date during a sabbatical in England and Europe.

The hurly burly of New York, the ceaseless chatter of the news media glutted with nauseating political revelations, the poundings of TV commercials, and the daily strain for contracts were all dropped astern of the S.S. France one blustery afternoon last July. It was indeed an experience, a gourmet's delight to indulge, even so briefly, in the luxury of first class on one of the last of the vanishing breed—the transatlantic passenger liner.

Some seven weeks were spent at the University, Leicester, England, where life pulses serenely most of the time, but the Breslin Black Cloud (BBC) had developed a phase lead, precipitating a collapse of part of the building housing mathematics. So after only two days in a fine, corner office, all hands were thrown out of the “condemned” building (only 10 years old) and consigned to the nearby “dungeons.” In spite of such trivial turmoil, the days were spent well working with Professor T. V. Davies who has become a leader in Britain in the development of optimal control theory. Although this subject, as applied to systems modeled by ordinary differential equations, is quite well known, T. V. Davies has been quietly extending the concepts to embrace phenomena representable by partial differential equations. This appears to be a verdant area for applications which are not yet conceived. His work to then had been largely restricted to problems in gas dynamics, or systems involving hyperbolic equations. Extensions to elliptic equations such as Laplace's, were not complete. Methods to handle problems in which the geometry of a boundary is to be optimized in regard to certain criteria also were being developed by Professor Davies. His interests also embrace very relevant problems in physical oceanography and meteorology.

Informative discussions were had with Professors Evans and Peregrine at the University of Bristol where viable theories for new types of breakwaters and basic wave phenomena have been under development. The Institute for Fluid Dynamics at the University of Essex also was visited. Here, the Director, Professor Brooke Benjamin, exhibited several basic studies dealing with wave diffraction and flow stability, and other relevant problems. This Institute is rare in universities on this side of the Atlantic in that it is strongly devoted to application of mathematical techniques to problem areas of interest to engineers and oceanographers.

It would seem, from my own myopic view, that British industry and the engineering divisions of the governmental agencies do not avail themselves of the potentially very effective applied mathematicians in these and other uni-

versities in England. Surely the gap they feel is greater than generally experienced in the U.S.

The Fifth International Ships Structures Congress which was convened in Hamburg, September 10–14, was attended by some 150 specialists from 26 countries. The reports of the twelve working committees comprise a printed volume of 1000 pages, dealing with all aspects of ship structural design, loads, and environmental conditions. Considerable attention is being focused upon vibratory response due to low frequency waves, referred to as “springing” of the hull girder. The accurate prediction of vibratory responses and stresses due to the sea and propeller-generated forces are yet to be achieved because of the lack of definitive prediction of the exciting forces and the damping associated with the various modes. Finite element analyses for entire hulls and substructures have now been achieved, mainly by exploiting the extensive development of programs evolved by the aerospace industry and research agencies.

Unfortunately, as is true for so many technical meetings, the ability of many of the scientists and engineers to project their ideas in a clear fashion was again woefully low (with notable exceptions). Unanimated deliveries, “illustrated” with undecipherable slides, abounded, completely out-of-keeping with (I am sure) the fervor of the speaker to convey the product of his work of many years. How to overcome this prevalent syndrome? A firm of technically able “Dale Carnegie” communication specialists might be able to make a “fortune” educating us! The next Congress, which will be held at MIT in 1976, provides a challenge for the American Committee not only in this respect but also in regard to meeting the standards of organization set by Herr E. Pless and his colleagues at Hamburg.

As an American member of the ISSC, and also as an observer, one cannot fail to be impressed with the vigor and innovations of workers in merchant ship research in Europe and Japan. With some notable exceptions, the American scene appears relatively reactionary, owing partly, I am sure, to the low position to which ship development is relegated in the national list of priorities in the USA.

A belated invitation permitted my participation (for a week) in a Symposium on Propellers and Cavitation at the Shipbuilding Research and Design Institute at Varna, Bulgaria. There, with the assistance of the Intergovernmental Maritime Consultative Organization (IMCO), the Bulgarians are constructing a new ship research center. This will consist of two towing tanks, a maneuvering tank (for 6-m models), a cavitation tunnel (60- × 60-cm test section) and a ship structures laboratory. The announced purpose of this seminar was the upgrading of their technical staff of 50 graduates in engineering and science. The eagerness of this young staff to learn all facets of ship hy-

drodynamics was refreshing to sense; their grasp of many topics is already quite profound. Transmission of ideas was tortuous, however, because of the language barrier; nonsimultaneous translation made the delivery of lectures lengthy and sometimes bewildering.

Daily life in Bulgaria and Romania (visited subsequently) was a bit reminiscent of stepping back forty years (or more!) in the U.S. Housing and food are low in cost, selections appeared limited, and items in the class of "luxuries" are very expensive for these people. Although most of the audience in the sessions appeared somber, they showed a great capacity to "have a ball" at the banquet held on the last evening when with the lubrication of vodka, slivovitz, and wines, I found many knew all the words in English to harmonizing songs. Certainly not a new discovery to find again that people are basically the same everywhere! The visit was made especially cordial by the warmth of the Directors, Professor Guliev and Dr. Bagdanov.

As a visiting specialist at the Skibsteknisk Laboratorium (Danish Ship Research Laboratory) in Lyngby, Denmark, I am thoroughly enjoying a fine quiet place to work amid a group of researchers involved with various aspects of experimental and theoretical ship mechanics. Considerable work is going forward on the rough water behavior of surface effect ships under contracts originating with the U.S. Navy. Their large amplitude planar motion apparatus for determination of the force and moment coefficients necessary for course stability and maneuvering predictions is entirely unique in the world of "tankery." Again one sees models of innovative ship designs not generally seen in the U.S. model basins.

The new home of the Danish Technical University at Lyngby is expansive (1 km \times 0.5 km) and abounds in the

tasteful designs for which the Danes are renowned. The Department of Naval Architecture, formerly chaired by Professor C. W. Prohaska who was also the "father" and Director of the "Laboratory," is now ably headed by Professor S. A. Harvald who is also Director of Skibsteknisk Laboratorium. A new program for educating naval architects, which radically departs from the traditional regimen, is now in its third year of trial. It certainly would be useful to study its applicability to such types of educational curricula in the U.S.

The cost of everyday life here appears greater relative to income than in the States! [Cost of a car plus tax (160%!) is astronomical.] All the Danes complain of their enormous income tax rates (67% on \$25,000; 55% on \$14,000), but yet one does not see them fleeing the country! My impression (albeit on a short-term observation) is that one can live a less diffused life here and can thereby find the time to concentrate on finding the joys inherent in even the simplest of experiences.

In these travels I have endeavored to spread the word about the *Journal of Hydraulics* and continually seek new, competent authors. At the outset of 1974, be again assured of our untiring efforts to advance the Journal, and our appreciation of your support. My warmest thanks to Gordon Dugger, AIAA Vice President-Publications, Ruth Bryans, AIAA Director of Scientific Publications, Anne Huth, AIAA Managing Editor, Scientific Publications, and their dedicated Staff for all their help in making this sojourn feasible. All of us join to thank our reviewers (listed below) and authors for their fine work during 1973.

John P. Breslin
Editor-in-Chief

JOURNAL OF HYDRONAUTICS*

Reviewers—September 1, 1972—August 31, 1973

Ailor, William H., II
Besch, Peter K.
Bishop, R. E. D.
Casarello, Mario J.
Cummin, R.
Cuthbert, J.
Dalzell, J.
Dogan, Pierre
Eda, H.
Granville, Paul

Hess, John L.
Hsu, Chun Che
Jewell, David
Kerwin, J.
Kowalski, T.
Landweber, Louis
Lee, C. M.
Levine, L.
Lum, Samuel M. Y.
Lurye, Jerome

Milgram, J.
Moran, J. P.
Morgan, William B.
Ray, C. Thomas
Salvensen, N.
Schoenherr, Karl E.
Tsakonas, S.
Tuck, E.
Van Mater, Paul R.
Vytlacil, Nicholas Jr.

*Because it is difficult to include the reviewers for September, October, November, and December 1973 in this issue of the Journal, they will be listed with reviewers for the 1974 in the January 1975 issue.