

Engineering in the Seas around Us

OCEANOGRAPHERS have, in the past decades, given mankind foundational knowledge of the life, chemistry, and physical structure of the oceans of our world. Now, with growing awareness of the vast resources beckoning in the seas around us, the rational exploitation of these wealths becomes a task not for the scientist, but for the engineer. The burgeoning field of oceanic engineering is upon us and is advancing at an ever-accelerating pace in the United States due in part to governmental interest and to the initiative shown by many industries. This new field of engineering is rapidly outstripping the existing facilities for reporting the results of its investigations and accomplishments.

The need at this time for an additional means of dissemination of knowledge of this new area of activity arises primarily from the fact that there are very few engineers and applied researchers who have been formally trained in the specifics of oceanology. Analogously, a decade or so ago there were few who had any detailed knowledge and understanding of the vagaries of rocket design and space travel. The explosive growth of capability in astronautics was accomplished, not by waiting for the formal college education of "space-engineers," but by the adaptation of practicing engineers and scientists. This adaptation has been vastly accelerated through the exchange of concepts provided by many notable publications. The AIAA has been in the forefront of this work with *AIAA Journal*, the *Journal of Spacecraft and Rockets*, the *Journal of Aircraft*, and the magazine *Astronautics & Aeronautics*. Now a similar task must be met in assisting the rapid metamorphosis of all types of technical men to "inner-space engineers."

The societies which merged to form the American Institute of Aeronautics and Astronautics—IAS and ARS—always have recognized their obligation to disseminate theoretical and experimental knowledge in hydrodynamics. More recently, coverage of this field, enlarged in scope, was provided by the Marine Systems Supplement of the *Journal of Aircraft*. Now, in view of the growing involvement of many of its members in oceanic engineering and allied activities, the AIAA is pleased to meet its expanded obligation by sponsoring the *Journal of Hydronautics** as a formal vehicle for reporting the significant results of these new engineering and research activities.

This new Journal, which begins life with this issue, will appear quarterly. Our intended mission, as defined by the scope to be found on the inside front cover, is to provide a medium for exchange of ideas contributing to the advancement of all aspects of man's efforts to use the oceans. The *Journal of Hydronautics* will contain papers on the design of underwater vehicles and propulsion systems and the application of basic information concerning the influence of the environmental characteristics of the seas on craft, structures, measuring techniques, etc. Purely scientific papers on oceanography and geophysics which do not relate directly to the engineering of craft, instrumentation, and procedures for exploration and habitation of the seas are not sought in competition with the several fine publications in those disciplines. To be sure, the borderlines between science and technology are often not distinct, prohibiting the adherence to well-defined rules for paper selection. The ultimate decision rests with the Editors, who will do their best to bring forth those contributions which are judged to be useful to those involved in applied research, development, and education in this field.

The Editors seek papers having professional, archival stature in keeping with the high standards established by the AIAA in all of its journals. To assure that these goals are met, each submitted paper will be given at least two reviews by engineers or scientists known by the Editors to be competent in the relevant specialty. Contributors are assured that every effort to favor the author's position will be made and that the chance for healthy controversy will be courted rather than risk the throttling of stimulating concepts.

* AIAA did not coin the word "hydronautics." As far as we know, its first practical usage was by AIAA members Phillip Eisenberg and Marshall Tulin who call their research firm, established in 1959, Hydronautics, Incorporated.

JOHN P. BRESLIN Editor-in-Chief

B.S. (Naval Architecture)
1944, Webb Institute of Naval
Architecture.

M.A. (Applied Mathematics)
1951, University of Maryland.
D.Sc. (Applied Mechanics)
1956, Stevens Institute of
Technology.

Professional interests include
hydrodynamics of undersea
and surface craft and naval
architecture.

Director, Davidson Labora-
tory, Stevens Institute of
Technology, Hoboken, N. J.



WINFIELD H. ARATA JR. Associate Editor

B.S. (Engineering), Univer-
sity of California.

Professional interests include
aircraft design and opera-
tion, advanced marine sys-
tems, and transportation sys-
tems analysis.

Deputy Director, Northrop/
Nortronics, Hawthorne, Calif.



LEONARD GREINER Associate Editor

B.A. (Physical Chemistry)
1943 University of California
at Los Angeles.

Professional interests include
propellants and powerplants
for use in water, air, and
space, and on surfaces.

Technical Assistant to Man-
ager, Research and Advanced
Technology Department,
United Technology Center,
Sunnyvale, Calif.



The success of the *Journal of Hydronautics* in meeting the needs of all readers in this new field inevitably will depend upon the enthusiastic support of many people, primarily those who contribute their work and those who serve as reviewers. To those who are asked to take on the burden of reviewing manuscripts, it is important to realize our dependence upon timeliness, attention to technical detail, and constructive criticism. We, the initial Editors, pledge our diligence to advance the Journal in a manner that will assure its performance at a level of competence appropriate to a meaningful professional journal.

J. P. Breslin, Editor-in-Chief