

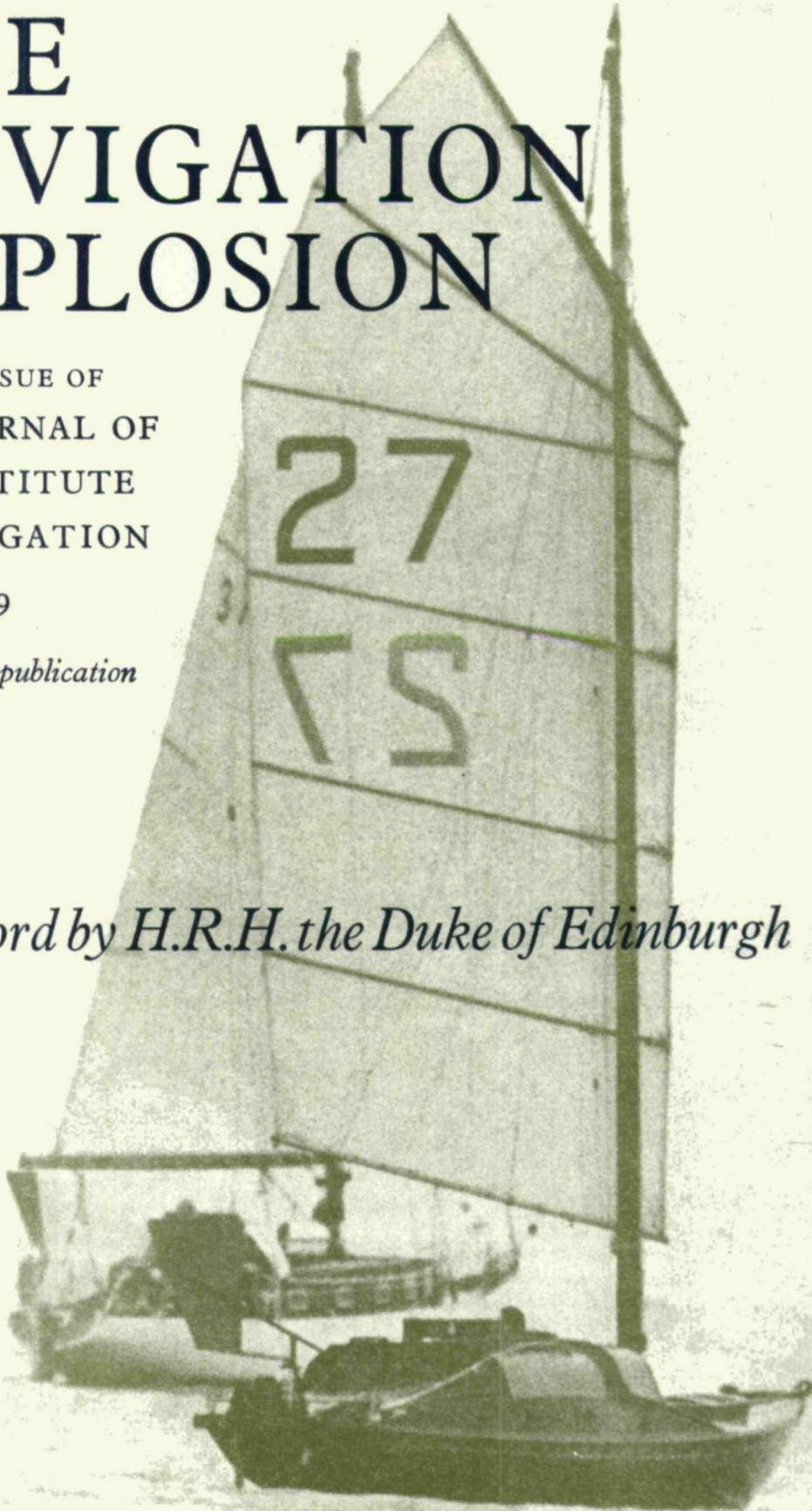
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SPECIAL ISSUE OF  
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THE INSTITUTE  
OF NAVIGATION

January 1969

*21st year of publication*

*Foreword by H.R.H. the Duke of Edinburgh*



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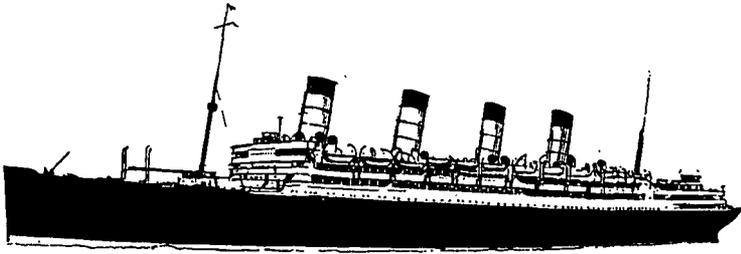
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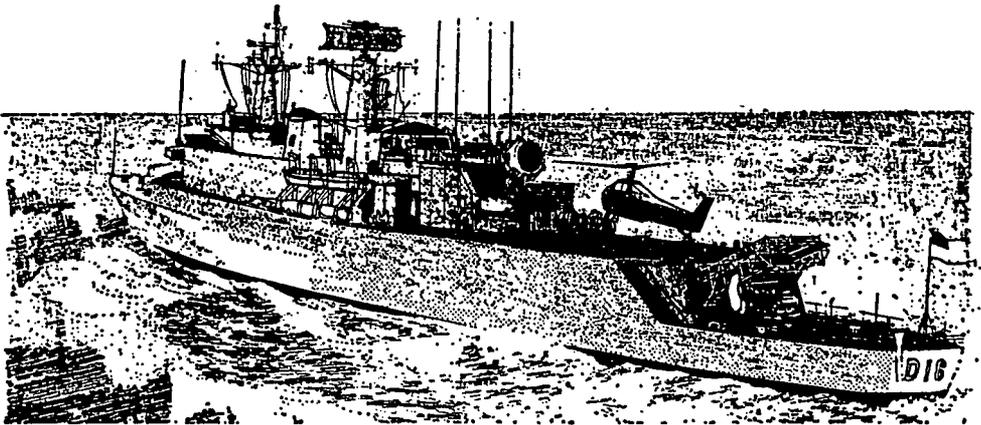
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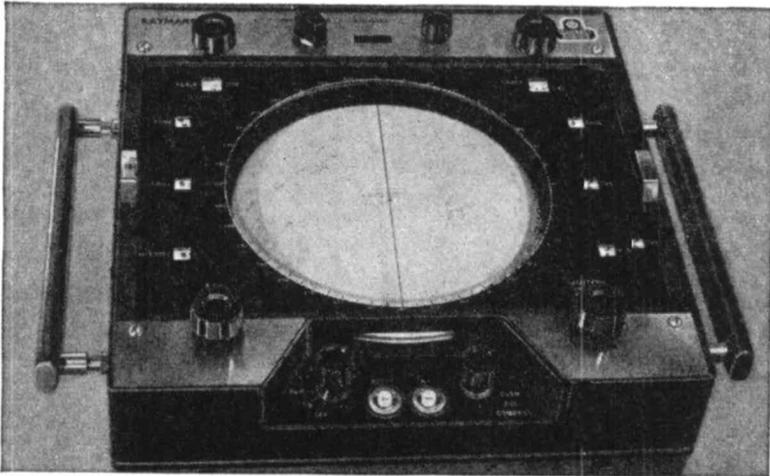
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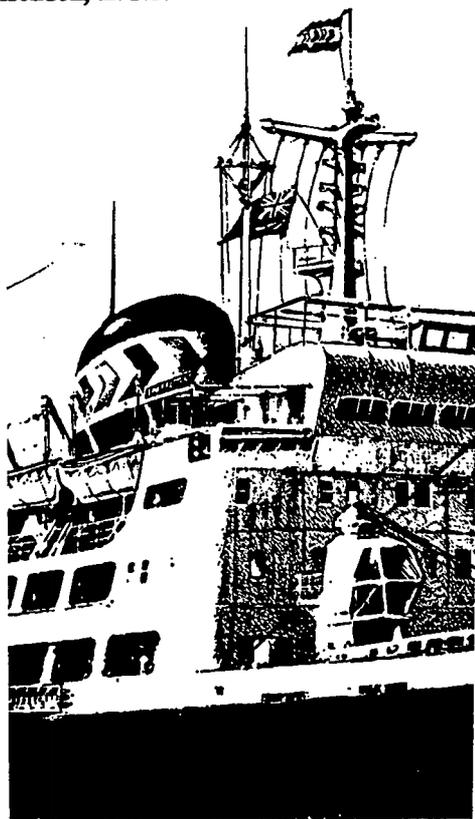
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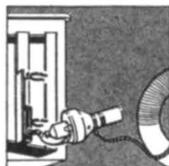


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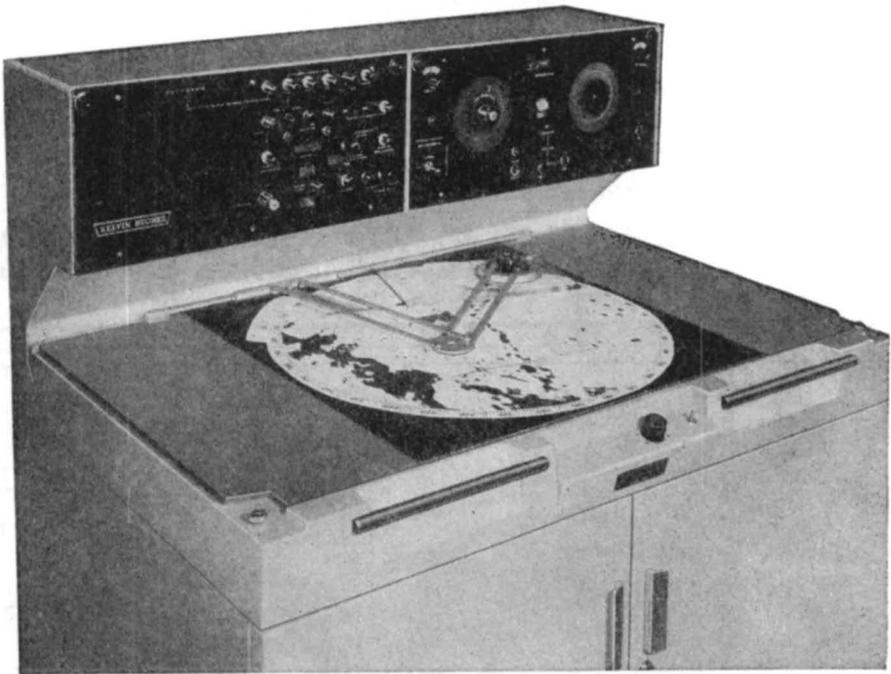
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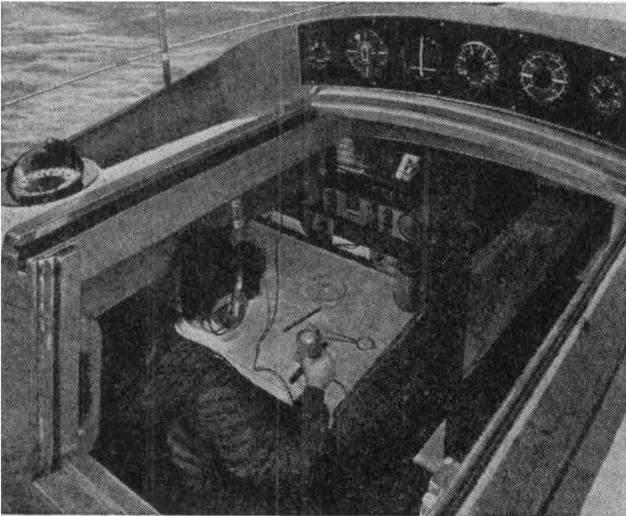
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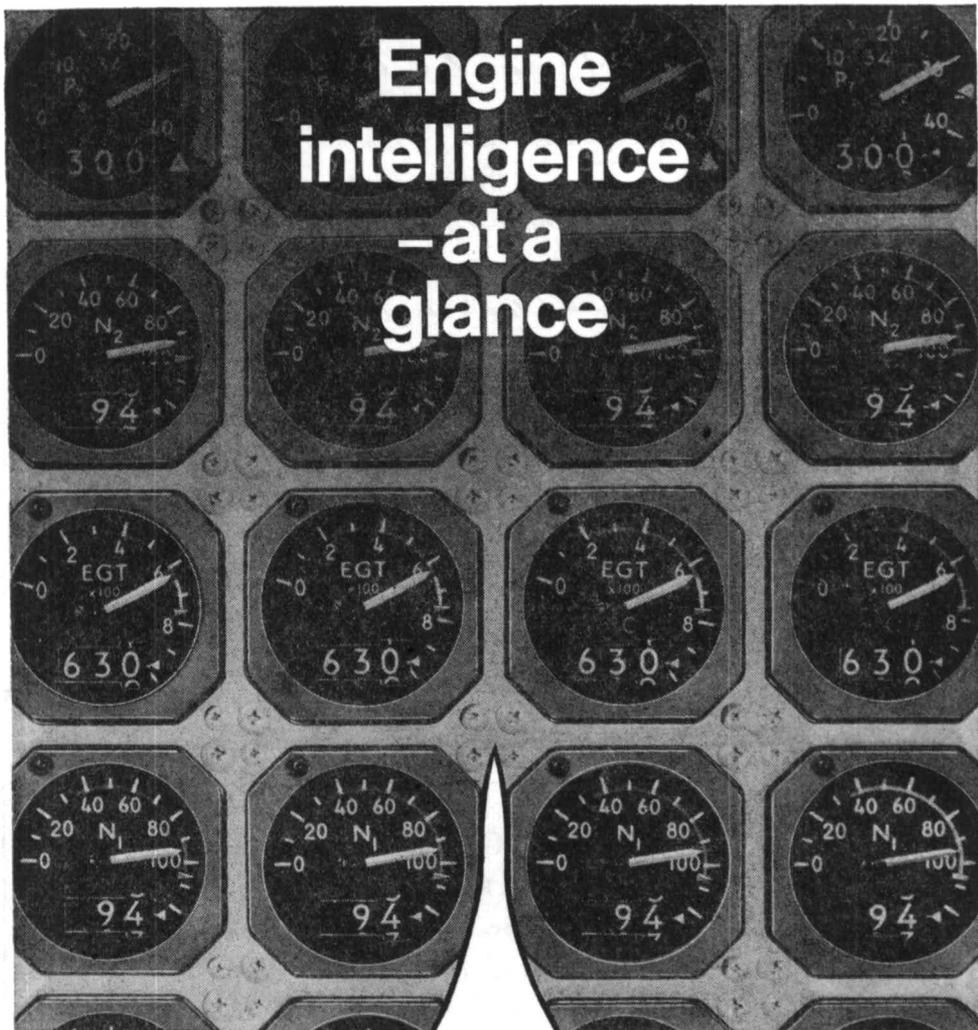
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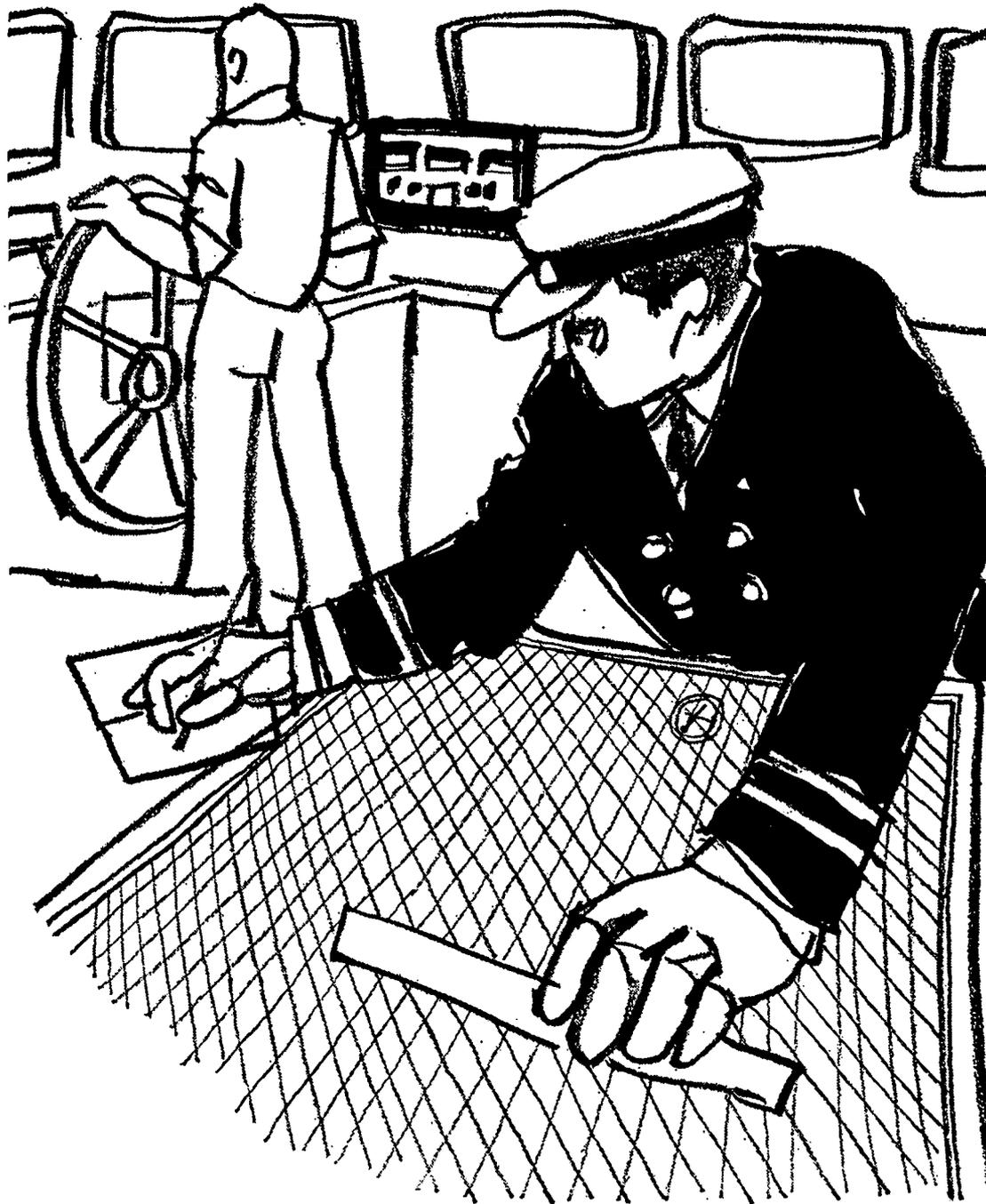
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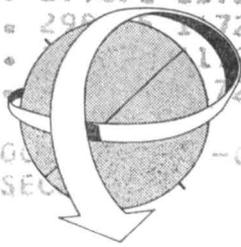
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With this number, the Journal of the Institute of Navigation celebrates its twenty-first year of publication. I am not altogether certain of the significance of twenty-one years but it seems as good a moment as any to remark on the high standard of content and presentation that it has achieved, and on the very valuable contribution it has made to the development of navigation in a period of rapid change. The Journal is widely acknowledged to be one of the world's leading periodical publications on navigation, and this attracts a great number of contributions from abroad. In the first volume only one out of the thirty-eight contributions came from abroad; ten years later the proportion had risen to some forty-five per cent. Contributions come from every country where the problems of navigation are studied and techniques are under development:- from the U.S.S.R., Japan, the United States, Australia, South America and almost every country in Western Europe.

Although the Journal includes the reports of the proceedings of the Institute, it is not limited to that. Only a minority of the papers published have been presented at Institute meetings and the circulation is much wider than the membership. To that extent it may be looked upon as the Institute's most valuable creation.

None of this could be achieved without wise guidance and impeccable editing. The Institute deserves to be congratulated on the wisdom of its publication policy, and the Editor deserves high praise for the way that policy has been carried out.

For this anniversary in the Journal's life the Editor has decided to publish a somewhat reflective number in which invited contributors look back at the developments that have taken place over the last twenty-one years, consider the present state of the art, and do a little crystal gazing about the future.

They have quite a story to tell as I know very well myself. I went to sea before radar - or even radio location - and I flew before V.O.R.'s, Decca or I.L.S.

I hope the Journal will long continue to record the state of the art of navigation and that its columns will always be full of new and challenging ideas.

## *The Navigation Explosion*

THIS number of the *Journal* marks a suitable moment to pause and consider the changes that have taken place in navigation over the period of its life, when, as Wing Commander ANDERSON points out, probably more thought has been devoted to the subject than at any time in its long history. There has in effect been a navigation explosion, an expansion of ideas, techniques and methods perhaps unparalleled since the sixteenth century. To suggest this happening the number has been given a distinctive title and is devoted to invited contributions which attempt in different ways to take stock of the present situation. The selection only roughly covers the whole subject, but it has not been made capriciously.

The presidential address squarely sets the scene for navigation in a technological age, reviewing the principles of modern navigational aids within a wider historical context. The key role the Institute has played, to a large extent through its *Journal*, in the development of modern navigational thought is the theme of Wing Commander ANDERSON'S paper, written in a characteristically brilliant style. As Captain WYLIE points out, the birth of the Institute coincided very closely with that of commercial marine radar and he here traces, in a comprehensive and valuable paper, the history of this branch of navigation since that date. Last year's gold medallist, Dr. CALVERT, largely through his contributions to the *Journal*, has had a profound influence on thinking about collision avoidance by manoeuvre, both at sea and in the air, and his present paper summarizes the results of his geometrical analysis of the subject. Collision avoidance is also, of course, the primary purpose of traffic separation at sea. Here the Institute played a decisive role in getting the principle accepted internationally and put into effect in the Dover Strait. No one's thought has so dominated this work as that of Commandant OUDET who here relates the circumstances in which these fruitful activities took place and how the work is being continued. Twenty-one years ago, astronomical navigation was still a primary aid both at sea and in the air. But if other methods have largely superseded the sextant, the place of astronomy in navigation has not declined, as D. H. SADLER, the Superintendent of H.M. Nautical Almanac, shows in his masterly review. Dr. DEACON, Director of the National Institute of Oceanography, writes on the intimate and growing connection between that science and navigation and Captain WEPSTER, bronze medallist for 1968 and a frequent contributor to the *Journal*, looks at the navigation of merchant ships in the future. Navigation plays an integral part in the economic operation of commercial aircraft, a theme which J. E. D. WILLIAMS, who himself operated an airline, writes on with perception and wit. Economics and navigation is also the underlying theme of A. M. A. MAJENDIE'S thoughtful paper in which he discusses the importance of timing in any technological advance. Animal

navigation may be said to belong to the cultural side of the subject, as does the history of navigation, to which such important contributions have been made through the medium of the *Journal* by authorities such as the late Professor E. G. R. TAYLOR. Possibly no one has made so thorough a study of his own subject as Dr. MATTHEWS, who has frequently contributed to the *Journal* in the past.

Finally, the account of *Jester's* transatlantic passage this year, although it has a coincidental connection with the Institute's twenty-first anniversary celebrations, may primarily interest members of the navigational community whose major interest in the subject is an enthusiasm.

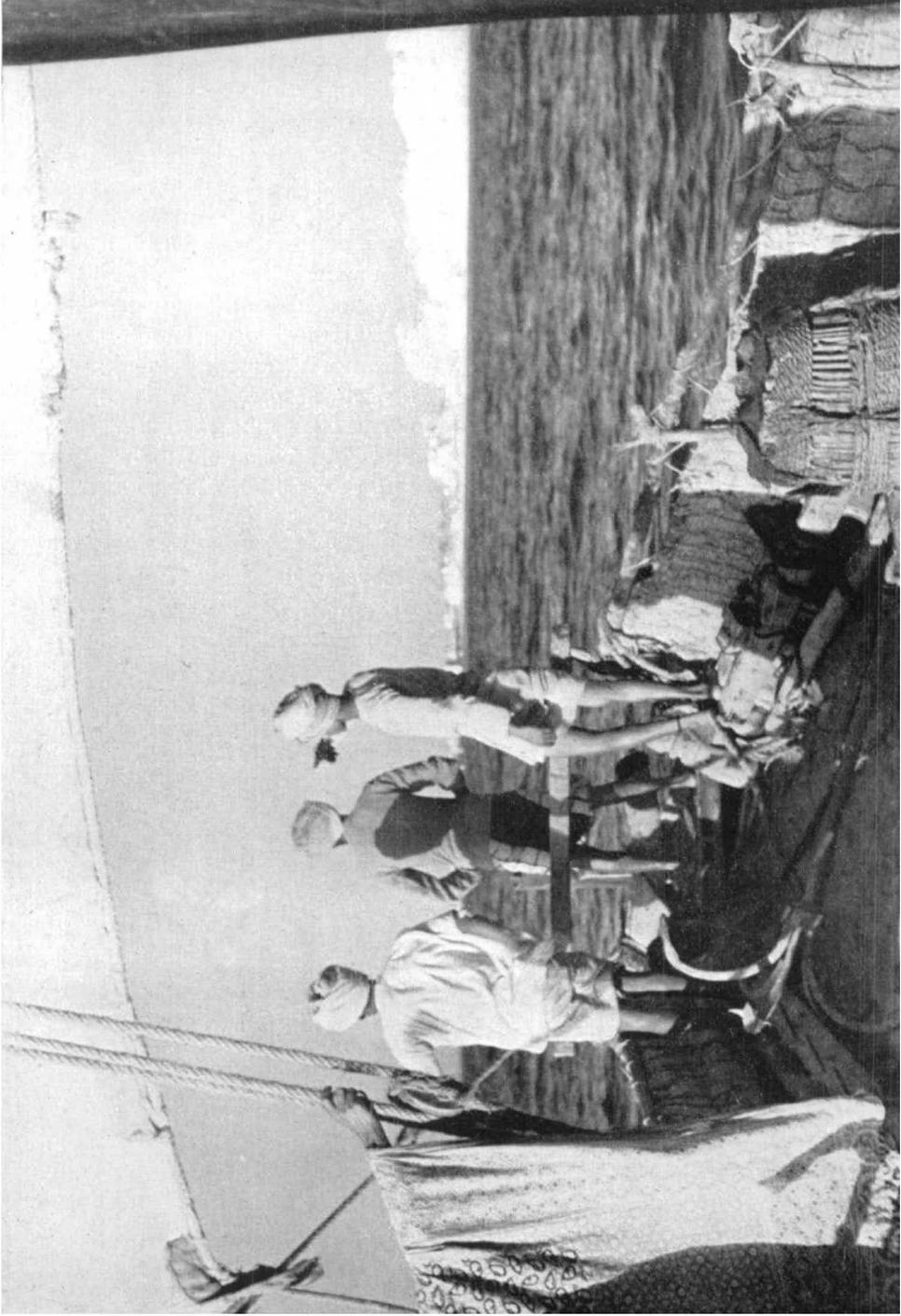
Indeed transoceanic voyages under sail perhaps provide the last opportunity for exercising the art of navigation in its classical form. Here Sir Francis CHICHESTER reviews the latest work from that most indomitable of seamen, H. W. TILMAN, and TILMAN himself reviews Sir Alec ROSE's account of his own circumnavigation. Finally the HYDROGRAPHER OF THE NAVY reviews a new biography of Admiral FitzRoy, one of the most illustrious of early navigators. In the Forum, a section devoted to notes and discussion, a Master at sea proposes a table which may prove useful to seafarers as a whole.

The cover for this number has been designed by Ruari McLean and the photograph used is reproduced by courtesy of the *Observer*. The photograph reproduced as a frontispiece was taken by Alan Villiers.

M. W. RICHEY

*Executive Secretary and Editor*

1 Kensington Gore, London SW.7



'Through art to science . . . ' Navigation has changed in just that fashion over the last twenty years. Here the captain's son in a Red Sea Zarook picks up a landmark—a form of navigation as old as the art itself.