

# THE JOURNAL OF THE INSTITUTE OF NAVIGATION

*Volume VI*

1953

PUBLISHED UNDER THE AUTHORITY OF THE COUNCIL  
EDITED BY THE EXECUTIVE SECRETARY

THE INSTITUTE OF NAVIGATION  
AT THE ROYAL GEOGRAPHICAL SOCIETY  
1 KENSINGTON GORE, LONDON SW7  
JOHN MURRAY (PUBLISHERS) LTD., 50 ALBEMARLE STREET W1

# THE INSTITUTE OF NAVIGATION

*Patron:*

H.R.H. THE DUKE OF EDINBURGH, K.G.

## *OFFICERS AND COUNCIL 1952-53*

*President:* Vice Admiral A. Day, C.B., C.B.E., D.S.O.  
*Hydrographer of the Navy*

*Vice-Presidents*

Sir Robert Watson-Watt, C.B., F.R.S.     D. H. Sadler, O.B.E.

*Hon. Treasurer:* Francis Chichester

*Chairman of the Technical Committee:* Wing Commander E. W. Anderson,  
O.B.E., D.F.C., A.F.C.

*Chairman of the Executive Committee:* Captain F. J. Wylie, R.N.(ret.)

### *Other Members of the Council*

Dr. D. E. Adams

Captain A. H. Hutton, O.B.E.

Dr. R. d'E. Atkinson

A. H. Jessell

Dr. G. E. R. Deacon, F.R.S.

Captain A. M. A. Majendie

Captain J. D. Elvish, O.B.E.

Air Commodore G. I. L. Saye,  
C.B., O.B.E., A.F.C.

D. O. Fraser

Captain G. W. Wakeford, M.B.E.

The Director of Navigation and Direction at the Admiralty, the Director of Navigation and Control, Air Ministry, and the corresponding members in the Ministry of Civil Aviation and the Ministry of Transport will be invited to attend meetings of the Council as ex-officio members.

---

*Executive Secretary:* M. W. Richey

*Assistant Secretary:* Miss L. M. A. Tower

# CONTENTS

NAVIGATION AND HYDROGRAPHY: PRESIDENTIAL ADDRESS. A. DAY . . . . .	1
THE USE OF PRESSURE PATTERN FLYING BY TRANS-CANADA AIRLINE. R. PEEL . . . . .	15
MAP PROJECTIONS USED IN POLAR REGIONS. P. C. BERESFORD . . . . .	29
EARLY BOOKS AND CHARTS IN THE ROYAL GEOGRAPHICAL SOCIETY'S COLLECTION. G. R. CRONE . . . . .	38
DETERMINING THE MOST PROBABLE POSITION. J. B. PARKER . . . . .	44
A DEAD RECKONING COMPUTER. A. BLOM-BAKKE . . . . .	59
NAVIGATION AT SEA WITH A STAR LATTICE. R. B. MICHELL . . . . .	63
NAVIGATIONAL ACCURACY IN THE EIGHTEENTH CENTURY. W. E. MAY . . . . .	71
A RECORD OF RADAR PERFORMANCE IN ICE CONDITIONS. R. E. PERRY . . . . .	74
VANCOUVER SHORE RADAR STATION. G. LANCASTER . . . . .	86
RADAR AND ICE. L. S. LE PAGE and A. L. P. MILWRIGHT . . . . .	113
THE DOCTRINE OF NAUTICALL TRIANGLES COMPENDIOUS I—THOMAS HARIOT'S MANUSCRIPT. E. G. R. TAYLOR . . . . .	131
II—CALCULATING THE MERIDIONAL PARTS. D. H. SADLER . . . . .	141
NAVIGATION ON SOME RECENT R.A.F. FLIGHTS IN HIGH LATITUDES D. BOWER . . . . .	148
A NOTE ON CHART DISTORTIONS. H. L. SHEPPARD . . . . .	159
THE VERTICAL REFERENCE IN AIRCRAFT. W. A. W. FOX and D. BARNETT . . . . .	161
THE DEVELOPMENT OF TIDAL THEORY. A. T. DOODSON . . . . .	177
NAVIGATING ASHORE. R. A. BAGNOLD . . . . .	184
A HISTORY OF THE DUTCH NAUTICAL CHART. J. A. SCHÜLLER . . . . .	194
THE OPERATION AND NAVIGATION OF JET AIRLINERS. R. C. ALABASTER . . . . .	213
THE RADAR DETECTION OF DANGEROUS STORMS. R. E. PERRY . . . . .	238

COMPUTING THE REVISED EDITION OF H.O. 249 (A.P. 3270). R. L. DUNCOMBE and W. A. SCOTT . . . . .	240
THE FINNISH COMPASS CARD. W. E. MAY . . . . .	248
A VARIABLE FUEL RESERVE POLICY. J. VIVIAN . . . . .	255
RECENT DEVELOPMENTS IN THE STUDY OF BIRD NAVIGATION. G. V. T. MATTHEWS . . . . .	264
THE USE OF RADAR FOR PREVENTING COLLISIONS AT SEA. F. J. WYLIE	271
THE DISCOVERY OF AN EARLY BEARING-DIAL. C. V. SØLVER . . . . .	294
METHODS OF CONDUCTING SHIPS' SPEED TRIALS. J. TH. VERSTELLE . . . . .	297
THE USE OF LORAN FOR SURVEY WORK IN THE PACIFIC. J. O. CLARKE . . . . .	307
NOTES, DISCUSSION AND COMMENT . . . . .	313
THE GENESIS OF THE E.A.N.T.s. E. W. ANDERSON and D. H. SADLER . . . . .	333
A NEW AERONAUTICAL PLOTTING CHART. T. FREER . . . . .	358
SOME NOTES ON ASTRONOMICAL OBSERVATIONS AT SEA. J. M. SHARPEY-SCHAFER . . . . .	362
AN IMPROVED ASTROGRAPH. D. H. SADLER . . . . .	373
NAVIGATION AND OCEANOGRAPHY. A Discussion . . . . .	380
THE DEEP SCATTERING LAYER. G. S. RITCHIE . . . . .	395
MARGETT'S HORARY TABLES. D. H. SADLER . . . . .	403
NAVAL COMPASSES IN 1707. W. E. MAY . . . . .	405
RECORD . . . . .	89, 206, 410
REVIEWS . . . . .	101, 200, 328, 413
CORRESPONDENCE . . . . .	109, 202, 330, 414
INDEX . . . . .	416