

THE  
AERONAUTICAL JOURNAL  
VOL.—LXXI

THE ROYAL AERONAUTICAL SOCIETY

# Journal of THE ROYAL AERONAUTICAL SOCIETY

INCORPORATING THE INSTITUTION OF AERONAUTICAL ENGINEERS AND THE HELICOPTER ASSOCIATION OF GREAT BRITAIN

Published Monthly at 4 HAMILTON PLACE, LONDON W1

Telephone: 01-499 3515

Telegrams: Didaskalos, London, W1

Subscriptions: £10 10s. 0d. per annum, post free      Single Copies: 17s. 6d.

Advertisements only: J. W. Williams, DFC, Magazine Advertising Ltd, 36-38 Whitefriars St., London, EC4.      Fleet Street 7539

VOLUME 71

JUNE 1967

NUMBER 678

## CONTENTS

	Page
Message from the President	XXXIX
Secretary's News Letter	XXXIX
Notices	XL
Election of President-Elect and Vice-Presidents—Addition to New Year Honours List 1967—Acknowledgment—Prizes for Written Papers—Joint British Committee for Stress Analysis—New Fellows—Fifth Handley Page Memorial Lecture—The Handley Page Memorial Fund—IFAC Symposium on Fluidics—Robert Blackburn Memorial Trust Open Scholarship—Elections—Annual General Meeting, 4th May 1967—Outside Meetings—Postgraduate Course in Aeroelasticity—News of Members—Courses in Applied Mechanics—RAeS and IEE Joint Meeting, 8th May 1967—Captain R. N. Liptrot: An Appreciation	
The Branches	XLVII
Graduates' and Students' Section	XLVIII
National Aerospace Planning: Proposals for Setting Up an Effective Organisation	391
Miss F. B. Bradfield, OBE, MA, <i>Fellow</i> —1895—1967	393
The Subjective Basis for Aircraft Noise Limitation	D. W. Robinson 396
Present Trends in Research Towards All-Weather Landing for Civil Aircraft	J. R. Baxter 401
Engine Development and Manufacture in Sweden	G. Gudmundson 413
The Role of Private Enterprise in British Air Transportation	J. E. D. Williams 421
Technical Notes	428
The Influence of Added Narrow Band Noises and Tones on the Subjective Response to Shaped "White" Noise—T. J. Hargest and R. A. Pinker. Application of Film Cooling Theory to the Cooling of Aircraft Gas Turbine Chambers—G. J. Sturgess. The Force on a Plane Screen Due to a Normal Jet—B. G. Newman and D. M. Bruce. The Study of a Single Degree of Freedom System with Time Dependent Parameters—B. V. Dasarathy and P. Srinivasan. A Note on the Estimation of Average Pressures from Instantaneous Velocities in Unsteady Flow—C. J. Wood.	
The Library	441
Reviews: Aerospace Ranges: Instrumentation—Sandwich Construction: The Bending and Buckling of Sandwich Beams, Plates and Shells—The Technology and Properties of Ferrous Alloys for High Temperature Use—Powder Metallurgy—Basic Developments in Fluid Dynamics, Volume I—Aerospace Telemetry, Volume II—The Fighters—Some Effects of Raised Intrapulmonary Pressure in Man—The Wooden Sword—Flugwetterkunde—Hydrographic Interpretation of Aerial Photographs—Marine Aircraft of the 1914-1918 War—The Search for Amelia Earhart—Low Speed Wind Tunnel Testing.	
Additions to the Library	Reports

All communications for publication in the JOURNAL should be addressed to the Editor, JOAN BRADBROOKE, MBE, ARAeS; all communications on general matters affecting the Society should be addressed to the Secretary, A. M. BALLANTYNE, OBE, TD, BSc, PhD, CEng, FRAeS, Hon FCASI, FAIAA—at 4 HAMILTON PLACE, LONDON W1.

Reproduction in whole or in part of any of the papers and contributions published in this Journal is not permitted without the written consent of the Royal Aeronautical Society. None of the papers or paragraphs must be taken as expressing the opinion of the Council of the Royal Aeronautical Society unless otherwise stated

# The Royal Aeronautical Society

FOUNDED 1866

INCORPORATED BY ROYAL CHARTER 1949

*Patron:* HER MAJESTY THE QUEEN

## COUNCIL

*President:* M. B. MORGAN, CB, MA, CEng, FRAeS

*President-Elect:* PROFESSOR D. KEITH-LUCAS, MA, CEng, FRAeS

*Vice-Presidents:*

AIR COMMODORE F. R. BANKS, CB, OBE, CEng, CGIA, HonFAIAA, HonFRAeS, RAF (retd)  
PROFESSOR J. A. J. BENNETT, DSc, PhD, CEng, FAIAA, FRAeS  
(Also *Chairman, Rotorcraft Section*)  
SIR ROBERT COCKBURN, KBE, CB, MSc, PhD, CEng, FRAeS

*Past Presidents:*

H. H. GARDNER, BSc, CEng, FRAeS  
SIR GEORGE GARDNER, KBE, CB, HonDSc, CEng, HonFRAeS  
A. D. BAXTER, MEng, CEng, FRAeS

*Members:*

MAJOR G. P. BULMAN, CBE, BSc, CEng, FRAeS  
H. CAPLAN, DCAe, CEng, AFRAeS  
COMMANDANT F. W. CARNELL, AFRAeS  
(*President of the Southern Africa Division*)  
A. V. CLEAVER, OBE, CEng, AFAIAA, FRAeS  
H. DAVIES, CB, MSc, CEng, FAIAA, FRAeS  
S. D. DAVIES, BSc (Eng), CEng, FRAeS  
N. D. HATFIELD, DipTech (Eng), GradRAeS  
(*Chairman, Graduates' and Students' Section*)  
DR. W. F. HILTON, DSc, DIC, CEng, AFAIAA, FRAeS  
DR. G. S. HISLOP, BSc, ARCST, CEng, FRAeS  
B. P. LAIGHT, MSc, CEng, FRAeS  
A. A. LOMBARD, CEng, FRAeS  
M. MADDERS, CEng, AFRAeS (*President of the Rhodesia Division*)  
CAPTAIN J. H. MALCOLM, ARAeS (*President of the New Zealand Division*)  
P. G. MASEFIELD, MA, CEng, HonFAIAA, FRAeS  
AIR COMMODORE J. R. MORGAN, OBE, BSc (Eng), CEng, FRAeS, RAF (retd)  
DR. E. S. MOULT, CBE, BSc, CEng, FRAeS  
D. W. NORMAN, BSc (Aero), GradRAeS  
F. W. PAGE, CBE, MA, CEng, FRAeS  
G. K. C. PARDOE, BSc, DLC, CEng, AFRAeS  
(*Chairman, Astronautics and Guided Flight Section*)  
PROFESSOR E. J. RICHARDS, OBE, MA, DSc, CEng, FRAeS  
G. T. WANSBROUGH-WHITE, ARAeS  
K. G. WILKINSON, BSc, DIC, ACGI, CEng, FRAeS  
J. E. D. WILLIAMS, BSc, FRAeS  
DR. M. W. WOODS, PhD, BE, BSc, FRAeS  
(*President of the Australia Division*)

*Officers:*

Hon Treasurer: MAJOR G. P. BULMAN, CBE, BSc, CEng, FRAeS  
Solicitor: L. A. WINGFIELD, MC, DFC (*Hon Companion*)  
Secretary: DR. A. M. BALLANTYNE, OBE, TD, BSc, CEng, FAIAA, HonFCASI, FRAeS

Note: The President of each Division and the Chairman of each Section of the Society is a Member of Council by reason of his office.

JUNE 1967