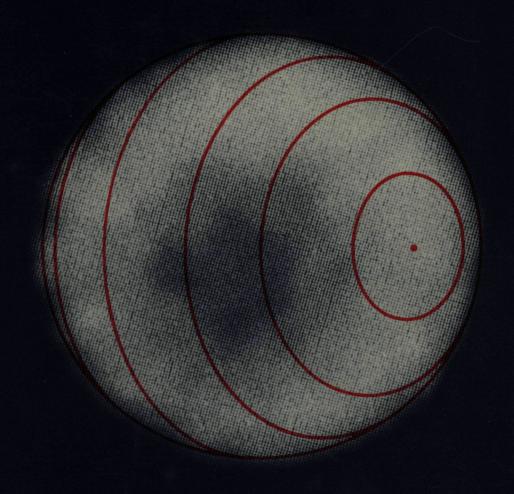
URANUS AND THE OUTER PLANETS



Proceedings of the IAU/RAS Colloquium No 60 Edited by Garry Hunt

This book contains the invited papers presented at a special conference to celebrate the discovery of Uranus by Sir William Herschel 200 years ago. It is not, however, simply a record of that meeting.

The book opens with a general introduction and a reproduction of Sir William Herschel's original paper. This is followed by a section which deals with the history of this tremendous discovery, which commences with a description of the cultural and intellectual circles in Bath in the late 18th Century in which Herschel moved. Next comes a discussion of our current knowledge of the planet Uranus, its satellites and rings. The book concludes with a look towards the future and the proposed observations that will be made using Space Telescope and the Voyager 2 encounter in January 1986.

This is a record of one of the most important events in planetary observation, which will be used by historians and research scientists for years to come.

The jacket illustration uses the best available image of Uranus. For more details, see the frontispiece.

URANUS AND THE OUTER PLANETS

Uranus and the outer planets

Proceedings of the IAU/RAS colloquium no. 60

Edited by GARRY HUNT Director, Laboratory for Planetary Atmospheres University College, London

CAMBRIDGE UNIVERSITY PRESS Cambridge London New York New Rochelle Melbourne Sydney Published by the Press Syndicate of the University of Cambridge The Pitt Building, Trumpington Street, Cambridge CB2 1RP 32 East 57th Street, New York, NY 10022, USA 296 Beaconsfield Parade, Middle Park, Melbourne 3206, Australia

© Cambridge University Press 1982

First published 1982

Printed in Great Britain at the University Press, Cambridge

Library of Congress catalogue card number: 81-17047

British Library cataloguing in publication data

Uranus and the outer planets.
Uranus (Planet)
1. Hunt, Garry
523.4'7 QB681

ISBN 0 521 24573 7

CONTENTS

Frontispiece	ii
Preface G.E. Hunt	vi
INTRODUCTION	1
Introductory remarks A.W. Wolfendale, FRS Account of a Comet Phil. Trans. Roy. Soc 71, 492 (1781)	3
Sir William Herschel, FRS	9
HISTORY OF THE DISCOVERY OF URANUS	21
William Herschel, Bath, and the Philosophical Society R. Porter Herschel's Scientific Apprenticeship and the Discovery	23
of Uranus J.A. Bennett	35
Herschel and the Construction of the Heavens M. Hoskin	55
The Pre-Discovery Observations of Uranus E.G. Forbes	67
The Impact on Astronomy of the Discovery of Uranus R.W. Smith	81
PRESENT KNOWLEDGE OF URANUS	91
The Origin of Uranus; Compositional Considerations M. Podolak	93
Internal Structure of Uranus J.J. MacFarlane and W.B. Hubbard	111
The Magnetosphere of Uranus W.I. Axford	125
The Rotation of Uranus R.M. Goody	143
An Introductory Review of our Present Understanding of the	
Structure and Composition of Uranus' Atmosphere M.J.S. Belton	159
Imaging of Uranus and Neptune B.A. Smith and H.J. Reitsema	173
Meteorology of the Outer Planets G.E. Hunt	181
The Satellites of Uranus D. Cruikshank	193
The Rings of Uranus A. Brahic	211
Rings of Uranus: A Review of Occultation Results J.L. Elliot	237
FUTURE OBSERVATIONS OF URANUS	257
Uranus Science with Space Telescope J. Caldwell	259
The Voyager Encounter with Uranus E.C. Stone	275
CONCLUSIONS	293
Uranus among the Outer Planets T. Owen	295
Closing Remarks P.A. Wayman	303
INDEX	305