

PARIS SYMPOSIUM ON RADIO ASTRONOMY



INTERNATIONAL ASTRONOMICAL UNION  
INTERNATIONAL SCIENTIFIC RADIO UNION

# PARIS SYMPOSIUM ON RADIO ASTRONOMY

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*Edited by*

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## PREFACE

The Paris Symposium on Radio Astronomy, held at the Cité Universitaire from July 30 to August 6, 1958, saw a remarkable reunion of active astronomers and other scientists (162 in all, from seventeen countries) devoted to investigation of the extraterrestrial universe by radio. This book records the research results reported at the symposium as subsequently submitted with benefit of revision; and, together with the several introductory surveys, the extremely good discussions, and the concluding assessments, it forms a comprehensive account of the current state of development of the basic aspects of radio astronomy.

Sponsored jointly by the International Astronomical Union and the International Scientific Radio Union, the symposium was originally proposed by IAU Commission 40 on Radio Astronomy at the Ninth General Assembly of the IAU in Dublin in 1955. Opportunities for unofficial discussions afforded by the General Assembly of URSI in 1957 led to a clarification of the general plan and to the appointment, under the chairmanship of J. L. Pawsey, of the following organizing committee: F. T. Haddock, secretary; J. F. Denisse, local organizer; R. N. Bracewell, F. Hoyle, A. C. B. Lovell, R. Minkowski, H. C. van de Hulst, V. V. Vitkevich.

The symposium was outstandingly successful in achieving a balanced presentation of the main lines of current development in radio astronomy. In order to provide time for adequate presentation and discussion, the committee restricted the subject matter to exclude meteors, scintillations, and techniques; and scheduled contributions were limited to invited speakers. Responsibility for the main subjects was shared among the organizers as follows:

- I. Radio emission and reflections from planets, comets and the moon: *Lovell*
- II. Solar radio emission and the quiet and active sun: *Denisse*
- III. Radio study of individual objects (external to solar system): *van de Hulst*
- IV. Radio evidence on the large-scale structure of our own and external galaxies: *Pawsey*
- V. Source surveys, identifications, and other studies related to cosmological problems: *Minkowski*
- VI. Theory, mechanisms of solar and cosmic radio emission: *Hoyle*

Each organizer appointed the chairmen for sessions on his subject or acted himself; coopted chairmen being J. S. Hey (I), M. G. J. Minnaert (II), B. J. Bok (III), and A. Blaauw (IV).

A glance at the list of participants (p. 603) will reveal that a large fraction of the scientists active in radio-astronomical research were at the symposium and that, with hardly an exception, all the principal centers of activity were represented. As a consequence of the character of the attendance, and of a deliberate

plan to foster discussion, the extemporaneous exchanges of views and criticisms were no small part of the symposium. Contributors had also been encouraged to exhibit wall displays during the symposium, with conspicuous effect on the quality of discussion. An especial feature of this book is the record of discussion items, secured unobtrusively from the contributors in writing on the spot, and arranged and verified the same day by pairs of reporters working with their chairmen. Some roughnesses of expression which remain serve to remind us of its spontaneous and unrevised character.

The literature cited in this volume, comprising some 500 recent (and less recent but living) papers, forms a unique bibliography of select items from the now vast corpus of radio-astronomical literature. To facilitate reference to this valuable but scattered material, I have incorporated an author key in the Index.

The majority of the participants were financed from national sources, but travel grants by the IAU and URSI permitted the attendance of a number of key speakers who could not otherwise have come. These grants were covered in part by a grant-in-aid from UNESCO which was also applied to the expenses connected with the editorial work in preparing the volume for the press, and to the cost of copies of the volume distributed to contributors and organizations on the exchange list of the IAU and URSI. The effort devoted to the book by the Editor was made possible by support of the Office of Scientific Research of the United States Air Force.

Professor André Danjon, President of the IAU, opened the first formal session and welcomed delegates to the French centers of radio astronomy. In addition to the formal sessions, there were excursions to the observatories of Pic du Midi, Meudon, Haute-Provence, and Nançay. These excursions, the meeting rooms and adjacent living accommodations, and other activities and facilities were splendidly arranged by the local committee, which was assisted financially by the following organizations: Laboratoire Central des Télécommunications (Paris), Compagnie Générale de Métrologie (Annecy, Haute-Savoie), Optique et Précision de Levallois (Levallois-Perret, Seine), Compagnie Générale de Télégraphie Sans Fil (Paris), Laboratoires J. Derveaux (Boulogne, Seine), Compagnie Française Thomson-Houston (Paris), and Etablissements Geffroy et Cie "Ferisol" (Trappes, Seine-et-Oise).

R. N. BRACEWELL

*Stanford University*  
*April 1959*

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