

INTRODUCTION

The initiative in the organization of the conference was taken by the President of Commission 33 of the International Astronomical Union and financial aid was received from U.N.E.S.C.O. At the invitation of Dr P. J. van Rhijn, Director of the Kapteyn Astronomical Laboratory, Groningen, the meeting was held in the estate 'Vosbergen' near the city of Groningen and owned by the University of Groningen. The organizing committee consisted of J. H. Oort (Chairman), W. Baade, B. J. Bok, Ch. Fehrenbach, B. Lindblad, W. W. Morgan, P. P. Parenago, and A. Blaauw (Secretary), all of whom attended the conference. The other participants, who were invited either because they represented institutions which might take part in future galactic research, or because of the character of their research, were V. A. Ambartsumian, W. Becker, P. Couderc (representing the Commission for the Carte du Ciel), G. Haro, O. Heckmann, H. Spencer Jones, B. V. Kukarkin, J. J. Nassau, P. Th. Oosterhoff, L. Plaut (local Secretary), J. M. Ramberg, C. Schalen, J. Schilt, R. H. Stoy, B. Strömgren, P. J. van Rhijn, V. Kourganoff, P. G. Kulikovsky and O. A. Melnikov were present as interpreters.

Purpose and character of the conference

The following is extracted from a circular letter, sent to the participants before the beginning of the conference:

During the first third of this century an important concentration of work on galactic structure and motions has been promoted by the Plan of Selected Areas, initiated in 1906 by Kapteyn. Although the scheme outlined in 1906 has not lost its significance, it is widely felt that further research into structure and dynamics of the Galaxy should be extended beyond the original Plan. At the same time it is felt by many that some kind of co-ordination of effort remains highly desirable, if only because the value of many observations is greatly enhanced if the data can be combined with other data for the same stars.

Several observatories have asked for suggestions with regard to future work on galactic structure. The recent advent of several large Schmidt telescopes furnished with objective prisms, red-sensitive plates, etc., brings forward with some urgency for each of the observatories concerned the problem of how to organize and restrict the work with telescopes that can produce much more than can be measured and discussed by the existing observatories. The question arises, whether it is desirable to formulate a

new plan of attack, and whether such a plan should also include recommendations for concentrated work on particular regions. If the answer to the latter is affirmative, which regions should be selected and what data would be most urgent?

Before such questions can be fruitfully considered it is desirable to try to formulate the principal problems in which we are most interested. The emphasis will no longer be confined to general overall structure, but more on structural features displayed by special types of stars, on relations between kinematical and distributional features, on spiral structure and other phenomena connected with the evolution of stars and the galactic system. It is clear that in all these problems motions will be equally important as space distribution.

It was the opinion of the Organizing Committee, that the conference would stand the best chance of becoming fruitful if, instead of progress reports, only a very limited number of carefully prepared introductions would be given, dealing mainly with the practical possibilities for galactic research offered by different types of observation. A list of these introductions is given below.

As was to be expected, the conference proved to be very useful for the formulation of the principal present problems. Concrete proposals for research with detailed specifications have been made only for a few of the many branches of galactic research, mainly for faint proper motion work and meridian observations. In some fields, it turned out that more experimental work will have to be done before we can embark upon a large-scale observing programme. In so far as the discussion stayed on the level of a general orientation of the main problems and the practical possibilities of attacking them, the conference served as a basis for more specific planning in the future.

Formation of new sub-committees in the I.A.U.

The need for continued consultation on galactic research was expressed by various participants during and after the meeting. Another meeting, perhaps about the time of the I.A.U. meeting in 1955, seems already desirable. Meanwhile, in order to guarantee continued co-ordination of activities in galactic research, a continuation committee for co-ordination of observational programmes was installed, after the conference, by the Executive Committee of the I.A.U., in accordance with a resolution adopted during the conference. This will be a sub-commission to Commission 33 and have the following members: Baade, Blaauw, Lindblad, Oort, Parenago, and van Rhijn. It is hoped, that this sub-commission will become a centre for information on current programmes, and an inter-

mediary for exchange of ideas and suggestions wherever these are wanted by astronomers. The chairman of this sub-committee will be the chairman of Commission 33 (at present Dr J. H. Oort, Leiden Observatory) and the secretary will be A. Blaauw (Yerkes Observatory).

Another committee, sub-commission to Commission 27 (Variable Stars) has been formed by the Executive Committee, in order to organize the further work on variable-star surveys as described in section A (2). Its present members are Baade, Kukarkin, Oosterhoff, and the secretary of the above mentioned sub-commission of Commission 33.

Introductory papers

Before the discussions started on the various subjects reported below, the following introductions, mostly dealing with observational possibilities, were given:

- W. BAADE: Summary of results of recent extragalactic research.
- P. P. PARENAGO: Outline of present galactic research in the Soviet Union.
- B. LINDBLAD and C. SCHALÉN: Work on stellar spectra and photometry at Stockholm and Uppsala.
- W. W. MORGAN: Spectroscopic observational possibilities for galactic research.
- W. BECKER: Recent results on three-colour photometry.
- B. STRÖMGREN: Recent developments of multi-colour photometry.
- CH. FEHRENBACH: Objective prism radial velocity determinations.
- O. A. MELNIKOV, C. SCHALÉN, B. LINDBLAD and B. J. BOK: Communications on experimental work on the same subject.
- J. J. NASSAU: Possibilities and recent results based on observations in the infra-red.
- J. H. OORT, W. W. MORGAN, B. J. BOK: Recent results on spiral structure.

References in the following pages are to be found at the end of this publication on pp. 49–51.