

33. COMMISSION DE LA STRUCTURE ET DE LA DYNAMIQUE DU SYSTEME GALACTIQUE

Report of Meeting, 23 August 1967

PRESIDENT: B. J. Bok.

SECRETARY: Th. Schmidt-Kaler.

The Draft Report was discussed and adopted with minor revisions. The proposed Membership of the Organizing Committee was discussed. Nominations were announced for 27 new members of Commission 33.

The Proposal for a separate Commission on Dynamics of the Galaxy (Nahon) was brought forward. Contopoulos reported that the participants of the Colloquium on New Methods in Stellar Dynamics (Besançon, Sept. 21–24, 1966) had discussed the matter and that they had agreed that a single unified Commission on the Structure and Dynamics of the Galaxy should be maintained. A vote was taken and there appeared to be unanimous agreement in favor of a single Commission.

The question of the superscripts for galactic coordinates, l^{II} and b^{II} , was discussed at length. *van Herk* recommended that these should be retained indefinitely, in the same manner as Catalogue designations. He commented that, eventually, there might well be a third system of galactic coordinates. Others disagreed. No firm action is to be taken at this stage and the continued use of the superscripts is recommended for another three year period. The subject is to be brought up again in three years, when, hopefully, a firm decision can be made by Commission 33.

A proposal to urge the preparation of new southern hemisphere charts was presented by *Blaauw*, and there was general agreement that this be done. *Varsavsky* announced that charts for selected regions near southern radio sources (to $V = 18$) can be provided by the Instituto Argentina de Radioastronomia. *M. Schmidt* said that a limited number of sets of the Whiteoak Extension of the Palomar Sky Survey (red prints only, $\delta = -33^\circ$ to -45°) will be available for sale in 1968. Announcements in the leading astronomical journals will be forthcoming. *Haffner* announced that a Photographic Atlas of the Southern Milky Way, obtained from plates made with the Boyden Observatory's 10-inch Metcalf Refractor, complete to $B = 16.5$, will be offered for sale by ESO in 1968. Mention was also made of *Westerlund's* Photo-Visual Atlas of the Southern Milky Way (to $V = 16.5$) made from photographs with the Uppsala Schmidt Telescope at Mount Stromlo Observatory (see, Minutes of the Fourth Meeting). The meeting recommended that Commission 33 should favor the completion of the Lick Observatory Sky Atlas to declinations south of -45° . The need for charts of many varieties for the southern hemisphere is obviously becoming an urgent one.

BRIEF PAPERS

U. Haug: Luminous Stars in the Northern Milky Way.

C. Hunter and A. Toomré: Dynamics of the Bending of the Galaxy.

Second Meeting, 24 August 1967

OBSERVATIONAL ASPECTS OF THE SPIRAL STRUCTURE OF OUR OWN AND OTHER GALAXIES

M. S. Roberts: Observed Features of some External Galaxies.

A. Blaauw: Observational Data on the Spiral Structure of the Galaxy.

- J. Isserstedt and Th. Schmidt-Kaler:* Galactic Structure as Shown by a New Type of Stellar Aggregate.
J. S. Miller: Radial Velocities and Kinematics of Galactic H II Regions.
M. E. Dixon: An Observational Approach to Interstellar Gas Dynamics.

Third Meeting, 24 August 1967
 (Dr Contopoulos presiding)

THEORETICAL APPROACHES TO SPIRAL STRUCTURE

- C. C. Lin:* The Density Wave Theory of Galactic Spirals.
S. B. Pikelner: Magnetic Approaches to Spiral Structure.
M. Fujimoto: Self-Gravitating Spiral Models of the Galaxy. (presented by *G. Contopoulos*)

Fourth Meeting, 28 August 1967

SHORT PAPERS

- I. R. King and G. Contopoulos:* A Report on the IAU Colloquium on the Gravitational n -Body Problem (Paris, August 16 to 18, 1967).
F. K. Edmondson and A. Young: The Solar Motion for 11th Magnitude Stars.
D. Crampton: Be Stars and Galactic Rotation.
F. C. Bertiau, M. F. McCarthy and P. J. Treanor: A General Catalogue of B-Emission Stars.
B. E. Westerlund: A Photo-Visual Atlas of the Southern Milky Way ($V=16.5$).
H. Haffner: A Photographic Atlas of the Southern Milky Way.
A. Ardeberg and C. Roslund: The Lund Galactic Program in Scorpius.
A. P. Henderson: A 21-cm Study of the Large-Scale Deformations of the Galactic Plane (presented by *G. Westerhout*).
J. Rickard: Radio and Optical Studies of the Perseus Arm (presented by *G. Westerhout*).
W. J. Luyten: On the Faint End of the Luminosity Function.
Note: At the conclusion of the presentation by Dr Luyten, the President of Commission 33 congratulated the speaker heartily on these latest results of a life-time devoted to research on intrinsically faint stars.
K. A. Innanen: The Groombridge 1830 Moving Group.
C. M. Varsavsky: Atomic Hydrogen and Interstellar Dust.
L. Marochnik: On the Influence of Gravitating Condensations of Interstellar Gas on the Distribution of Peculiar Velocities of the Stars.
H. Elsässer: Programs for Southern OB Stars.
J. Dommaget: La Cinématique des Couples Stellaires Visuels dans le Voisinage du Soleil.

ADDITIONS TO THE DRAFT REPORTS

- P. 688, add at the end of the second paragraph in the section b):
 Apriamašvili has also classified the spectra of about 3900 stars in a large region near $l^{\text{II}}=40^\circ$.
 P. 689, line 17 from the bottom, add:
 Similar work has been done by Bartaja and Haradze (36) who classified 376 OB stars in the region of the association III, IV, VII Cas, and 1240 stars of all classes in the region of IVul.
 P. 689, line 2 from the bottom:
 The work contains now three catalogues of about 7600 stars for one region at the anticentre and two regions in Taurus.

P. 692, add references:

21a. Apriamašvili, S.P. 1966, *Abastumani Astroph. Obs. Bull.* **35**, 3.

36a. Bartaja, R.A., Haradze, E.K. 1966, *Abastumani Astroph. Obs. Bull.* **35**, 105, 109.

39. Also 1966, *Abastumani Astroph. Obs. Bull.* **35**, 53, 72.

P. 694, end of first paragraph, add:

But Slavenas, and Bogdanovič, (9a) have found only a three-arm structure with a pitch angle of 81° .

P. 697, add the reference:

9a. Slavenas P., Bogdanovič A. 1966, *Vilnius Astr. Obs. Bull.* **17**, 24.

P. 715, line 21, read:

Kuzmin (165) has considered also the application of the virial theorem in its generalized form to the nonhomogeneous ellipsoids, the conditions for the existence of symmetry planes in stellar systems and the formation of the Schwarzschild velocity distribution under the influence of the irregular gravitational forces. The theoretical explanation for the observed ratio of the velocity dispersions in the z and R directions has been found.

P. 715, at the end of 'Miscellaneous Problems':

Antonov (169) has shown that for a system with n degrees of freedom there exist n invariants of a continuum element in the phase-space.

P. 717, additions to references:

59. (Ogorodnikov) 1966, *Dokl. Akad. Nauk SSSR*, **170**, 297.

98. (Maročnik) 1966, *Astroph. Inst. Bull. (Dušanbe)* **48**, 3.

P. 719, additions to references:

169. Antonov, V.A. 1965, *Vestnik Leningrad Univ.* **13**, 136.

COMMITTEE OF 'SELECTED AREAS'

Report of Meeting, 25 August 1967

CHAIRMAN: T. Elvius.

SECRETARY: K. Lodén.

Draft Report

The Draft report was accepted without corrections.

Committee of 'Selected Areas'

It was decided that the present Selected Area Committee of Commission 33 (*T. Elvius*, chairman, *Haradze*, *McCuskey* and *Plaut*) should continue its work for another period of three years and that *Fehrenbach* should be included in the Committee. This was proposed by *B.J. Bok* after consultations with the Committee and the new President of Commission 33. Bok also pointed out that Working Groups of this kind are by definition of a temporary nature and the question of continuation should be reconsidered every three years.

Reference Lists and Maps for 'Selected Areas'

These questions were the main subjects discussed at the meeting. *Terzan* presented a detailed proposal for publication of reference lists and maps in Selected Areas. In view of the importance for various investigations that these fields have, it would be of value to have a catalogue in which chronological reference lists are given. For each reference the field area, the number of stars investigated and a description of the published data (magnitudes, spectra, proper motions etc.) should be listed. There is also need for identification of the individual stars from various catalogues within every Selected Area. Maps of Selected Areas with numbers from a suitable catalogue covering a re-

latively large area around the central star would also be important. Terzan and the staff at the Lyon observatory are prepared to start the work necessary for preparing lists and charts. The cost for the project, and also the time needed, are difficult to estimate.

The question of maps was first discussed. *Elvius* suggested that reproductions from the Palomar Sky Survey maps could be used. Somewhat different opinions (*Blaauw*, *Roman*) about limiting magnitudes caused *Elvius* and *Bok* to ask Terzan to start preparing sample charts for a few centers at different galactic latitudes and to distribute them for comments to those interested in this project. Thereafter a largescale project could be planned. *Bouigue* supported Terzan's project and emphasized its importance. *Elvius* also mentioned that Uppsala has plates which could possibly be used for the southern sky. Terzan accepted the task of preparing trial maps for some areas.

With regard to the *lists*, it was generally agreed that Terzan should start the work. *Haradze*, who, together with *Bartaja*, has been working on spectral classification in Selected Areas in order to reclassify HD stars, stressed the importance of Terzan's and *Bouigue*'s proposal. The Selected Area Committee members should be considered as advisors. *Plaut* and the Kapteyn Astronomical Laboratory can assist in a variety of ways.

Photometry

Rybka asked for opinion concerning the usefulness of an extension of his programme on photometric standards in Selected Areas to fainter stars. Magnitudes can be measured near 7^m.5, 9^m.0 or 10^m.5 for two stars in each field, one of spectral type A, the other of type K. It was agreed that the inclusion of fainter standard stars would be advantageous, but it would be preferable to add stars of F (or G) type in order to avoid colour effects, as was pointed out by *W. Becker* and *T. Elvius*.

Blaauw talked about research started at Groningen on narrow-band photometry in 1 square degree fields in some Selected Area Zones (0°+15°, +30° in declination).

The quality of the photometry is now being investigated. There will be a separation of giants and dwarfs. The limiting magnitude is not yet fixed. This work is similar to that commenced by *Oja* and *Häggkvist* at the Uppsala Observatory in areas of the northern galactic polar cap.

Astrometry

Murray talked briefly about his programme of remeasuring proper motions in the Radcliffe Catalogue. Good photometry is needed for these stars. For details on this and other astrometric programmes in the Selected Areas, see the report of the specially-arranged Joint Meeting of Commissions 23 and 24 together with the Selected Area Committee, (p. 137 of the present volume).

Cleveland and Parenago fields

It was agreed that tables and maps should be prepared giving the coordinates and boundaries of these fields with indication of positions for the Kapteyn Selected Areas in or near these fields.