

COMMISSION 24: STELLAR PARALLAXES AND PROPER MOTIONS (PARALLAXES STELLAIRES ET MOUVEMENTS PROPRES)

Report of Meetings 19, 20, and 22 August 1970

PRESIDENT: W. J. Luyten.

SECRETARY: C. A. Murray.

The President, after welcoming members to the meeting of the Commission, invited discussion on the draft report. The report from the Leander McCormick Observatory had not been received in time for inclusion in the draft report.

Frederick reported that the parallax programme had been continued at a rate of 4000 plates per year since 1967, dealing mainly with Vyssotsky red dwarfs and members of the Hyades. Proper Motions and Strömrgren photometry were being determined for high latitude G and K stars and a device for measuring positions and separations of double stars was put into use.

Giclas reported that all proper motions in the Lowell Survey had been stored on an IBM 1130 disk preparatory to printing in a catalogue which would also give UBV photometry, parallaxes and further references.

The draft report was accepted.

Vasilevskis stated that, with the increasing rate of discovery of faint proper motion stars, there was an increasing difficulty in naming them. He proposed that the President appoints a working group to consider nomenclature for such stars, and to prepare a proposal for the next General Assembly. *Eichhorn* remarked that any new system of identification should depend only on the star's position. *Dieckvoss* suggested that *Gliese* be nominated to serve on this working group, and the President announced that he was appointing *Gliese*, and *Hoffleit* as members of this working group, with *Murray* as chairman.

The President then introduced discussion on the proposed merger with Commission 23. With the completion of the Carte du Ciel the work of that Commission has been successfully completed. He himself had taken the initiative in suggesting the amalgamation, after discussion with the President of Commission 23, and the Vice-Presidents and Organizing Committees of both commissions. *Eichhorn* proposed that Commission 23 be absorbed with the sub-committee of Commission 8 on star catalogues, to which *Vasilevskis* remarked that though he was a member of that sub-committee, he had never attended a meeting. *Murray* expressed the view that the work of Commission 23 and 24 overlapped in many respects with that of Commission 8 and no re-organization of astrometric activities within the Union should be carried out without consultation with that Commission. *Vasilevskis* then moved that Commission 24 was in favor of a merger with Commission 23 – this was carried.

The President announced the names of those nominated as officers of the new, merged, Commission, for approval by the General Assembly.

PRESIDENT: S. Vasilevskis.

VICE-PRESIDENT: P. Lacroute.

The President then proposed that the working group on spectroscopic parallaxes be disbanded. After a brief discussion *Blaauw* remarked that the problem of calibration of luminosity criteria still existed. *Vasilevskis*, while agreeing with this, said that it was invariably decided nowadays not to include spectroscopic parallaxes in a parallax catalogue; it was the business of the spectroscopists to determine luminosities, and the need for calibration could be met by a joint working group of astrometrists and spectroscopists, if required. The President then said that if no formal proposal was made for its retention, the working group would cease to exist.

At the joint meeting of Commissions 23 and 24 the following were nominated to serve on the new organizing committee: A. N. Deutsch, W. Dieckvoss, P. Herget, V. V. Lavdovskij, W. J. Luyten, C. A. Murray, K. Aa. Strand, P. van de Kamp, H. W. Wood. *Lacroute* remarked that the committee, as suggested, did not include anyone with interest specifically directed toward the Southern Hemisphere, to which *Strand* replied that the U.S. Naval Observatory had recently undertaken to set up its own astrometric camera to photograph the southern sky, a project which would be carried out within the next five years. *Vasilevskis* added that there should be no problem as the President could always co-opt new members to the Committee. *Lacroute* spoke about the advantages of using space vehicles for astrometric work, in particular for measuring the absolute rotation of the coordinate frame of reference and in determining absolute parallaxes. *Dieckvoss* reported on some recent work in which he used the réseau measures in the Astrogaphic Catalogue to reduce the star measures to a strictly orthogonal system, thus reducing the number of plate constants required in making overlap solutions.

At the third meeting *Bidelman* presented the report of the working group on spectroscopic parallaxes, which had been set up at the Commission's meeting at Prague, under the chairmanship of *Morgan*. Several members of the working group had contributed. In particular, the chairman drew attention to the large range in precision between various estimates of 'MK' types by different observers, and to the possibility of systematic differences between the northern and southern hemispheres; since, even under optimum conditions, the absolute magnitudes of early-type stars (09-A2) could only be estimated from MK types to within a probable error of about $0^m.45$ which was of the same order of accuracy as estimates from $H\beta$ and $H\gamma$ photometry. *Keenan* reported on the calibration of luminosity classes of late-type giants and supergiants; in particular all late-type stars brighter than $m = 5$ should have trigonometric parallaxes measured. In the brief discussion which followed, *Gliese* supported *Morgan's* point that MK classifications should be used with care, especially those estimated from objective prism plates.

Fracastoro then proposed that a symposium be held to discuss the 'Astrophysical Needs of Astrometry'. There was general approval of this idea. *Strand* remarked that UVB photometry had been carried out for all the parallax stars and some of the comparison stars in the first list of 1000 parallaxes obtained with the USNO 61-in. reflector, but R-I colors of the red stars would be required to distinguish between main-sequence stars and sub-dwarfs.

Uggen reported on the re-activation of the Van Vleck parallax program which consisted mainly of Vyssotsky stars. *Klemola* reported preliminary results from the Lick pilot programme of measuring proper motions relative to galaxies. Secular parallaxes have been measured for the three magnitude groups $m_B = 9.1, 11.7,$ and 15.9 . Values of the Oort constants ($A = +4.7 \pm 6.7, B = -7.1 \pm 5.7,$ m.e.) derived from high-latitude stars were poorly determined, but even so, the smallness of B did not confirm Aoki's value. *Panyatov* presented a communication from *Deutsch*, in which he appealed for photographic observations of a list of 153 faint fundamental stars in the -25 to -90 declination zone, in order to relate meridian proper motions to those derived with respect to galaxies. This was part of the Pulkovo KS7 plan.

Thomas briefly described progress with the Herstmonceux parallax programme, in particular, the procedure for continuously monitoring the progress of the observations which was welcomed by *Vasilevskis*. Finally, *Lacroute* spoke about the systematic errors which are likely to occur in the Lick Program.

In addition to the regular meetings of Commission 24 which are reported here, joint meetings were held with Commission 8 and 40 on 'Fundamental Systems and Radio Astronomy', and with Commissions 27, 33, and 37 on 'The Absolute Magnitude of the RR Lyrae Stars'.