

D. JOINT DISCUSSION OF COMMISSIONS
7, 8, 19, 20, AND 33
MODERN PROBLEMS OF FUNDAMENTAL
ASTROMETRY

Wednesday, August 30, 1967

Organising Committee: R. H. Stoy (Chairman), A. Blaauw, G. M. Clemence,
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Meeting Secretaries: W. Gliese, C. A. Murray, G. van Herk

Contents:

Introduction.

1. Francis P. Scott: The AGK3, SRS and Related Projects.
2. M.S. Zverev: Recent Work on Fundamental Astrometry in the U.S.S.R.
3. C. Anguita, G. Carrasco, P. Loyola, V. N. Šiškina and M.S. Zverev: Meridian Observations at Santiago, Chile.
4. N.V. Fatčihin: Preliminary Results of the Determination of Absolute Proper Motions of Stars referred to Galaxies.
5. W. Fricke, and W. Gliese: Desiderata for FK5.
6. W. Fricke: Precession and Galactic Rotation on the Basis of Various Proper Motion Systems.
7. C.A. Murray: The Relationships between Various Techniques for Obtaining Proper Motions.
8. A. Blaauw: The Place of Accurate Proper Motions in Galactic Research.
9. P. Lacroute: Études sur l'emploi de Recouvrements de Plaques pour l'établissement de Catalogues Photographiques.
10. W.D. Googe, C.F. Lukac, and H. Eichhorn: The Overlap Approach toward the Derivation of Photographic Stellar Coordinates.
11. Chr. de Vegt: Report on Overlap Methods in Photographic Astrometry.
12. S.V.M. Clube: Relative Star Positions from Overlapping Photographic Plates.

INTRODUCTION

As is no doubt the case for all Joint Discussions, the Organising Committee was faced with an embarrassing array of potential subjects and speakers from which to choose combined with the knowledge that any choice it might make could not possibly do justice to more than a small fragment of the subject in the relatively short time available. Some compromise was necessary and it was finally decided to divide the allotted time between three main topics avoiding as far as possible duplication of material already included in the Draft Reports or presented at the various Commission meetings here in Prague.

The papers in the first group summarise the progress that has been made with current cooperative astrometric programmes, and review the evidence available as to the accuracy of the FK4 system. The second group of papers refer to the problems of fundamental proper motions and their applications, while the third group deals with the method of overlapping plates.

This latter topic was deliberately chosen with the intention of focussing attention on what promises to be a most powerful method for solving the most critical modern problem of fundamental astrometry. This is the shortage of astronomers willing to devote themselves to the long hard grind of traditional meridian astronomy with its apparently small and unspectacular returns. While it is true that electronic computers have removed much of the drudgery from the reductions and that the conventional transit circle appears to be entering a phase of rapid development, as was amply demonstrated during the third meeting of Commission 8, it is also true that the new automatic micrometers are not yielding so spectacular an increase in intrinsic accuracy as they are in convenience. Moreover, the indications are that the number of these new transit circles and observers is never likely to be sufficient to cope with more than the semi-continuous observation of strictly limited lists of fundamental stars. In these circumstances the development of powerful photographic methods which promise increased accuracy and a great reduction in the number of fundamental stars required for calibration is a matter of great importance.

From its introduction into astrometry over 80 years ago, photography has tended to be used for mass-production work of rather limited accuracy. In the early years of this century, some of those engaged on the 'Carte du Ciel' project did realise the possibilities offered by overlapping plates but were in no position to exploit them. The situation has been completely revolutionised recently, however, by the advent of high-speed, high-capacity electronic computers combined with automatic measuring machines, while specially designed modern lenses give images of far higher quality and over wider fields than did those available in 1900.

Perek (ed.), Highlights of Astronomy, 278. © I.A.U.