

**COMMISSION 30 :**  
**RADIAL VELOCITIES (VITESSES RADIALES)**

**Report of Business Meetings**

PRESIDENT : G. BURKI  
VICE-PRESIDENT : C.D. SCARFE

Two business meetings were held, on August 19 and 22. The following items were on the agenda.

**1. MEMBERSHIP**

The Commission voted to welcome the following new members :

Nicholas SUNTZEFF	(C.T.I.O., Chile)
Werner VERSCHUEREN	(Antwerp, Belgium)
Stephenson YANG	(Victoria, Canada)
Marco MISSANA	(Brera, Italy)

Unfortunately, the Commission has lost one of the most productive member in the field of radial velocities, Antoine DUQUENNOY (Geneva, Switzerland), deceased in May 1994.

**2. OFFICERS**

The Commission voted to approve the following slate of Commission Officers for the period 1994-1997 :

PRESIDENT :	C.D. SCARFE
VICE-PRESIDENT :	J.D. HEARNshaw
ORGANIZING COMMITTEE :	W.D. COCHRAN, L.N. da COSTA, A.P. FAIRALL, F.C. FEKEL, K.C. FREEMAN, M. MAYOR, B. NORDSTROM, R.P. STEFANIK, A. TOKOVININ.

**3. MEETINGS**

**3.1. PAST MEETINGS**

Commission 30 has sponsored the following IAU meetings :

IAU Colloquium 135 *"New Frontiers in Double and Multiple Star Research"*, held in Atlanta (April 1992);  
IAU Symposium 162 *"Pulsation, Rotation and Mass Loss in Early-type Stars"*, held in Nice (October 1993);  
IAU Symposium 167 *"New Developments in Array Technology and Applications"*, held in The Hague (August 1994);  
Joint Discussion 3 *"Helio- and Astero-seismology"*, held in The Hague (August 1994).

### 3.2. FUTURE MEETINGS

The Commission confirmed its support for the meeting on *"The Origins, Evolution and Destinies of Binary Stars in Clusters"*, proposed by E.F. Milone, even though that meeting did not receive the support from the EC that would be required for it to have the status of an IAU Symposium or Colloquium. It also voted to support the IAU Symposium on *"Dynamical Evolution of Star Clusters - Confrontation of Theory and Observations"*, which is scheduled for August 1995 in Tokyo.

The Commission also discussed topics for possible future meetings. These include :

- Techniques for very precise radial velocities and their astrophysical applications;
- Kinematics and dynamics of stellar systems; and
- Planning future redshift surveys.

It is still uncertain whether these topics would overlap with those of other meetings under consideration, or being actively planned, elsewhere, and if so whether collaboration would be useful. No decisions have been taken yet.

## 4. WORKING GROUP ON RADIAL VELOCITY STANDARD STARS

### 4.1. REPORT BY THE CHAIRMAN (R. STEFANIK)

A meeting of the Working Group on Radial Velocity Standard Stars took place on Saturday morning 20 August 1994, attended by those members present at the General Assembly (R. P. Stefanik, C. Scarfe, G. Burki and J. Andersen). A progress report on the activities of the Working Group was given to the members of Commission 30 on 22 August.

It appears that the goal of the Working Group, to establish a new set of late-type Radial Velocity Standard Stars with individual mean velocities and an absolute zero point of the system good to 100 m/sec, is close to being realized. As a first step toward this goal, the observations of IAU Standard Stars by the CfA Radial Velocity Group and Colin Scarfe and Robert McClure observing at DAO have been combined and new mean velocities have been determined. More than 9100 observations with a precision of 0.3 to 0.4 km/sec covering 10-15 years were involved in this determination. The combined mean velocities have been shifted to the CfA system. The offset of this system from an absolute zero point based on 814 observations of 25 different minor planets is  $-95 \pm 18$  meters/sec. Sixteen of the standard stars have variable velocities due to either orbital and/or intrinsic astrophysical processes. There is no color effect between the three data sets. A status report describing these efforts is in preparation.

The next step is to combine the extensive observations of the CORAVEL group with the CfA and DAO observations.

The problem of the existence of a significant color effect between the different data sets still has not been resolved. This color effect results in a disagreement of 1 km/sec or more for the reddest stars. Work continues to understand this effect.

At the last IAU General Assembly several new solar-type candidate stars were proposed as possible standards. These stars were found to be constant by either the CORAVEL team or the Canadian HF-cell precise-velocity team. Over 800 new observations of these stars covering 1000-5000 days reveal no velocity variations and all the stars appear to be good candidates for becoming standards. A list of these candidate stars can be found in the Report of Commission 30: Radial Velocities, in Reports on Astronomy, IAU Transactions XXIB, 1992.

The Working Group recommends that users of the official list of IAU Standard Star velocities (See: J. Pearce, *Trans. IAU*, 9, 441, 1955; R. Bouigue, *Trans. IAU*, 15A, 409, 1973; and the revised list in *The Astronomical Almanac*, where variables with a semi-amplitude larger than 1 km/sec have been removed) should consult the Report of Commission 30 (Radial Velocities), in *Reports on Astronomy, IAU Transactions XXIB*, 1992, for additional information.

Little progress has been made in establishing a satisfactory system of standard stars of early spectral types (O-B-A) and work by several groups continues. The Working Group strongly recommends the continued monitoring of the early-type candidates given in the Report of Commission 30 (Radial Velocities), in *Reports on Astronomy, IAU Transactions XXIB*, 1992.

#### 4.2. NEW COMPOSITION OF THE WORKING GROUP

The Commission expressed its thanks to the members of the Working Group, and especially to R. Stefanik and C. Scarfe, for their very valuable work during the past three years.

The Commission voted to approve the new composition of the working group : R. Stefanik (Chairman), F. Fekel, J. Hearnshaw, M. Mayor and C. Scarfe.

### 5. CATALOGS

Since 1976, from the General Assembly of Grenoble, Dr. M. Barbier-Brossat (Marseille Observatory) is in charge of the Catalogues of Stellar Radial Velocities : The Bibliographic Catalogue and The Mean Radial Velocity Catalogue. The history of these catalogues is the following :

#### A. THE BIBLIOGRAPHIC CATALOGUE (Catalogue of the Stellar Radial Velocity Measurements)

before 1970	Abt & Biggs (1972, Kitt Peak Nat. Obs., Tucson)
1970 - 1980	Barbier-Brossat & Petit (1986, <i>A&amp;AS</i> 65, 59)
1980 - 1985	Barbier-Brossat & Petit (1990, <i>A&amp;AS</i> 85, 885)
1985 - 1990	Barbier-Brossat & Petit (1994, <i>A&amp;AS</i> in press)

#### B. THE MEAN STELLAR RADIAL VELOCITY CATALOGUE

before 1950	Wilson (1953, Carnegie Inst. Publ. 601, Washington)
before 1980	Barbier-Brossat (1989, <i>A&amp;AS</i> 80, 67)
before 1990	Barbier-Brossat (1994, <i>A&amp;AS</i> in preparation)

Dr. Barbier-Brossat will retire in October 1994 and, thus, cannot continue this activity, which is of great interest not only for our Commission, but also for the whole astronomical community. This situation has been explained in a letter sent by the President to all the members of Commission 30. Unfortunately, no candidate has been found for this activity.

The Commission, in its second business meeting,

- Expressed the warm thanks of its members to Dr. Barbier-Brossat for her excellent and hard cataloguing work during the past twenty years, and

- Agreed to the proposal by the new President, C. Scarfe, that the problem will be again mentioned in his first letter to the members of Commission 30, in order to seek suggestions that will, it is hoped, lead to its solution. Of course, a new organization must be adopted in order to facilitate the work. But this new organization must be defined by the future astronomer, or group of astronomers, which will be in charge of this activity.

## 6. NEW STRUCTURES OF IAU

The new proposal of the Executive Committee for the restructuring of IAU has been discussed. The commission adopted as a definition for the main relevant activity of its members, "*measurements of radial velocities of stars, galaxies and interstellar material in any part of the electromagnetic spectrum*", and it was thus difficult to be satisfied by the new proposed Division structure. Indeed, the activity of Commission 30 is of interest for several Divisions, including those of Stars, Variable Stars, Interstellar Matter, The Galactic System, Galaxies and the Universe, Optical Technical and Radio Technical. It must be noted that exactly the same difficulty was encountered by Commission 25 (Stellar Photometry and Polarimetry).

Because the large majority of the Commission Presidents (36 of 39) agreed upon the proposed new IAU structure, Commission 30 decided to be tentatively incorporated into the proposed Optical Technical Division until the next General Assembly. However, because of the very peculiar case of Commission 30, it was also decided that the new President, C. Scarfe, will consult all the members of Commission 30 to learn whether that affiliation to the Optical Technical Division is acceptable to the majority of radial velocity observers and users.