

## GENERAL DISCUSSION

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Reporter

At the final Symposium's meeting (May, 31-st) after the two SOC resolutions were made public (see the Introduction), three projects of Symposium resolutions were presented. After discussion only one of them was adopted (the second one).

Resolution N°1 was suggested by Dr Ashby (USA). The resolution recommended IAU:

1. To adopt the coordinate time system (as approved by the International committees CCDC and CCIR) as a global time scale for the Earth;
2. To continue further investigations for the determination and the adjustment of the International Atomic Time (TAI) and the Terrestrial Dynamic Time (TDT).

In support to this resolution Dr Ashby noted that the problem of establishment of the unified global time scale for the Earth is important. The difficulty of this problem (which is especially important in connection with development of the navigation satellite such as "Navstar") is due to the fact that global synchronisation of terrestrial clocks with respect to proper time is impossible because of the Earth's rotation.

For this reason it was suggested to transform the readings of the atomic clocks into readings of fixed fictitious clocks keeping coordinate time and whose position at the moment considered coincides with that of the atomic clock.

Synchronization of such clocks is transitive and may be extended to cover the whole Earth.

During the discussion of this proposal it was made clear that specialists in Celestial Mechanics and Astrometry need some time to realise the necessity to introduce the unified coordinate time. The problem was taken up by Dr Seidelmann (USA), Dr Alley (USA), Dr Yatskiv (USSR) and Dr Pavlov (USSR).

Dr Kovalevsky favoured the proposal but suggested to study the problem in competent commissions of IAU.

Resolution N°2 was suggested by Dr Kovalevsky (France), the Chairman of SOC.

The resolution recommended :

1. to elaborate intensive programmes for the development of space optical astrometry of both small and global field;
2. to support the development of the international programmes for radio-interferometric observations in space.

During the discussion Dr Yatskiv (USSR) proposed to extend the resolution by one more point, namely, to support the development of infrared interferometry. But this suggestion was rejected because this topic was not touched upon during the symposium. Drs Reasenber (USA), Murray (Great Britain), Cannon (Canada), Mitskiévič (USSR) took part in discussion.

The resolution was adopted. Its text is given in annex.

Resolution N°3 was suggested by Dr Eichhorn (USA). The proposal called for the continuation and the development of the investigations on the identification, definition and practical estimation of those observable quantities which establish an unambiguous relationship between celestial reference frames and such verifiable reference frames with well understood functions within the framework of General Relativity which may be interpreted as relativistic and continuous generalizations of Newtonian inertial reference frames.

Drs Pavlov (USSR), Grishchuk (USSR), Mitskiévič (USSR), Kristensen (Denmark), Alley (USA) took part in the discussion. It was made clear that contradictory points of view on the question of inertial reference frames in astronomy exist. In particular, Dr Polishchuk (USSR) suggested his own project of the choice of standard coordinate system with the help of three systems of three artificial satellites of the Earth moving around the Earth in mutually orthogonal planes.

This system of satellites could be used for synchronization of the clocks by coordinate time. At the end of discussion Dr Fricke (FRG) suggested that this question should be considered by respective commissions of the IAU.

Closing the discussion Dr J. Kovalevsky appealed to further development of the international cooperation in Celestial Mechanics and Astrometry between scientists of different countries. He underlined once again the fruitfulness of the Symposium for the development of Relativistic Celestial Mechanics and Astrometry. He also warmly thanked all the local organizers of the meetings who have made a remarkable job.

The Chairman of the Local Organizing Committee Prof. S.S. Lavrov (USSR) wished to the participants the great success in future work.

Mr Murray (Great Britain) thanked the organizers of the Symposium on behalf of the foreign participants with the following words :

"Those of you who have visited Leningrad before will have known what treat were in store for you; to those, who like me, have been visiting Leningrad for the first time this has been a marvellous experience.

Furtunately the organizers of this Symposium have planned a somewhat relaxed schedule so that we have all been able to savour the delights of this city and its neighbourhood as well as to participate in

the Symposium which has been in such magnificent surroundings.

I ask you to express your thanks to our host Professor Lavrov and the members of the Local Organizing Committee who have done such an excellent job in making our stay here in Leningrad so memorable.

In addition of the Local Organizing Committee I ask you to thank the Scientific Secretaries of the Symposium and those who have worked so hard to ensure the smooth running of the projection and translation service, and also the translators themselves. Finally we must express our thanks to the many local colleagues and friends who have helped with reception and entertainment of participants and guests during this Symposium".

These words were greeted by warm applause.

#### ANNEX

Text of the resolution adopted by the Symposium :

The IAU Symposium N°114,

Noting that a number of major scientific problems could be addressed by astrometric instrumentation in Space,

Considering that a number of projects involving both small field and global optical astrometry utilizing both imaging telescopes and interferometers have been proposed and that these two types of astrometry would contribute to these complementary domains of astrometry,

And that, in addition, VLBI observations in Space are envisaged,  
Recommends

- that vigorous programs be established leading to develop optical small field and global astrometry in Space,
- that international collaboration be encouraged for VLBI observations in Space.