

COMMISSION 46 : TEACHING OF ASTRONOMY (ENSEIGNEMENT DE L'ASTRONOMIE)

Report of Meetings : 19, 21, 25, 26, 27 November 1985

ACTING PRESIDENT : C. Iwaniszewska SECRETARY : J.R. Percy, D. McNally

Session 1, 21 November 1985

BUSINESS SESSION

1. Organizing Committee 1985-1988

President : C. Iwaniszewska

Vice-President : A. Sandqvist

Organizing Committee :

L. Gouguenheim (ICSU CTS representative)

J. Kleczek (Secretary of ISYA)

J.R. Percy (Editor of Newsletter)

L. Houziaux (Past President, publisher of Newsletter)

M. Gerbaldi, E.V. Kononovich, R.R. Robbins (Astronomy Education Materials)

D.G. Wentzel (Chairman of Visiting Lecturers Programme)

S. Ferraz-Mello, B. Hidajat, Y.K. Miao (Visiting Lecturers Programme)

2. National Representatives

New National Representatives from Malaysia, Paraguaj, Uruguaj, Peru, Thailand have been proposed; since some of them are not IAU members, they will remain consultants. The National Committees for some countries have still not appointed new representatives.

3. Regular Members

There was a discussion on membership criteria for Commission 46. Some feel that Commission 46 should consist of national representatives only. Some feel that a few additional members with special qualifications should be admitted, and some feel that all those IAU members who requested to be members of Commission 46 should be admitted. In the end, it was decided to admit a few extra members who had been present at the meeting: H.U. Keller (G.F.R.), J. Kreiner (Poland), P.P. Saxena (India), R.M. West (Denmark), and to defer any further decision until the matter has been discussed with the IAU Executive Committee.

4. International Schools for Young Astronomers (ISYA)

J.R. Percy read the report from J. Kleczek regarding the ISYA. The report outlined the history of ISYA, the method by which they operated, the reasons for their success, and the persons and institutions who should be thanked for making them possible. Future schools have been proposed as follows: Patiala, India (postponed from 1985), China, Portugal (postponed from earlier), Columbia, Iraq, the Francophone countries of Africa, and Sri Lanka. Which of these schools are held depend primarily on external circumstances. The first three are the ones most likely to be held in the near future.

5. Newsletter

D. McNally reported on the Newsletter of Commission 46, which he has edited for many years. He asked whether the Newsletter should evolve into a more formal Journal, or be otherwise developed or expanded. It was decided that -especially

as the Newsletter had exceeded its current budget- it should be retained in its present form.

6. National Reports and AEM

The response to the National Reports was favorable. There was some discussion, however, on the Astronomy Education Material (AEM). It was noted that, although the AEM is useful in many countries, it is perhaps not necessary to compile the material in all languages, or to distribute all material to all addresses on the mailing list. Perhaps the National Representatives could distribute the AEM more widely in their own countries. It was noted that the authors of the English-language AEM copyrighted it, and that this was not desirable.

D. McNally was thanked for his years of service to the Newsletter. The new editor, J.R. Percy, appealed for contributions to future Newsletters.

7. Colloquium

J.R. Percy discussed a proposal for an IAU Colloquium on the Teaching of Astronomy, to be held probably in 1988 in the area of Washington, USA. The colloquium would be co-sponsored by one or more North American astronomical societies. The members of Commission 46 expressed general support for the proposal.

8. Visiting Lecturers Programme

There was a brief discussion on the Visiting Lecturers Programme. Such a programme is planned for Peru in 1986, and is proceeding favorably. A programme planned for Nigeria is having difficulties.

D. McNally discussed a proposal by himself and R.M. West for a "travelling telescope" which would be sent on loan to developing countries, perhaps in connection with a Visiting Lecturers Programme or ISYA. It was hoped that the telescope - of approximately 20 cm aperture and equipped with camera, photometer and spectrograph- could be donated by the manufacturer, and transported from place to place by national airlines, free of charge. There was a general support for this proposal.

Session 2, 21 November 1985

CONTRIBUTED PAPERS

1. Aage Sandqvist "A New Concept in Secondary Education"

After describing the elementary and secondary education system in Sweden, and the place of astronomy in it, the author described a proposal "Astronomy High School". Students in the school receive about 5 hours/week of astronomy, in addition to their other courses, and carry out practical work at the Stockholms Observatory.

2. John R. Percy "A Teacher's Guide to Astronomy"

The author described a self-contained guide to astronomy, intended for senior elementary and secondary school teachers. A preliminary version was reviewed by several teachers and a final version is about submitted for publication.

3. Jing-Kui Qian "An International School for Young Astronomers in China"

The author described such a school, which is being considered for sponsorship by the IAU.

4. John L. Safko and R.F. Whitesell "Radio Astronomy for Undergraduates"

The authors described ways in which a 5.5m steerable radio telescope (operating at 11-16 GHz) and a 3m transit radiotelescope (operating at 1.42 GHz - 21cm) have been incorporated into introductory, intermediate and advanced astronomy courses. As the authors have not been present, their report has been briefly summarized by the President.

Session 3, 25 November 1985

(jointly with Comm. 5 and 38)

DEVELOPPING COUNTRIES

Jean-Claude Pecker presided a special session organized by 3 commissions devoted to documentation problems for developing countries. A report on the present situation has been prepared by Pierre Lantos. There is a large need of research books, astronomical journals, of abstracting services for poorer countries. Help could come from direct actions : from person to person, from group to group, from laboratory to laboratory, country to country, from international societies.

A long discussion which followed has been devoted to many problems : the importance of exchange of astronomers (M.L. Aguilar), the possibility of obtaining basic text-books at lower price (P. Venugopal, J.C. Pecker, S. Gurm), on how to use best the AEM (E.A. Müller, F.G. Wood), and the IAU Information Bulletin or Commission 46 Newsletter (J.R. Percy, E.A. Müller), on the possibility of getting more quickly preprints of useful publications, as for instance Almanacs (W.D. Heintz, M.K. Aly), on the equipment needs of developing countries (M.K. Aly).

Session 4, 25 November 1985

POPULARIZATION OF ASTRONOMY

An additional session of Commission 46 has been devoted to an informal discussion on popularization of astronomy, on methods "how to deal with the general public". The main speakers have been James Cornell from Smithsonian Astrophysical Observatory, President of the International Science Writers Association, and Leif Robinson of "Sky and Telescope". The diffusion of astronomical knowledge to the public may be done either indirectly, by releasing special bulletins to the press, press conferences, etc., or directly -by arranging special evenings at the Observatory for different groups of people, etc. The public expects to receive information on what is done at the Observatory. In order to have accurate knowledge diffused, the scientists ought to work with the press. But of course not everybody is a good communicator.

Jean-Claude Pecker stressed the point that the contact with the press might be much more difficult in poorer countries, where they may have problems, for instance with translation of informations. Astronomers want to pay their duty to the general public, but then the newspapermen ought not put together astronomers and astrologers ! Jean-Louis Heudier told about the French experience -public shows at metro stations, attended during 10 days by some 6 millions people. It seems a very good idea to use interesting astronomical events to popularize astronomy.

Local astronomical societies ought to keep an amount of activity directed towards the general public (J.R. Percy). "Sky and Telescope" editorial office has a telephone service on instant astronomical discoveries, but there are no such possibilities in Europe. The first informations usually reach astronomers through "Sky and Telescope" issues, but they ought to be published and propagated quickly (I. Almar). When dealing with the general public one must bear in mind those who probably will never attend any school, therefore one cannot use a very specialized language (M.L. Aguilar).

Session 5, 26 November 1985

ROLE OF PLANETARIA IN SCIENCE TEACHING

Organized by Mrs. Nirupama Raghavan of Nehru Planetarium, New Delhi, and presided by Hans-Ulrich Keller of Stuttgart Planetarium, this has been one of the longest, most interesting and useful sessions of Commission 46. An extensive report on India has been prepared by N. Raghavan. There are now about twenty planetaria in India and neighbouring countries, the oldest of more than 20 years in Calcutta with an attendance of 600 000 visitors per year, and the youngest, of 1.5 year in New Delhi with 180 000 visitors. Following problems ought to be faced when looking for the educatory role of planetaria: how long will it take to have pupils from all schools of a given area pay a visit at the planetarium, how much money is needed for the maintenance of planetaria and how large their staff ought to be, how can planetaria help in educating teachers, in publishing teaching materials. Nearly all planetaria have telescopes used everyday; Bombay has a travelling mini-planetarium in a tent going through the region with some general programmes. Each of them must have an extensive explanation of astronomical events because of popular astrological beliefs!

H.-U. Keller told about the International Planetarium Directors Conference, as well as on the First European Planetarium meeting at Strasbourg in 1984. Some possibility of collaboration, of exchange of programmes, of training planetarium personnel has been envisaged for European countries. H. Köhler introduced the latest news in ZEISS Planetaria automatization, and G. Reed of West Chester State College gave an invited lecture on planetaria in astronomy education. While the planetarium might be considered as the greatest single teaching instrument ever invented, it must not be used all the time when teaching astronomical concepts. One must bear in mind that astronomy is a science most closely associated with our culture, astronomy is very attractive to the laymen.

Next the planetarium directors spoke about their specific situations: in Pakistan they have school children coming everyday, and teachers' courses free of cost; in Allahabad the audience is composed of pilgrims coming from all over India; in Calcutta the programmes are prepared in 3 languages: Bengali, Hindu, English, with music as a kind of cultural show; in New Delhi secondary school pupils work at easy observing projects, as observing sunspots and solar rotation, as drawing the path of the Moon on a star chart, etc; in Delhi Physics Laboratory Planetarium they arrange science weeks to attract the teachers from science centers.

The session concluded with the final question -how can we help the planetaria- answered: through bringing together people from different parts of the world, through an exchange of experiments and informations, perhaps through more personal contacts or founding of a committee for planetaria of a given part of the world.

Sessions 6 and 7, 19 November 1985

TEACHERS' MEETING

The traditional meeting with local teachers chaired by the Acting President C. Iwaniszewska has been attended by about 50 teachers from the local Delhi area and about 50 Indian and foreign astronomers. The aims of this session, outlined by K.B. Bhatnagar of Delhi, have been to emphasize the role of astronomy in school curriculum and to establish closer contacts between school teachers and astronomers. K.D. Abhyankar of Hyderabad was of the opinion, that teachers when introducing astronomical notions in the 11-class, should be more interested in recent developments of modern astronomy, for instance they should be able to show that the laws of physics are universal everywhere.

D. McNally of London pointed out that astronomy should have its place in the teaching of physics and mathematics, since there are 3 important areas of impact of astronomy at school:

- when introducing the concept of time in physics,
- when getting at applications of physics to modern astrophysics,
- when looking for simple examples in teaching mathematical computations.

J.C. Bhattacharya of Bangalore spoke on the introduction of simple astronomical experiments at school, beginning with the construction of sundials, ending with observations made by means of self-made simple telescopes. A. Bhatnagar of Udaipur and S.M.N. Ansari of Delhi told about old Indian astronomical traditions, India being still a mine of old documents: manuscripts of astronomical tables translated from arabic and islam into sanscrit.

A paper on "How to introduce the Universe in physics teaching" has been presented by T.P. Padmanabhan from Bombay, while M.P. Chhaya of Delhi presented the point of view of teachers. It is not so easy to popularize astronomy at school level, one ought to have some adequate astronomical literature, but there is nearly none at present. In order to keep the interest of children it would have been highly desirable to have astronomical clubs at school or to organize other out-of-school activities to keep the habit of sky watching. Visits at observatories would of course be highly educational, but a training programme or regular teachers courses would be best. Teachers must be brought to understand themselves all astronomical phenomena. It would of course be very helpful if daily newspapers could bring a monthly star-chart and an astronomical column.

The chairman spoke about popularization of astronomy and teachers training in her country -Poland-, and the session concluded with a show of astronomical slides presented by N. Raghavan of Delhi. It is hoped that as a result of this meeting, a committee of astronomers and teachers will begin its work, helping the everyday work of teachers, so that Henri Poincaré's words will become true: "The stars not only give us that light which strikes our physical eyes, but they also give us the light which illuminates our minds". These have been the concluding words quoted by the organizer of this session, S.M. Alladin of Hyderabad.

On November 27, Commission 46 arranged a special show of American astronomical movies about the Universe and old Egyptian astronomy brought by Aage Sandqvist from Sweden, through the courtesy of Curt Roslund from Göteborg. An audience of a few hundred astronomers and school teachers attended.