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IAU NEWSLETTER ON THE TEACHING OF ASTRONOMY

ISSUE #42B; (NORTHERN) WINTER 1995-96

IAU COMMISSION 46: THE TEACHING OF ASTRONOMY

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L. Gouguenheim, W. Gutsch, S. Isobe, D. McNally, J. Narlikar, D. Wentzel

Contributions to this Newsletter are gratefully received at any time.

MESSAGE FROM THE PRESIDENT

The activities of IAU Commission 46 go in three-year cycles, measured from the triennial General Assemblies of the IAU. The next GA will be held in Japan, in the summer of 1997. Prior to that, Commission 46 (like other IAU commissions) will take stock of its activities, prepare a report for the IAU and, at its business sessions, elect a new Organizing Committee to carry out the Commission's activities for the 1997-2000 period. Traditionally, the Vice-President becomes President, a new Vice-President is chosen from among the Organizing Committee (or other active members of the Commission), and a new Organizing Committee (consisting of those who are directing the Commission's various programs and projects) is put into place. The Vice-President Julieta Fierro and I would be happy to receive your comments about Commission 46 activities at any time.

In the next six months, the National Representatives to Commission 46 will be preparing their triennial reports on what has developed in astronomy education in their countries in the last three years. These reports form part of the basis for my own report to the IAU for 1994-1997; they also make interesting reading in their own right. They will be circulated along with the Autumn 1996 issue of this newsletter.

We are now planning for the education sessions for the 1997 GA. Proposals for Joint Discussions, and Joint Commission Meetings, must be submitted to the IAU before April 15, so if you have any strong feelings about this, you should let me know as soon as possible. There will be the usual business sessions of the Commission; if you have special suggestions about their content, please let me know. Contributed papers will probably take the form of posters, as they did at the last GA.

A major emphasis of Commission 46 is the development of astronomy. The new Teaching for Astronomical Development (TAD) program should be firmly in place by 1997. We hope that it will be coordinated with other existing programs of Commission 46, as well as with informal programs such as the donation of books and journals to selected astronomically developing world.

John R. Percy

copy

IAU COLLOQUIUM #162: NEW TRENDS IN TEACHING ASTRONOMY

This colloquium will be held 1996 July 8-12 at University College London, and The Open University, UK. There will be six major themes in the colloquium: (1) university education; (2) distance learning; (3) the student learning process; (4) planetarium education and teaching; (5) public education; (6) teaching astronomy in the schools: materials for astronomy teaching, primary-level teaching, and secondary level teaching. In addition to many invited speakers, there will be contributed papers and posters. Proposals for papers and posters must reach the SOC by 1996 MARCH 31. We expect a good turnout of key astronomy educators from around the world.

Registration for participants will be 100 pounds sterling; (120 after May 31). This includes various social events, and a copy of the conference proceedings. Accommodation is available in a wide range of prices, from student residence at 15 pounds/person/night including breakfast, to hotels starting at 30 pounds single.

For information about papers, posters, travel grants: Professor Lucienne Gouguenheim, Chair: SOC, Observatoire de Paris - Meudon, Arpes, 5 Place Jules Janssen, 92195 Meudon Cedex, France; phone 33-1-4507-7530; fax 33-1-4507-7939; e-mail: lucienne.gouguenheim@obspm.fr

For information about organizational arrangements: Dr. D. McNally, Chair: LOC, University of London Observatory, Mill Hill Park, London NW7 2QS, UK; phone 44-(0)181-959-0421; fax 44-(0)181-906-4161; e-mail: dmn@star.ucl.ac.uk

? I am told that the conference also has a WWW site:
<http://yan.open.ac.uk/~ajnorton/astro/iau/conf.html>

SOLAR ECLIPSE SUBCOMMITTEE

Commission 46 has established a sub-committee, consisting of Professors Ralph Chou, Julieta Fierro and Jay Pasachoff (Chair), to generate information on how countries (especially developing countries) can harness solar eclipses for educational and scientific benefit. This will include information on safe solar eclipse observing, effective public and school education on eclipses etc. Professor Pasachoff has circulated predictions of the local circumstances of the 1996 October 12 partial solar eclipse, which will be visible in northeastern Canada, all of Europe and northern Africa, and ending in the Middle East. This will provide tremendous opportunities for public education, as well as presenting special challenges in the area of safety. For more information (including a press release, which can be modified for local use, and a table of Local Circumstances), contact Professor Pasachoff (jay.m.pasachoff@williams.edu; fax: 413-597-3200).

The eclipse subcommittee has also provided significant help in connection with the October 1995 solar eclipse visible in the Middle East, India, and South-East Asia.

Editor's Note: In May 1994, in Toronto, we had an annular eclipse of the Sun, and we formed a very successful coalition, consisting of university departments, the planetarium, science centre, science teachers' association, optometry association etc.

IAU ON THE WWW

In case you do not know, the IAU can be located on the World Wide Web, at <http://www.lsw.uni-heidelberg.de/iau.html>. It would be useful for our Commission 46 to have a home page on the WWW. If there any expert webmasters who have an interest in astronomy education, and would be interested to apply, please let me know - JRP.

*Andy
Rob*

OBITUARY

Edith Alicia Muller passed away on 24 July 1995, in Spain. She was IAU General Secretary from 1976 to 1979, and was also instrumental in the establishment and development of IAU Commissions 38 (Exchange of Astronomers) and 46 (Teaching of Astronomy). She was also a member of the General Committee of ICSU from 1977 to 1979, as well as many other international committees. Her scientific career was devoted to the astrophysics of the Sun. To quote from a more detailed obituary (by J.C. Pecker) in Science International, December 1995: "Edith's character, at one and the same time firm but playful, energetic and human, earned her only liking. Her loyalty to her numerous friends was proverbial. She will be much missed, by her astronomer friends, to be sure, but also by many other colleagues, in Switzerland and throughout the world".

UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS

As explained in the entry under "Sri Lanka" below, the UN Office for Outer Space Affairs has organized a series of Workshops on basic space science. These have demonstrated that the stimulation of nationally-supported science activities plays an important role for developing countries to learn about, and benefit from, the advances in space science and technology made by many space-faring nations. In addition to the establishment of the telescope facility in Sri Lanka, other activities arising from these Workshops include the establishment of astronomical observatories in Colombia and Honduras, a feasibility study for an Inter-African Astronomical Observatory and Science Park on the Gamsberg in Namibia, and the upgrade of the Kottamia telescope facility in Egypt. Other future projects include: a booklet, in preparation, on Developing Astronomy and Space Science Worldwide; and a Workshop on Basic Space Science, to be held in Bonn, Germany, 9-13 September 1996, to summarize the accomplishments of previous Workshops, and plan for the future. Contact person: Dr. Hans J. Haubold (haubold@vs.kph.tuwien.ac.at).

ASTRONOMY EDUCATION: CURRENT DEVELOPMENTS, FUTURE COORDINATION

The proceedings of this Astronomical Society of the Pacific 1995 symposium are now available from the ASP, 390 Ashton Avenue, San Francisco CA 94112, USA, at \$US 44 plus shipping (ASP Conference Series, Volume 89, edited by John R. Percy, 1996). In 316 pages, this book reviews astronomy education, primarily but not entirely in North America, through a series of invited review papers, dozens of contributed poster papers, reports of eight small-group discussions on all aspects of astronomy education, and general comments and discussion after each section. Two useful catalogues of resource information are contained in the appendices. For information: asp@stars.sfsu.edu

ASP is also the publisher of "The Universe at your Fingertips" - an 800 page guide to astronomy teaching, developed as part of the ASP's Project ASTRO. It is available from the ASP at \$US 24.95 plus shipping: contact asp@stars.sfsu.edu

MERCURY MAGAZINE AND INTERNATIONAL ASTRONOMY EDUCATION

The ASP's popular magazine Mercury continues to highlight both astronomy education, and international astronomy, as well as many other topics. The current (January-February 1996) issue contains a special section on the future of astronomy, including an article on the future of astronomy education, by John Percy. In the regular "WorldBeat" column, there is an article by Jayant Narlikar, Director of India's Inter-University Centre for Astronomy and Astrophysics, and a member of the Organizing Committee of Commission 46. He describes the background leading up to the founding of IUCAA, and describes some of its education programs. The IUCAA is a model for how research and education can be combined in a high-quality national facility.

INTERNATIONAL ASTRONOMY DAY

April 20 is International Astronomy Day. For more information on how to involve your club and your community in celebrating this event, contact Gary Tomlinson, the Astronomical League's Astronomy Day Coordinator, at the Public Museum of Grand Rapids, 272 Pearl Street NW, Grand Rapids MI 49504, USA; phone (616) 456-3532; fax (616) 456-3873.

ASTRONOMY EDUCATION AROUND THE WORLD

BRAZIL. Brazilian astronomers and teachers had great success in a project to popularize the educational and safety aspects of the total solar eclipse on November 3, 1994. The key to the success was a well-designed system of regional and local monitors, and a set of workshops and other events, designed to spread the information to teachers and students, education officials, journalists and the general public. For further information: Rute Helena Trevisan, Universidade Estadual de Londrina, Caixa Postal 6001, Londrina - Pr 87051-970, Brazil; e-mail: helena@brfuel.bitnet

CHINA. A conference on "Astronomy Courses for Students Not Majoring in Astronomy in Colleges and Universities in China" was held 8-12 September 1995 in Beijing. About 50 representatives attended, from 20 astronomy units in 13 provinces. There were 29 reports presented, including 5 invited ones. The conference was supported by Professor John Percy, President of the IAU Commission on the Teaching of Astronomy; his paper "Astronomy Education: An International Perspective" was presented in translation as an invited paper. The conference was very successful. A proposal "About Strengthening Astronomy Education in Colleges and Universities" was passed, and sent to the Education Minister of China. The papers will be published in the journal "Forum of Higher Education". Further conferences are planned.

GREECE. Greece is one of the very few countries in which astronomy is a compulsory course in high school. It is found in the second (middle) grade of high school, and involves one hour per week during the whole school year.

HONDURAS. At the UN/ESA workshop in Sri Lanka, Professor M.C. Pineda de Carias reported the good news that the Observatory at the University of Honduras is now fully operating, and that the Observatory staff is taking the lead to develop astronomy in Central America.

KOREA. As part of the Seventh Asian-Pacific Regional Meeting of the IAU, in Pusan, Korea, there will be several educational activities, including a program for school teachers, and an event for amateur astronomers and interested members of the general public. These sessions will be planned and run by the Education Committee of the Korean Astronomical Society.

LATVIA. In Latvia, the activity of schoolteachers in the field of astronomy education is increasing. At the October 1995 annual scientific conference at the University of Latvia, one day of the astronomy section was devoted to astronomy education. Schoolteachers from different regions of the country, astronomers, and representatives of the national Ministry of Education took part. Talks on several topics (general problems and perspectives, textbooks, exercise books, models ...) were given. A national association of astronomy teachers was founded, the main goal of which is to promote astronomy education at all levels, from primary school to university. The members are now looking to contact similar associations elsewhere. Contact person: Ilgonis Vilks, Astronomical Observatory, University of Latvia (e-mail: astro@acad.latnet.lv).

NEW ZEALAND. "An Overview of the Education and Public Astronomy Programs at the Carter Observatory" provides an excellent summary of the range of programs which can be offered by a public observatory. For a reprint or information, contact the senior author Wayne Orchiston, Carter Observatory, PO Box 2909, Wellington NZ; e-mail: Wayne.Orchiston@vuw.ac.nz

ROMANIA. Looking forward to the total solar eclipse of 11 August 1999, which crosses Europe including Romania, the Astronomical Institute of Romanian Academy, Str. Cutitul de Argint nr. 5, R-75212 Bucuresti 28, Romania, is co-sponsoring a NATO Advanced Research Workshop "Theoretical and Observational Problems Related to Solar Eclipses", 1-5 June, 1996, Sinaia, Romania. For information, contact M. Stavinschi at the address above (e-mail: mstavinschi@roimar.imar.ro; fax +40.1.337.33.89).

SRI LANKA. As part of the activities of the Space Applications Program of the United Nations Office for Outer Space Affairs, the Program, since 1991, has organized a series of annual workshops on Basic Space Science that focus on planetary exploration and astronomy. As a result of the achievements of these workshops, a 0.45m Cassegrain Goto astronomical telescope was donated by Japan to Sri Lanka. As part of the inauguration of this telescope facility at the Arthur C. Clarke Centre for Modern Technologies, the United Nations, the Government of Sri Lanka, the European Space Agency, and the Arthur C. Clarke Centre, co-sponsored the most recent Workshop on Basic Space Science, in Colombo, from 11-14 January 1996. Workshop deliberations resulted in the recommendation that a sample education/research program for astronomical telescopes of < 1m should be developed and implemented for similar telescopes (present and future) in the region, and elsewhere. The Workshop was attended by 74 astronomers and space scientists from 25 countries.

TURKEY. As part of IAU Symposium 160 (The Carbon Star Phenomenon), Turkish astronomers are organizing a two-day workshop for school teachers. The organizer is Zeki Aslan (e-mail: aslan@ufuk.lab.akdeniz.edu.tr). Editor's note: I urge the organizers of other scientific meetings to do likewise.

VIETNAM. Pham Viet Trinh, H.N. National University, D.H.S.P.I. Hanoi, reports on the progress of astronomy in Vietnam in the past three years. Encouragement has come from the Past President of IAU Commission 46, from Alan Batten, Chair of the IAU Working Group on the Worldwide Development of Astronomy, and from Don Wentzel, Secretary of the International Schools for Young Astronomers. Telescopes have been donated by Canada, France, and Japan, and books and magazines by astronomers in several countries. Young astronomers have been able to attend ISYA's and conferences, and study abroad. There is now the hope of developing astronomy further. The new reformed curriculum includes a course in astronomy for secondary schools, and an optional one for high schools, and there is the beginnings of an astronomy training centre at Hanoi National University and perhaps elsewhere. There is a Vietnamese Astronomical Society based at the National University. International assistance would be welcome.

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 MESSAGE FROM THE PRESIDENT

Welcome to the first "real" issue of the IAU Commission 46 electronic newsletter. I would appreciate your reaction (if any) to this new "short item" format. I would also appreciate your contributions at any time. I plan to publish the electronic version every three months, and send two issues out as a paper version every six months - but only to Commission 46 national representatives, and to a few institutions without access to e-mail. Special thanks to Armando Arellano Ferro, for "printing" the E-NL, and to Ellen Bouton (National Radio Astronomy Observatory, USA) for providing e-mail addresses for astronomy libraries.

LIAISON WITH INTERNATIONAL PLANETARIUM SOCIETY

We welcome Dr. William Gutsch, past president of the International Planetarium Society, as a new member of the Organizing Committee of our commission. This re-establishes a liaison which existed for many years in the past. I hope it encourages a closer relationship between our commission, and the international planetarium community - which makes important contributions to many areas of astronomy education.

WELCOME TO NEW NATIONAL REPRESENTATIVES

Australia: Alex RODGERS
 Canada: Douglas FORBES
 Czech Republic: Martin SOLC
 Egypt: Mamdouh I. WANAS
 Iceland: Einar GUDMUNDSSON
 India: N.C. RANA
 Iran: Ahmad KIASATPOUR
 Ireland: Andrew SHEARER
 Lithuania: Jakobus SUDZIUS
 New Zealand: Wayne ORCHISTON
 Peru: M.L. AGUILAR
 Russia: Edward KONONOVICH
 Slovak Republic: Pavel PALUS
 Switzerland: Louis MARTINET
 Turkey: Osman DEMIRCAN
 Ukraine: Valentin KARETNIKOV
 Uruguay: J. FERNANDEZ

In some cases, this is simply a confirmation of an existing national representative; some of the adhering organizations are delinquent in nominating their representatives. And my record-keeping sometimes leaves something to be desired. If there are any further corrections or additions, please let me know.

CONGRATULATIONS!

Julieta Fierro, Vice-President of IAU Commission 46, has been awarded the Kalinga Prize by UNESCO, for her outstanding work in popularization of science.

IAU 1994 GENERAL ASSEMBLY: JOINT DISCUSSION 4

The proceedings of this Joint Discussion on "Recent Developments in Astronomy Education" have now been published, in Highlights of Astronomy, Volume 10 (ed. I. Appenzeller), Kluwer Academic Publishers, 1995, pp. 143-176. These pages were edited by me. See also pp. 91-112 for the proceedings of the meeting on "Women in Astronomy".

IAU COLLOQUIUM #162

I am pleased to report that the IAU Executive Committee has approved our proposal for an IAU colloquium on astronomy education. It will take place in London UK, July 8-12, 1996. The chair of the Local Organizing Committee is Dr. Derek McNally, University of London Observatory, Mill Hill Park, London NW7 2QS, UK; fax: 44-(0)-181-906-4161; e-mail: dmn@starlink.ucl.ac.uk. The chair of the Scientific Organizing Committee is Prof. Lucienne Gouguenheim, Radioastronomie, Observatoire de Paris - Meudon, F-92195 Meudon Cedex, France; e-mail: gouguenheim@obspm.fr. Applications for travel grants can be obtained from Prof. Gouguenheim.

TEACHING FOR ASTRONOMICAL DEVELOPMENT

Announcements regarding TAD were sent to 30 people in 19 countries with a finite but low level of astronomy, and who might wish to enhance their astronomy. Follow-up letters were sent to 13 people in 12 countries, noting that proposals are due in the office of the committee secretary by January 2, 1996. The committee is to prepare a recommendation for the IAU Executive Committee by April 15, 1996. The members of the committee to evaluate TAD proposals are:

Armando Arellano Ferro (University of Guanajuato, Mexico)
 Giuseppe Longo (Osservatorio Astronomico di Capodimonte, Napoli, Italy)
 Derek McNally (University of London Observatory, UK; Chair)
 John Percy (University of Toronto, Canada; President: IAU C46 ex-officio)
 Rameshwar P. Sinha (giant Meterwave Radio Telescope, Pune, India)
 Donat G. Wentzel (University of Maryland, USA; Secretary)

IAU INTERNATIONAL SCHOOL FOR ASTRONOMERS, BRAZIL 1995

I had the great pleasure of participating in the 1995 ISYA in Brazil, ably organized by the local host Prof. Renato de Las Casas, and the secretary Prof. Michele Gerbaldi from Commission 46. There were about 40 students from a dozen countries in Latin America and Spain. Their talks on astronomy and astronomy education in their countries provided me with both information and inspiration. Courses were given by: John Percy (Teaching of Astronomy), Craig Gullixson (USA: CCD Detectors), Jens Knude (Denmark: Interstellar Medium), Bo Reipurth (Chile: Stellar Astronomy and Astrophysics), John Percy (Variable Stars), Michele Gerbaldi (France: Teaching of Astronomy), Silvia Torres Peimbert (Mexico: Practical Astronomy), Luiz Paulo Vaz (Brazil: Stellar Astronomy), Reynier Frans Peletier (Spain: Galaxies), as well as several astronomers who gave single talks or seminars. The third week of the school was spent at the Astronomical Observatory of the Federal University of Minas Gerais. There were also several excellent social and cultural events. On behalf of Commission 46, I am happy to thank all those who helped with the School, especially Prof. de Las Casas and his colleagues.

IAU COMMISSION 46: SOLAR ECLIPSE SUB-COMMITTEE

Solar eclipses are "viewed" with mixed feelings, in both the developed and the developing countries; there are many misconceptions about the significance of eclipses, and about the advisability of viewing them. Yet solar eclipses can be an excellent way of increasing public interest in astronomy. For those reasons, IAU Commission 46 has established a subcommittee: Professors Jay Pasachoff (Chair: IAU WG on Solar Eclipses), Ralph Chou (an optometry professor, and amateur astronomer), and Julieta

Fierro (Vice-President of Commission 46). All of these people have had extensive experience with solar eclipses. They have already provided useful information for the 1995 October eclipse, as they will for future eclipses (especially those occurring in less developed countries). If you have any suggestions along these lines, you can reach Jay Pasachoff at "jmp@williams.edu".

BOOKS AND JOURNALS FOR DEVELOPING COUNTRIES

I would like to form a small committee to facilitate sending books and journals for the developing countries - identifying sources of material, funding for shipping, and suitable recipients. If you have an interest, and especially if you have contacts with publishers of books and journals, please contact me (percy@astro.utoronto.ca). Please note that this is NOT a call for requests for books and journals!

ONE-DAY WORKSHOPS FOR SCHOOLTEACHERS

One-day workshops for schoolteachers are a familiar part of IAU General Assemblies; they have been a project of our commission for many years. In February 1995, we organized a very successful workshop as part of an IAU Colloquium on stellar pulsation. This is described in Monthly Notes of the Astronomical Society of Southern Africa, 54 (5-6) p.36-37. We are also hoping to organize such a workshop in connection with an IAU Symposium on carbon stars, in Turkey, in May 1995.

Are you organizing a scientific conference, or an annual meeting of a scientific or educational society? Why not consider organizing a workshop for local schoolteachers as part of it? It will not only benefit education, but it will also be good public relations for your meeting. For advice or assistance, contact John Percy (percy@astro.utoronto.ca).

ASTRONOMY EDUCATION INTERNATIONAL

In the course of my work as president of Commission 46, I have written a number of articles on the general theme of astronomy education international, including one for the planetarium community (The Planetarian 24, #3, 6), and one based on my trip to South Africa (Monthly Notes of the Astronomical Society of Southern Africa 54, #5-6, p. 38); two more articles are in press in the proceedings of the ASP symposium, and the meeting in Spain mentioned below. There is also a set of articles, by Alan Batten and I, in Mercury (the non-technical magazine of the Astronomical Society of the Pacific), 24, #2, 15-18, dealing specifically with the developing countries. Mercury now carries regular articles on both astronomy education, and international astronomy. I recommend strongly that you (or your library) subscribe to it. I have just completed an article for them on "The Future of Astronomy Education". I would be happy to send you a copy (percy@astro.utoronto.ca).

SCIENCE EDUCATION INTERNATIONAL

I subscribe to Science Education International, which is published by ICASE, the International Council of Associations for Science Education. Two interesting articles in the current issue:

- (i) How Can We Communicate the Results of Educational Research to Practitioners?, by Maria J. Saez (SciEdInt Vol 6, No 3, 21-24 (1995). Conclusion: "The educational practitioner must be regarded as an equal partner in the research enterprise; otherwise, our efforts in improving educational practice will be in vain."
- (ii) Constructivism for Science Teachers, by William W. Cobern (SciEdInt Vol 6, No 3, 8-12 (1995). Conclusion: "In summary, constructivism is a model intended to describe learning. The model suggests: (i) The student is always active when learning takes place; (ii) This active process is the process of making sense. Learning does not occur by transmission but by interpretation; (iii) Interpretation is always

influenced by prior knowledge; (iv) Interpretation is facilitated by instructional methods that allow for the negotiation of ideas. Inquiry activities are powerful specifically when they promote discourse. By the same reasoning, cookbook labs and demonstrations are far less effective. Thus, if students are not talking science, you will find that many are not learning science

PAST MEETINGS

The Astronomical Society of the Pacific held a major symposium on astronomy education June 24-25, 1995, at the University of Maryland, hosted by Donat G. Wentzel. The proceedings will be published by the ASP Conference Series, early in the new year.

Chinese astronomers held a meeting on "Selective Astronomy Courses in Chinese Universities", September 8-12, 1995.

FUTURE MEETINGS

There will be a symposium on International Science Education, in Ithaca NY, USA, June 9-12, 1996. For more information, contact Sue Chamberlain (chamberl@astrosun.tn.cornell.edu), 517 Space Sciences Building, Cornell University, Ithaca NY, USA 14853-6801.

Prompted by the donation of a 0.45m telescope to Sri Lanka by the government of Japan, the UN is holding a workshop on "Basic Space Science Focussing on Small Astronomical Telescopes", January 10-12, 1996, at the Arthur C. Clarke Centre in Sri Lanka. Anyone interested in participating, or in offering support or assistance to the project, should contact Dr. Hans J. Haubold (haubold@vs.kph.tuwien.ac.at).

A conference on "From Quantum Fluctuations to Cosmological Structures" is to be held in Casablanca, Morocco, January 5-13, 1996, as part of an effort to build an astronomy curriculum in the schools and universities of Morocco. The contact person is Dr. K. Chamcham, Faculty of Science, Ain Chok, Universite Hassan II, BP 5366 MAARIF, Casablanca, Morocco (e-mail: kchamcham@innet.meta.fr). I have offered Commission 46's help in the education side of this project. There is also interest in developing astronomy in other countries in the Arab world, so there is opportunity here for co-operation.

OTHER MEETINGS UNDER CONSIDERATION

We have the opportunity, as part of the 1997 IAU General Assembly in Japan, to propose Joint Discussions on various topics; they can be purely educational, or they can be topics which relate to the work of other IAU Commissions, as well. For instance, there has been talk of a session on "Professional-Amateur Co-operation in Astronomy Education and Research", and on "Preserving the Astronomical Windows" (research and educational aspects of light pollution and related topics). If you have any suggestions, please contact John Percy (percy@astro.utoronto.ca).

Martin Solc (solc@earn.cvut.cz) in the Czech Republic, informs me that there is some interest in holding a conference on astronomy education in Prague, in 1997.

There have also been discussions about a possible regional conference on astronomy education, to be held in or near Sydney, Australia, in 1998 or thereabouts. The Astronomical Society of the Pacific has expressed a willingness to co-sponsor this; the Teaching of Astronomy in the Asia-Pacific Region group might also be a co-sponsor.

PROJECT ASTRO HANDBOOK

"The Universe at your Fingertips", an 800-page astronomy activity and resource notebook, is available from the Astronomical Society of the Pacific (390 Ashton Avenue, San Francisco CA 94112, USA; e-mail asp@stars.sfsu.edu) for \$24.95 (US) plus shipping and handling. This handbook was developed as part of Project ASTRO, which linked astronomers (both professional and amateur) with school teachers and classes. It is a gold mine of ideas for teaching astronomy in school, college or to the public. The ASP has a catalogue of other useful teaching material, and publishes a free teachers' newsletter four times a year.

Another useful, but less massive handbook is the Project SPICA Handbook, published by Kendall/Hunt, 4050 Westmark Drive, P.O. Box 1840, Dubuque IA 52004-1840, USA; price \$19.95 (US).

FIRST ASTRONOMY OLYMPIAD, IN ISRAEL

Dr. Meir Meidav and Prof. Hagai Netzer have sent me an article describing the first astronomy and space science Olympiad in Israel. It involved grades 9 to 12 students. For more information, contact Drs. Meidav and Netzer at: School of Education, Faculty of Humanities, Tel Aviv University, Ramat Aviv, 69978 Tel Aviv (PO Box 39040), Israel. E-mail address: alanet@post.tau.ac.il

EDUCATION AND PUBLIC ASTRONOMY PROGRAMS AT THE CARTER OBSERVATORY

This paper outlines the extensive range of public programs offered by the Carter Observatory (Wellington NZ), including "public nights", new planetarium audio-visual shows, displays, the Carter Memorial Lectures, the annual Astronomical Handbook and other publications, and a monthly newspaper column and three monthly radio programs. It also deals with the Observatory's involvement in undergraduate and postgraduate astronomy in Victoria University of Wellington, various adult education training programs, "Overnight Extravaganzas", holiday programs, and the recent development of the Education Service in response to the introduction of an Astronomy curriculum throughout New Zealand. Some possible future developments in the public astronomy and education areas are also discussed. For more information, contact Dr. Wayne Orchiston, Carter Observatory, PO Box 2909, Wellington, New Zealand. E-mail: Wayne.Orchiston@vuw.ac.nz {Editor's note: this article provides a useful outline of the activities which can take place at a public observatory/planetarium complex.}

TEACHING ASTRONOMY IN SPAIN

Professor Rosa M. Ros (Seminari Permanent d'Astronomia, Institut de Ciències de l'Educació, Universitat Politècnica de Catalunya, Avda. Diagonal 647 planta 11, 08028 Barcelona, Spain) has sent short articles on "Teaching Astronomy in Spain", and "More Astronomy in Spanish Curricula". Professor Ros hosted an enjoyable and successful conference on astronomy education, March 9-11, 1995, in Vilanova i la Geltru. The proceedings are available this autumn. E-mail: ros@mat.upc.es