

IAU Symposium

260

19–23 January 2009,
Paris, France

IAU Symposium
260

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Proceedings of the International Astronomical Union

The Role of Astronomy in Society and Culture

Edited by

The Role of
Astronomy in
Society and
Culture

Valls-Gabaud
Boksenberg

David Valls-Gabaud
Alexander Boksenberg



ISSN 1743-9213

Proceedings of the
International
Astronomical Union



International Astronomical Union



CAMBRIDGE

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UNIVERSITY PRESS



THE ROLE OF ASTRONOMY IN SOCIETY AND CULTURE

IAU SYMPOSIUM No. 260

COVER ILLUSTRATION

This is an adaptation created by Emmanuel Vergnaud, based on the original painting by Guellen (see page 286) to illustrate a book on astronomy for children.

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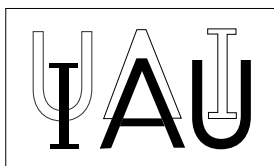
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THE ROLE OF ASTRONOMY IN SOCIETY AND CULTURE

PROCEEDINGS OF THE 260th SYMPOSIUM OF THE
INTERNATIONAL ASTRONOMICAL UNION
HELD AT THE UNESCO HEADQUARTERS,
PARIS, FRANCE
JANUARY 19–23, 2009

Edited by

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CAMBRIDGE UNIVERSITY PRESS
The Edinburgh Building, Cambridge CB2 2RU, United Kingdom
40 West 20th Street, New York, NY 10011-4211, USA
10 Stamford Road, Oakleigh, Melbourne 3166, Australia

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First published 2011

Printed in the United Kingdom at the University Press, Cambridge

Typeset in System L^AT_EX 2 ϵ

A catalogue record for this book is available from the British Library

Library of Congress Cataloguing in Publication data

ISBN 9780 521 764773 hardback
ISSN 1743-9213

In memoriam
Baruch S. Blumberg (1925–2011)

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Preface

To any person with even the vaguest idea of the nature of scientific evidence, such beliefs as those of astrologers are of course impossible. But so are most of the beliefs upon which governments are based, such as the peculiar merit of persons living in a certain area, or of persons whose income exceeds a certain sum. It would not do to teach people to reason correctly, since the result would be to undermine these beliefs. If these beliefs were to fade, mankind might escape disaster, but politicians could not. At all costs, therefore, we must be kept stupid.

Bertrand Russell (1932)[†]

Il faut donc qu'à l'effort de construire la science nous joignons celui de la rendre accessible, de manière que l'humanité poursuive sa marche [...]

Paul Langevin (1946)[‡]

Bertrand Russell famously discussed the divorce between science and culture back in 1957 (upon receiving UNESCO's Kalinga Prize), and warned us of its dire consequences for the survival of humankind. Since then, the gap has perhaps widened even more and yet, at the same time, our societies have never been so interested in scientific activities and in particular by astronomy, being increasingly aware of the tremendous progress made over the past decades. Astronomers are well aware of their social responsibilities as scientists, and engage in a wide spectrum of activities to bring astronomy to a larger public within their cultures, and in some cases around the planet. Yet light pollution prevents an increasingly larger fraction of people to watch the sky and be aware of the beauty of astronomical phenomena, while artists continue to be inspired by them. The public success of well-publicised discoveries –and space missions– should not however mask some infamous overstatements, such as the case of the NASA Mars meteorite, which may question the science communication tools that have been used, following the wise advice of Russell and Langevin.

What is, therefore, the precise role of astronomy within our societies? How may astronomers influence –and are affected by– the different cultures they live in? Can they help the development of societies beyond the purely intellectual realm? How is astronomy perceived by the different actors in our societies, from the general public to governmental agencies through artists and students? Can astronomers help reducing the waning interest that the younger generations of students seem to feel about science studies? What are the current efforts in astronomy education across the planet, especially in developing countries? Can we reach in better ways impaired or confined communities? Can collaborations be improved with amateurs, with further joint cooperations, along with those offered by planetaria world-wide or indeed the public at large? How can astronomical

[†] “On astrologers”, *Hearst columns*, 28 september 1932.

[‡] “La pensée et l'action”, talk delivered on May 10, 1946, and published in *Bull. Mensuel d'Inf. de l'Union française universitaire*, May 1947, p. 3.

societies and science academies help governmental agencies in deciding the policies that will affect our societies?

These are some of the questions that were addressed at the Symposium, as it became a forum to discuss the activities and efforts which continue to take place world-wide –besides the ones that were organised for IYA 2009– and ponder on the way to improve the multiple relations that astronomy has within our societies, our diverse cultures and educations.

By inviting many representatives of the different initiatives and activities developed in all these aspects, we sought to provide a detailed panorama so that we can focus on the efforts that remain to be made. Overall, this conference brought together many actors who succeed in ensuring that astronomy is present –at all levels– in Education, Society and Culture worldwide. These are precisely the aims of UNESCO, and it is only right that this Symposium took place at their Headquarters in Paris during the International Year of Astronomy.

The conference was rather unique in a number of points:

- This was the first time since 1919, when the International Astronomical Union was founded†, and since 1949, when the very first “IAU symposium” was held, that a Symposium has been devoted to a series of topics which, while not being strictly scientific, are of such an importance that they cannot be disregarded any longer, not only for our discipline, but indeed to an increasingly wider fraction of our societies. While the proposal met a strong opposition in some quarters, the wiser support of various IAU Commissions and Divisions eventually prevailed.

- The Scientific Organising Committee obviously included non-professional astronomers, but their number was unfortunately limited both by IAU rules and by practical considerations. While women constituted 38% of the attendance, we intended to achieve parity in the chairs of the 26 sessions the Symposium was divided into but only reached, unfortunately, the same proportion. We gratefully acknowledge the help provided by the chairpersons of the sessions: A. Acker (France), O. Alvarez (Cuba), J. Audouze (France), E. Antonello (Italy), C. Balkowski (France), J. Beckman (Spain), J.A. Belmonte (Spain), H. Boffin (Germany), C. Cesarsky (Germany), R. Courtin (France), C. del Puerto (Spain), R. Ferlet (France), J. Fierro (México), B. García (Argentina), M. Gerbaldi (France), O. Gingerich (USA), B.J.T. Jones (UK), L.M. Krauss (USA), P. Morel (France), R. Norris (Australia), D. Proust (France), C. Ruggles (UK), S. Torres-Peimbert (México), P. Whitelock (South Africa), and J. Zhu (China). The attendance, nearing 400 people, included two Nobel Prize winners (B.S. Blumberg and G.F. Smoot), artists, historians, amateurs, teachers, journalists, planetarium directors, students and astronomers, a good representative sample of people who convey astronomy to different publics in many different ways.

- A key part of the symposium was the art exhibition, “*Astronomical inspirations*”, hosted in the Salles Miró of the UNESCO Headquarters, featuring sculptures, paintings, photographs, videos and a reproduction of the Antikythera mechanism. Artists came from 26 countries, from Mongolia to Hungary, from Australia to Argentina, through Romania or Korea. To ensure a maximal number of visitors, we inaugurated the exhibition the week before the conference, so that participants to the Inaugural Opening Ceremony of the International Year of Astronomy could also experience this unique event. Besides observations of the Sun and Venus from the main patio of UNESCO, several other activities took place:

† Brussels, 18-28 July 1919, see A. Blaauw (1994) *History of the IAU, the birth and first half-century of the International Astronomical Union* (Dordrecht: Kluwer).

- a performance by the *Arcadia Theatre* (www.theatrearcardia.com) of Euripides' *Medea* with actresses Katerina Paliou and Lydia Palas, and based on the translation into English by G. Theodorides, with a scenography by G. Ziovas, costume designer Ariadne Mackinnon and music by Effie Ratsou;
- the screening of the film *400 years of the telescope* by Kris Koenig (see www.400years.org) at the Centre National de la Recherche Scientifique (CNRS) Headquarters;
- two astronomical walks through the *Quartier Latin* to visit sundials and the Perreault building at Observatoire de Paris, thanks to members of the Sundial Section of the Société Astronomique de France;
- a virtuoso piano and organ recital in the Salle Marcel Dupré (Meudon), by Dominique Proust;
- the screening of Paul Devlin's *BLAST!* (see blastthemovie.com);
- the stunning audiovisual prepared by the *TWAN* collaboration, projected on the Main Foyer at UNESCO;
- *Hawaiian Starlight* (www.cfht.hawaii.edu/HawaiianStarlight) by Jean-Charles Cuillandre and *Astronomical Pictures of an Exhibition* (svl.adlerplanetarium.org/videosuites/APE) by José-Francisco Salgado featured in Session 9 (Astronomy and the Arts - II: From architecture to films).
- Another pioneering initiative, for an IAU Symposium, was the live transmission of the morning plenary talks and some afternoon sessions, which were recorded, archived and made available at the website of Strasbourg's University CANAL C2:

<http://canalc2.u-strasbg.fr/video.asp?idVideo=8428>

We thank the CANAL C2 and the UNESCO teams for a superb coordination and montage. We hope this will set an example for future symposia, as the number of attendees is likely to decrease in a carbon-conscious global society.

- Last, but certainly not least, we were acutely aware of the difficult situation of hosting students and astronomers from developing countries in one of the most expensive capitals of the planet. Not only the LOC provided –as many as we possibly could within the budget– with generous grants and/or waiving the fees, but we also organised –with the key help of Suzanne and Michel Faye– a network of hosting families in Paris which welcomed at their homes, free of charge, participants who could not afford hotels. This setup worked remarkably well, the hosting families learning about astronomy in other countries, and the participants enjoying a real experience of living with a French family. Let us hope this precedent will also set a new standard in international conferences.

This volume collects most of the written versions of the talks given at the symposium, but unfortunately some papers were not received. Besides making corrections and ensuring the uniformity of the notation used, the editors checked that each of the over 1900 bibliographic references and websites were correct at the time of publication. The publication was delayed by a number of factors but it is nevertheless hoped that the shelf life of this volume will be longer than average, and will reach a wide readership.

*David Valls-Gabaud, SOC chair
Paris and Cambridge, May 2010*

THE ORGANIZING COMMITTEE

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Acknowledgements

The symposium was supported by IAU Divisions IV (Stars) and XII (Union-wide activities), and by IAU Commissions 5 (Documentation and astronomical data), 16 (Physical study of planets & satellites), 22 (Meteors, meteorites & interplanetary dust), 26 (Double and multiple stars), 41 (History of astronomy), 42 (Close binary stars), 46 (Astronomy education and development), 50 (Protection of existing & potential observatory sites), and 55 (Communicating astronomy with the public).

The Local Organising Committee operated under the auspices of
Observatoire de Paris and UNESCO.

Funding by
International Astronomical Union,
Académie des Sciences, Paris,
Institut National des Sciences de l'Univers (INSU/CNRS),
Observatoire de Paris,
UNESCO,
and
Région Ile-de-France,
is very gratefully acknowledged.

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