

#### FUTURE PROFESSIONAL COMMUNICATION IN ASTRONOMY

History was quietly made at the Palace of the Academies in Brussels from 2007 June 10 to 13. For the first time, indeed, representatives of all major astronomy-related publishers and professional journals were gathered together to present their activities and projects for the future. The attendance included also editors, authors, officers of learned societies, archive managers, as well as several astronomy librarians (two of them from South Africa).

The colloquium, entitled 'Future Professional Communication in Astronomy' (FPCA<sup>1</sup>), was motivated by a convergence of facts and trends in the world of

<sup>1</sup> See detailed programme, list of participants, etc., on <http://vizier.u-strasbg.fr/~heck/fpca.htm> and linked pages.

publishing, as well as by a number of complaints and interrogations heard more and more frequently within the professional astronomy community. The main themes of the meeting covered progress reports on electronic publishing, new business models, the rôle of learned societies in the changing context, the problematics of the more general communication processes between decision makers and society at large, etc.

After welcoming words by co-organizer and host Léo Houziaux<sup>2</sup>, an introductory talk by the undersigned outlined the context of the meeting and reminded attendees of the historical background, starting, as far as publishing is concerned, with the first international meeting on electronic publishing held in Strasbourg in 1991 October<sup>3</sup> and from which originated many of today's realities and collaborations in the field. The series of volumes *Organizations and Strategies in Astronomy*<sup>4</sup> (OSA) had regularly reviewed the situation, as well as the evolution of more general communication processes — including novel issues such as hype and credibility. But gathering all key parties in the same room had now appeared a much needed step.

While emphasizing the necessary complementarity of media, Heck wondered about possible sociological limitations (among others, at the level of evaluation committees) responsible for the fact that we still mainly produce electronic versions of documents printable or otherwise available on paper instead of practising full electronic publishing for our verified knowledge. After introducing new publishing models and sketching possibly interfering new technologies, Heck also echoed criticisms and questions from the community in what he called “the complaint of the publishing astronomer” that he submitted for comments to the audience.

Kevin Marvel (AAS) presented the outlook for the journals of the American Astronomical Society in the near and far future. After many years at the University of Chicago Press, the AAS journals will move to IOP Publishing in 2008 (*AJ*) and 2009 (*ApJ*, *ApJLett*, *ApJS*). This transition is aimed at enhancing the functionality and value of the AAS journals for the astronomical community. The goal for the AAS journals in the future is to be more central in the day-to-day research life of astronomers while maintaining low cost to both subscribers and authors, plus high quality both on-line and in print.

Butler Burton (NRAO) discussed statistics related to *ApJ*, also comparing them with data from *AJ*, *MNRAS*, and *A&A*: numbers of papers published per year in those journals, characteristic numbers of pages per paper, characteristic numbers of authors per paper, etc. The statistics showed the current situation as well as trends during the period since 1990, with some lesser attention to the period since 1950. The characteristic page length for *ApJ* showed no evidence for a curtailment following the nominal 20-page limit; the lengths for both *ApJ* and *AJ* showed no curtailment that could be attributed to the direct page charges required from authors.

While stressing the society's emphasis on ethics in publishing, Paul Murdin (RAS) described, with examples from the RAS and *MNRAS*, the function of a scientific learned society as being to advance the science in a way that satisfies the interests of its members. The primary interest of these is to act as a group of peers who maintain the standards of the community in an organized way and to provide a framework which at the same time does this, but allows individual scientists to

<sup>2</sup>Permanent Secretary of the Royal Academy of Sciences, Letters and Fine Arts of Belgium.

<sup>3</sup>A. Heck (ed.), *Desktop Publishing in Astronomy & Space Sciences* (World Scientific, Singapore), 1992 (ISBN 981-02-0915-0).

<sup>4</sup><http://vizier.u-strasbg.fr/~heck/osabooks.htm>.

act vigorously — regardless of their ability to pay. Murdin saw the balance to be struck in these ambitions as the essence of open access (OA).

David Nicholson (Wiley-Blackwell) reminded the meeting that learned journals remained an essential part of the scholarly communication process and that the choice of a journal is shaped by a variety of factors. Publishers working on behalf of learned societies not only provide sophisticated technical services, but also play a broader rôle in supporting the work of those societies by strategic advice. Interestingly, Nicholson had learned, the week before at a meeting of young astronomers in the UK, that most of them were getting their initial information and ideas from arXiv (ex-astro-ph) and from conferences.

After recalling that, over the past 15 years, internet technology had changed the ways of publishing tremendously, Harry (J. J.) Blom (Springer) warned that this revolution had not been completed and that all parties involved in science publishing are still continuously adjusting their activities to new rules and opportunities. From a commercial publisher's perspective, he extrapolated what could happen in the next few years with journal subscriptions, book publishing, marketing, production, and other steps in the publishing process.

David Clark (Elsevier) and Jean-Marc Quilbé (EDP Sciences) also presented the activities and future projects of their respective companies. Among the strongest market trends, Clark discussed the challenges presented to the current system by the dramatic increase in the submission of articles from countries such as China and India, and how Elsevier was approaching the various different types of open access.

That OA concept was defined by Stéphane Plaszczyński (LAL) as granting anyone, anywhere, and anytime, free access to the results of scientific research, in general through free availability of the electronic versions of scientific publications on the internet. Plaszczyński introduced, on behalf of the Sponsoring Consortium for Open Access Publishing in Particle Physics (SCOAP<sup>3</sup>) Working Party, the model developed for open-access publishing in particle physics.

Michael J. Kurtz (ADS) reminded the audience that the Smithsonian/NASA Astrophysics Data System has been a leader in providing access to the information available in astronomy since its inception, in 1992. The ADS had as its basic precept ‘Free access to metadata’ and quickly added ‘Free access to archival literature’ — concepts responsible for much of the success of astronomy's digital library. From his statistics, Kurtz claimed that open access does not lead to higher citation rates — the correlation of *ApJ* citation rates with arXiv availability appearing to be more a matter of early access than of cost.

Terence J. Mahoney (IAC) concluded that open access, in its currently accepted form, should be studied with great care and with sufficient time before any consideration is given to its implementation. If forced on unwilling publishing and research communities, open access could well result in much more restricted access to research results. Mahoney noted that 41% of OA journals are revenue positive one way or another, 24% break even, and 35% are revenue negative.

Rudolf Albrecht (ST-ECF) examined the process of doing research and derived requirements for the interchange of scientific information, mapping them into existing and soon-to-be-available technology. By way of extrapolation, he identified possible improvements to the efficiency and the thoroughness of the research process. Albrecht proposed a pilot project involving some small, relatively new subfield (TNOs for instance) for which we would put all full-text letter-length papers into a database for full-text searching and pattern finding by computers.

Considering references in *A&A* and *Apf* in decade intervals from 1952 to 2006, Helmut A. Abt (KPNO) showed that journal papers, preprints, and reviews are growing in the frequency in which they are cited, while observatory publications, private communications, theses, conference papers, and monographs are decreasing in cited frequency — the last two being surprising in view of the rapidly increasing numbers of conferences and monographs published annually. Abt concluded that sources of information that are readily available on-line are greatly preferred over sources that are not available on the internet.

A full FPCA session was devoted to astronomy communication with the outside world. Claus Madsen (ESO) shared his experience as a political lobbyist not only in the context of the multilingual and multicultural European mosaic, but also at the United Nations aiming at the recognition of 2009 as the International Year of Astronomy. Quoting his abstract: “From a communication view, political lobbying for science means targeted communication about a long-established, well-tested, fact-based and logically robust system of inquiry to a highly dynamic environment in which decision taking is influenced by many non-scientific factors and with norms that differ widely from the tenets of science.”

Lars Lindberg Christensen (ESA/Hubble) and Pedro Russo (MPISSR) reminded the meeting that the communication of achieved results is now seen frequently as a natural and obligatory activity to inform the public and attract both funding and science students. They described how the recently established IAU Commission 55, ‘Communicating Astronomy with the Public’, seeks to alleviate these problems and to establish and support effective ways to communicate astronomy with the public in the long term — in particular *via* a peer-reviewed journal.

Lindberg Christensen subsequently gave a first-hand account of the events in the press room at the IAU General Assembly in Prague that was the setting of one of the most discussed stories in 2006: the controversial IAU resolution to define a planet. The resolution changed Pluto’s status to a dwarf planet and resulted in an unprecedented emotional discussion. Lindberg Christensen reviewed the negative and positive outcomes of the so-called Pluto Affair, as well as the lessons learned from this experience.

Finally, an Editors’ Forum and a Publishers’ Forum, moderated, respectively, by Helmut A. Abt (KPNO) and Terence J. Mahoney (IAC), discussed matters of interest to these (definitely overlapping) fields of activities: open literature, censoring, refereeing and linked recognition, language problems, multiple authorship, composition and typesetting by authors, archiving in an electronic age, future rôle of libraries, financing models, *etc.* These fora are summarized in the proceedings<sup>5</sup>.

Plenty of time had been left for discussions during the meeting and, in a digest of these, Mike A’Hearn (Univ. Maryland) reminded the audience of the widespread agreement that the biggest ‘cost’ of publishing is in the time of the scientists who write the papers and in the time of the scientists who referee the papers — costs never accounted for in the ‘cost of publishing’. Some but not all publishers did in fact emphasize that their goal was to minimize the ‘voluntary time’ required from both authors and referees. Another widespread agreement was reached on the fact that, on a time scale of 5–10 years, we will probably be producing a large fraction of electronic-only journals with print on demand. FPCA attendees also agreed on the need to work together across all the relevant parties to

<sup>5</sup>The FPCA proceedings are published by the Royal Belgian Academy. See the web site (*cf.* footnote 1) for details.

devise a uniform, scientifically useful (*i.e.*, humanly memorable) method for citing e-only references in the age when pages, issues, and even volumes may become an obsolete concept. The Digital Object Identifier (DOI) is suited for electronically linking to e-only articles, but almost useless as a citation for the average reader, so the DOI is here to stay but won’t become the preferred citation method except as a link, which might or might not appear in a printed-out version of the reference list from a paper. A big issue also identified in an all-electronic publishing context is still in deciding who is ultimately responsible for the long-term archive.

Follow-up meetings will definitely be necessary to discuss this question and to review the main themes tackled during the FPCA colloquium, as well as the acceptance (and success?) of the envisaged business models. The mutation of libraries, the evaluation of bibliometric criteria, and other related issues, will certainly be on the menu of those future gatherings too. — ANDRÉ HECK.