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Astronomical Libraries Make the Future Happen: Support to Public Communication of Science as Part of the Library Mission

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Abstract. Despite the advent of the electronic age and the wide dissemination of information of all kinds via the Internet, the specialized library can and will become an active pole in the knowledge-based society. By exploiting their scientific authority and consequent validation of information accuracy, libraries can build a bridge between science and the public.

The "Declaration Concerning the Evolving Role of Libraries in Research Centres" (2007) describes a moment of great impetus in the professional activity of librarians but is also a cry of alarm for the unique situation of the libraries in research centres.

This presentation will consider the theoretical context of this point of view and focus on libraries in main European research centres. Particular attention will be paid to their relationship with the dissemination of scientific information to the general public and their role in public outreach.

1. Introduction

Scientific libraries, especially astronomical libraries, have an important distinguishing characteristic: a high level of specialization. Furthermore, they can take advantage of an international network of information resources. These aspects, common in a typical scientific situation, can have a galvanizing role in different contexts, in particular in public communication of science and outreach. Such specialized libraries are able to spread scientific information and, as parts of research institutions, they offer clear scientific authority to the public. They are thus able to reach people of different ages, different skills and heterogeneous levels of education.

The "Declaration Concerning the Evolving Role of Libraries in Research Centres" Mahoney et al. (2007) describes a moment of great turmoil in the professional activities of librarians but it is also a cry of alarm for the unique situation of libraries in research centres.

Supported in 2008 by the National Institute of Astrophysics (INAF) librarians (Giornale di Astronomia 2008), it renewed the importance of the strategic role that research libraries have in providing qualified information and documentation services. Libraries have been able to convert the opportunities given by technological innovations into the efficient management of diversified information systems.

The Declaration was presented by Antonella Gasperini at the 75th IFLA General Conference held in Milan in August 2009.[1] The aim was to highlight the characteristics of astronomical libraries in a wider international context. The presentation attracted the attention of many participants but was appreciated particularly by research and academic librarians.[2]

The changing role of librarians, emerging from the Declaration, is also evident in the LISA conference programmes which have increasingly emphasized the importance of technology. The first international conference for astronomy librarians, held in Washington DC[3] in 1988, was focused on traditional information maintenance and delivery; the conference in Tenerife[4] (1998) was based on electronic journals and the topic of the conference held in Prague [5] (2002) was "Emerging and preserving: providing astronomical information in the digital age."

Nowadays the scientific librarian's role combines traditional tasks of information management with new skills associated with the electronic environment:

- The acquisition of new publications to ensure balanced coverage of subjects in related fields;
- The possibility of making information available whenever and wherever required through efficient electronic document delivery services.

These tasks require various abilities: identifying, retrieving, organizing, evaluating, repackaging, filtering, and generally providing an information system where books, e-journals, photographs, databases, historical archives and videos "live together" in a cohesive collection.

In astronomical libraries, the modern technology-based information system has produced a high level of specialization and an international network of information resources, but the system is not yet completely supported or used by the astronomical community.

The main questions we want to point out here are: despite the advent of the electronic age and the wide dissemination of information of all kinds via the Internet, can our libraries still play a central role in a knowledge-based society? By using their scientific authority and consequent validation of information accuracy by the astronomers, can astronomical libraries build a bridge between science and the public? Can this role be expanded and if so, how?

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[1]Declaration Concerning the Evolving Role of Libraries in Research Centres (an astronomical point of view). Poster presentation presented by Antonella Gasperini, at 75th IFLA General Conference and Assembly, Milan, Italy, 2009.

[2]Perhaps a better context in which to present the Declaration would be the annual conference of the Association of European Research Libraries that will take place in Aarhus (Denmark) this summer with the evocative and well known (for us) title "Re-inventing the Library". http://www.libereurope.eu/node/434

[3]Library and Information Services in Astronomy, Washington, DC, USA, 26 July–1 August 1988, U.S. Naval Observatory http://www.eso.org/sci/libraries/lisa1/LISA1contents.pdf

[4]LISA III, Managing Change Gracefully, Puerto de la Cruz, Tenerife, Spain April 21–24, 1998 Instituto de Astrofisica de Canarias, http://www.stsci.edu/institute/conference/lisa3/

[5] LISA IV Emerging and Preserving — Providing Astronomical Information in the Digital Age, Prague, Czech Republic, July 2–5, 2002, Astronomical Institute Charles University Prague and the Astronomical Institute of the Academy of Sciences http://www.eso.org/sci/libraries/lisa4/

2. The Ongoing Discussion

The topic of the future and the role of research libraries (Dujardin & Jullien 2007) is part of a broader discussion promoted by librarian associations. The essay "Changing Roles of Academic and Research Libraries,"[6] for example, based on the roundtable convened by the Association of College and Research Libraries (ACRL) in November 2006, shows some essential actions that libraries must take to remain vital in the future.

These actions concern the culture and the mindset of librarians and the perception of libraries both in research and academic centres. The essay maintains that "Libraries and their staff will become increasingly important as navigational guides, helping users make discerning choices among materials available in the public domain on the Internet."[7] Libraries must evolve from a context which is perceived as the domain of books to a broader environment for the academic community, a hub of interaction in research institutions as well as an open and friendly space linking to local and public environments. They must perceive themselves as part of a wider cultural system providing access to (and validation of) scientific knowledge to the public.

Figure 1. Music and Astronomy: a concert in the Library 7/12/2008

3. The Arcetri Observatory Library Experience

The Arcetri Observatory Library has taken part in these discussions from the beginning. In the last few years, the interest in astronomy by the general public has grown signifi-

[6] http://www.ala.org/ala/mgrps/divs/acrl/issues/value/changingroles.cfm

[7] Ibid.

cantly and the need for information has required a prompt and thorough response. The meeting "Communication Astronomy to the Public" (CAP)[8] held in Athens in 2007 was a good opportunity for librarians to reflect on this change.

The transformation of our information system occurred simultaneously on the one hand by the advent of the electronic age, and on the other, by the public demand for scientific information. In this sense we can affirm that the library was "sandwiched" between these forces and was obliged to modify, in some ways, its role.

Until 2006, library work was directed for the main part (90%) toward scientists and a small percentage was for the general public. Today, thanks to technological innovation which has simplified and automated our activities, we can affirm that 70% our efforts are devoted to astronomers and 30% for the general public.[9]

In this new situation, collaboration with astronomers becomes very important because they offer clear scientific authority and ensure scientific validation of information, thus they are indispensable for the high quality of information.

Information support for public communication of science encompasses the past and the present. We focus our attention on some specific cases to better explain and clarify our assertion.

3.1. The Past

In recent years, the Arcetri Historical Archive has been incorporated into the traditional activities of the library. Even though the reorganization is still in progress, the main sections of the Archive have already been identified. There are administrative documents and accounts, together with material concerning the institutional activities of the Arcetri Observatory and the scientific research of the astronomers. During this time, a historical research field, which employed librarians and astronomers, was developed.

This interaction between astronomers and librarians is exemplified by an event organized for the occasion of the International Year of Astronomy 2009. The exhibition was called "L'esercizio illegale dell'Astronomia" ("The illegal use of astronomy.")

The Arcetri Historical Archive has a very important collection on Wilhelm Tempel. He was a German astronomer and an excellent lithographer who worked in Arcetri from 1875 until 1889 and is known for his splendid drawings of astronomical observations which are owned by the Observatory.

His drawings inspired the Georgian poet and publisher Iliazd and the German painter Max Ernst who together in 1964 published the rare book *Maximiliana ou l'exercise illegal de l'astronomie* ("Maximiliana or the illegal use of astronomy.") Recently the National Library of Florence has bought this book.

The Arcetri Observatory Library and the National Library of Florence collaborated in the organization of an exhibition which featured the original Tempel drawings and the Max Ernst book. This event juxtaposed art and science and was promoted by two different important institutions: a research centre and a national library. During the exhibition, astronomers held conferences about the relationship between recent astronomical discoveries and the Tempel observations. A catalogue of the exhibition was also published (Chimirri et al. 2009). Finally, the exhibition became an occasion to establish contact with Niedercunnerdorf, Tempel's birthplace. As a result, the primary

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[8]Cfr. http://www.communicatingastronomy.org/cap2007/proceedings/cap07388389.pdf

[9]General public means non-specialized users: children, students, teachers, parents, etc.

school dedicated to Tempel sent our library the astronomical drawings and poems made by the children during a scientific workshop.

This experience is a clear demonstration of how the history of science can foster communication of science in a wider cultural context. At the same time, it becomes a vehicle to spread astronomical information to a broader public.

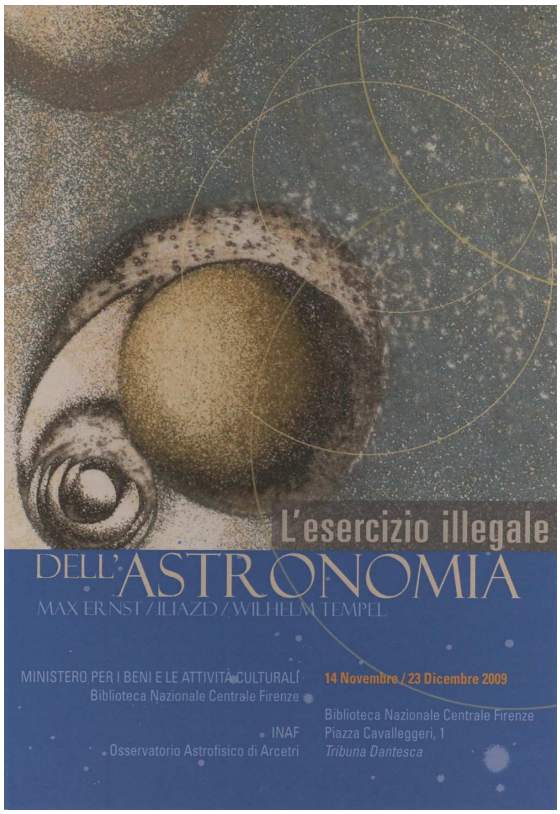

Figure 2. L'esercizio illegale dell'Astronomia

3.2. The Present

In recent years, the Arcetri Observatory Library has been involved in three main activities in the field of public communication of science.

- **Maintenance of the Observatory Web Site:** Until 2009, the Arcetri Observatory Library had dedicated a section of its webpage to the general public. However, the increased interest of the general public has forced the Observatory to create a new web site[10] specifically dedicated to public communication of sci-

[10] http://www.arcetri.astro.it/po/

ence. Created and maintained by the Arcetri Observatory Library, the site is maintained in strict collaboration with the astronomers. They validate all scientific resources, write reviews for children's books and update some parts of the site.

- **The Bibliography "Astronomical Books for Children":** Online since 2005, the bibliography website "Astronomical Books for Children" receives about 5000 hits per year. It is created by the collaboration between the library and Idest, a specialized children's book publisher. In this case, there are two different partners: a research library and a specialized publisher that have joined together to reach a wider public. "Libri di astronomia per bambini e ragazzi"[11] ("Astronomy books for children and young adults") is considered an important reference tool in the dissemination of scientific information for children. This site is hosted by various national portals, from Liberweb,[12] an Italian portal for children's books to INAF Multimedia,[13] the INAF site for the general public.

- **The Collaboration with Universe Awareness for Young Children:** Since 2006, the library has been collaborating with "Viewing the sky." The project is part of the Universe Awareness for young children (UNAWE)[14] an international outreach programme promoted by IAU and UNESCO that uses the beauty and scale of the Universe to inspire children. The goal of the project is to broaden children's minds, awake their curiosity in science, and stimulate global citizenship and tolerance.

Arcetri Astrophysical Observatory is the Italian partner of UNAWE. The project unveils the secrets of the sky by reading legends and myths from different cultures inside a mobile planetarium. One way to introduce children to basic astronomical concepts and to stimulate their interest is to allow for some interaction between them. "Viewing the sky" is performed in schools which have a high number of immigrants.

The project has enjoyed significant success and has been performed at the main science festival in Italy and in the public libraries of our region. The Arcetri Observatory Library took part in the project. Bibliographical research was undertaken about myths and legends of the sky and materials were produced to illustrate the project by the publication of a children's book and a DVD. The website is maintained by the library.[15]

Our participation in these projects regarding public outreach shows how the library can become a bridge and a gateway between a research institution and the public.

4. Conclusion

The extraordinary richness of scientific information that an astronomical library is able to manage permits a dual function. The astronomical library can express a high level

[11] http://www.arcetri.astro.it/BIBLIO/edu/iya.html

[12] http://www.liberweb.it/

[13] http://www.media.inaf.it/

[14] http://www.universeawareness.org/

[15] http://www.arcetri.astro.it/cielidelmondo/

of specialization and is able to satisfy all the needs of professional astronomers. At the same time, it can play the role of mediation between astronomers and the general public.

Library activity involves the past (history of science) and the present (science) with its particular function, that is the public communication of science.

For the library, moving among science, the history of science and public communication means an opening to the outside world, new life and new energy that redefine its central role both internally and externally. This is not a painless activity for the librarian; it is a difficult one and sometimes full of consequences. It implies a great versatility which can also be a big risk.

This new "broader" function has some positive aspects also for the institution which hosts the library because it acquires more visibility in the social and cultural context. This is the reason why the directors of observatories and research centres are motivated to support these projects.

Figure 3. The web page of the Arcetri Public Outreach site

In conclusion, the Arcetri Observatory Library experience can be an example to the astronomical library community of facing up to the challenge of the crisis of the invisibility of research libraries.

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Dance performance "Horizons" by Ms. Shambhavi Vaze and her troupe. (Photo: M. Premkumar)