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## Editing around the World

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### Scientific publishing in Armenia

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The National Academy of Sciences (NAS) of the Republic of Armenia, with its 30 research institutions, is a leading producer of scientific publications in Armenia. Within NAS, activities of the research institutions are coordinated through the divisions of Mathematical and Technical Sciences, Physics and Astrophysics, Natural Sciences, Chemistry and Earth Sciences, and Armenian Studies and Social Sciences. The Fundamental Scientific Library (FSL), founded in 1935, has been operating since 1943 under the direct supervision of the Presidium of the Academy as one of the NAS research institutions. Through international book exchange programmes, FSL is disseminating NAS publications among partner libraries all over the world.

In this article we will give a general overview of the modern scientific publishing system in Armenia, analyse existing problems, and present the joint efforts of academic community and librarians on mobilising the republic's scientific knowledge in a digital technology world.

#### Historical overview

The first Armenian book was printed in Venice nearly 500 years ago, in 1512, by Yakob Meghapart (Jacob the sinful). Between 1512 and 1513 he printed five titles: *Urbatagirk* (Friday Book), *Parzaytumar* (A Simple Calendar), *Pataragatetr* (Missal), *Altark* (an astrological treatise), and *Tagharan* (song book). The first Armenian journal, *Azdarar* (The Monitor Monthly), was published in 1794 in Madras. The first Armenian map, "Hamatarac asxarhacoyc", a large map of the two hemispheres, was published in 1695 in Amsterdam. In 1920, after the establishment of the communist regime, science, education, and culture became the Armenian government's top priorities. For the economic rebirth of the country and for satisfying the increasing needs of the industry it was necessary

- to establish a well functioning university system covering many subject areas;
- to create a network of academic institutions for organizing research and supplying industry with the appropriate models and solutions;
- to implement a scientific publishing system;
- to build a network of academic libraries, for assisting scientific and educational organizations in their daily work.

To achieve these goals, and to coordinate scientific work and research activities, the Armenian National Academy of Sciences was established in 1943. The university is responsible for masters and doctoral-level education within NAS. Today NAS publishes 13 peer-reviewed academic

journals, mainly in Russian, the dominant language for scientific communication within the Soviet Union.

1. *Astrophysics*, established in 1965, accepts articles in English and Russian. Currently this journal is distributed by the Springer Publishing Company and is abstracted and indexed in Astrophysics Data System, Chemical Abstracts Service, Meteorological and Geoastrophysical Abstracts, SCOPUS, and Web of Science.
2. *Reports of the National Academy of Sciences*, established in 1944, is available at <http://elib.sci.am>.
3. *Proceedings of the National Academy of Sciences – Earth Sciences series* was established in 1948. Articles are accepted in Armenian and Russian.
4. *Proceedings of the National Academy of Sciences – Mathematics series* was established in 1966. Since 1979 the cover-to-cover translation of the Proceedings has been published by Allerton Press, New York, under the title *Journal of Contemporary Mathematical Analysis (Armenian Academy of Sciences)*. This journal is distributed by Springer.
5. *Proceedings of the National Academy of Sciences – Mechanics series* was established in 1966. Articles are accepted in Armenian, English, and Russian.
6. *Reports of the National Academy of Sciences and the State Engineering University of Armenia – Technical Sciences series* was established in 1948. Articles are accepted in Armenian and Russian. Some issues are available at [http://www.seua.am/srd/iss\\_eng/Web%20Page/ZZPUBLIC.htm](http://www.seua.am/srd/iss_eng/Web%20Page/ZZPUBLIC.htm)
7. *Proceedings of the National Academy of Sciences – Physics series* was established in 1966. The English translation of the Proceedings is published by Allerton Press, New York, as *Journal of Contemporary Physics*. It is distributed by Springer and is abstracted and indexed in Physics Abstracts.
8. *The Bulletin of Social Sciences* was established in 1940.
9. *Medical Science of Armenia*, was established in 1961; until 1995 it was published as *Experimental and Clinical Medicine*.
10. *Biological Journal of Armenia*, established in 1948, accepts articles in Armenian, English, and Russian.
11. *Chemical Journal of Armenia* was established in 1957 and is abstracted in Chemical Abstracts (USA) and Chemical Abstracts Journal (Russia). Some issues are available at [http://chemjournal.sci.am/index\\_eng.html](http://chemjournal.sci.am/index_eng.html)
12. *Historical and Philological Journal* was established in 1958.

13. *Neurochemistry*, established in 1982, is a joint publication of the Armenian and Russian Academies of Sciences. The electronic version is on the Nauka/Interperiodica site, <http://www.maikonline.com>.

In addition, Yerevan State University publishes two peer-reviewed journals with an international reputation: *EPH gitakan texekagir* (The Scientific Bulletin of YSU), established in 1925, and *Banber Yerevani hamalsarani* (Courier of the Yerevan University), established in 1967.

After a difficult period in the 1990s (the collapse of the Soviet Union, and economic and social problems due to transition to a market economy), Armenia faced the challenges posed by independence. Deterioration of the social and economic situation of the country has considerably affected the entire academic and educational system. State budget allocations were curtailed; the renovation and maintenance of NAS institutions were drawn to a minimum; the academic publishing system is in financial straits. Although scientific work in the institutions is active, and there are collaborative partners in different EU and US funded projects, researchers are not satisfied with the existing scholarly communication system, which is mainly based on approaches and managerial mechanisms dating back to the 1970s. Such a situation can be ascribed to four things: miserable state allocations to the sciences; academic institutions are not well prepared for the challenges of the knowledge society; scientists and publishers are not familiar with using ICT (information communication technology) tools for scholarly communication; and paper based publication is becoming obsolete and must be replaced by electronic publication.

### From paper based publishing models to the hybrid solutions

The academic publishing system in Armenia is searching for new publishing mechanisms and information dissemination tools. Due to financial problems, journals are being published with delays, and dissemination takes a long time; library users are surprised that these journals are not available as an electronic version. Also, the current system of scholarly communication, based on commercial peer-reviewed academic journals, is far from ideal, and modern technology offers enormous possibilities for improvement. In 2008, The Fundamental Scientific Library was awarded a grant from the Open Society Institute Assistance Foundation to introduce the open access (OA) publishing model to the Armenian academic community. Two OA journals, *Armenian Journal of Mathematics* and *Armenian Journal of Physics*, are online and registered in the Directory of Open Access Journals. They can also be accessed from the FSL home page (<http://www.flib.sci.am/eng/?q=node/55>). Three National Academy of Sciences institutions expressed interest in producing their own OA journals and have asked FSL for technical help and advice.

We are confident that the OA movement will find more and more supporters in Armenia, and FSL will continue advocating open access amongst academics. Yerevan State Medical University started to publish *The New Armenian*



The first Armenian book was printed in Venice in 1512

*Medical Journal* in 2007, and the electronic version is available from <http://www.ysmu.am/Eng/publication.htm>.

Starting in 2003, the National Academy of Sciences has been publishing a peer-reviewed *Electronic Journal of Natural Sciences* (two issues per year), for which a paper version is also available. All issues of this journal are available from the EBSCO Academic Source Premier Publications database.

One of the largest collections of Armenian rare books (printed between 1512 and 1800) and 18th to early 20th century Armenian periodicals is held in FSL, and is a unique source for scholars from many disciplines. All collections are very fragile, and intensive usage of the FSL rare books is accelerating the paper destruction process. Through the British Library's Endangered Archives Programme the library has obtained modular imaging cameras. Digitization is in progress, and this will allow better preservation conditions for the originals and will make these collections accessible to the world academic community via the surrogates. In the future it is planned to start digitizing NAS journals, going back to the first issues.

Electronic publishing models have already been introduced to the Armenian academic community, and their success is not in question. This is a continuous process, and during the coming years more and more publishers will produce research papers in electronic format.

### Looking into the future

Scientific life in Armenia is again on the increase. The National Academy of Sciences – with more than 3,000 scholars, librarians, and IT specialists – is in the vanguard of building a new infrastructure for research and development. The most important developments are

- launching of the supercomputing GRID “ArmCluster” (<http://cluster.am>) with a top performance of 523.4 GFlops and 2 GByte memory per node. The main goal is creation of a high-performance computation infrastructure and provision of efficient information resources to research in Armenia and the South Caucasus region.
- the Black Sea Interconnection project (<http://www.blacksea-net.eu>) is being implemented under the 7th Framework Programme of the European Commission. This project will develop a high-speed backbone

network among the research organizations of the South Caucasus countries and enable connectivity to the pan-European research and education GÉANT2 network.

- building the South-Eastern European eInfrastructure for regional eScience (<http://www.see-grid-sci.eu>), co-funded by the European Union. This initiative is committed to ensuring equal participation of the less-resourced countries of the region in European trends.

To ensure that Armenia will not lag behind in world science, to fulfill increased demands of the scientists, and to be able to

produce and present the results of the research appropriately and acceptably it is important to prepare a new generation of librarians, fluent in European languages and competent in information management. During 2009-2011, a new curriculum on Library and Information Science, in line with EU LIS faculty standards, will be introduced. This means that in the near future Armenia will have enough well-educated specialists in the library and information science fields, and these specialists in their turn will assist the academic community in building digital repositories and in creating e-content.

## Correspondence

### The international language of science

Norwegians are quite capable of self-defence, but John Taylor's dismissive comments on their standards of written English (*ESE* 2009;35(1):9) should not go unchallenged. With 35 years' experience of reviewing and editing articles, and running a dozen writing courses at the University of Trondheim (including checking papers and theses subsequently), I have never come across English that is 'appalling, frightful, and shocking', and the same applies to articles from the other Nordic countries and The Netherlands. At worst, commas may be left out and words misused ('mitigate' for 'militate', for example), but so they are in articles from Britain and the USA – and surely it is easy for any sub-editor to correct them. It is far more important to tell authors of any nationality that their contribution must

contain a logical thread, linking the research question to the answer, or a new question. Not for nothing did Bradford Hill say that the most frequent difficulty reviewers had over any paper was being unable to answer the question 'What is this article's message?'

In politics the rest of the world has just emerged from eight years of Anglo-Saxon hegemony. I hope that in science we will not now try to impose unrealistic standards in writing English. Those of us who are lucky enough to speak the international language of science should admire the others who struggle, and not damn their efforts so cruelly.

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### Important problems to be solved

In the article "English – whose responsibility?" (*ESE* (2009;35(1):9–10), John G Taylor asked several questions in response to Marcin Kozak's article in the preceding issue (*ESE* 2008;34(4):100–104).

He enquired if Kozak's rejected article had been checked for grammar, punctuation, and style. However, Kozak's writing is so good that rejection of his article because of "poor English" seems to be completely unfair. It truly suggests that some editors are prejudiced against non-native speakers of English.

He also wondered why some non-native authors insist on writing in English instead of having the text translated by a qualified translator. The problem is that in many countries qualified scientific translators are extremely rare. I wrote about this in my article published in November 2007 (*ESE* 33(4):101–104). Native speakers of English are not numerous in Poland, and only a small proportion of them are good translators. Besides, hardly any have a sufficient scientific background that would allow them to grasp the message in Polish and express it properly in English.

Courses in scientific translation that pay attention to cultural differences in scientific style need to be developed.

As explained by me in the November 2007 article, and by Katrina Emmett in August 2008 (*ESE* 34(3):70–71), sophisticated terminology, haziness, and excessive referencing may all be mostly due to cultural differences, whereas Taylor regarded them as causes for manuscript rejection.

Finally, Taylor was astonished why his own publication for Norwegians about writing academic English did not sell well despite advertising. My answer is: because the book was in English. Earlier in his article he complained that his clients were not competent in English, so they would certainly be more willing to read the book if it had been translated into Norwegian.

In conclusion, the need for education of authors and scientific translators, and editorial bias, are important problems to be solved. I sincerely hope that during the EASE conference in Pisa we will thoroughly discuss the possible solutions.

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