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Constructing an international library: the collections of journals in Turin's Special Mathematics Library. (English) Zbl 1409.01066

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Mathematical journals – glorious past without future?

I. In recent years, the relations between journals and mathematics have become a delicate topic. There are six good reasons or more for that:

1. Mathematical journals used to be the dominant means of pursuing a quick dissemination and absorption of new results. They are no longer so. Instead, mathematicians now use preprint servers, foremost Los Alamos' arXiv.org.
2. An even faster and more efficient way of forwarding a new paper is to email one's network of close colleagues, collaborators and friends, who can be expected to read the abstract and the introduction and to browse through the references and main body of the paper.
3. We are witnessing an explosive expansion of published articles. Writing has obviously become a stronger obsession than reading because only four web blogs of five are ever read. One expert in global genetic optimization and evolutionary search algorithms, R. Galar, feels tempted to demand of a new PhD in mathematics a solemn oath not to publish more than a total of 40 pages in all of her or his academic career. To be guided to relevant results of their peers, mathematicians depend increasingly on personal contacts, conferences, seminar talks, i.e., oral and email communication.
4. Editors of journals find it still more difficult to seek out competent referees who take the peer reviewing process seriously. Journals have lost their power of filtering away false results, poor presentations, and plagiarism, including self-plagiarism and deliberate fragmentation of one result into a series of publications – not to mention the spread of predatory journals for publications that practically remain clandestine. Journals no longer guarantee quality.
5. The mathematical giants of former times loved to publish their radically new thoughts in publications at remote places. Impact factors were alien to them. By now, impact factors push forward the centralization of mathematical journals owned by a few multinational publishing houses with often changing ownership. This centralization has terminated the traditional binding and personal trust between publishers, journals, editors, authors, and readers.
6. The evaluation and funding of mathematics departments according to half-automatic performance-based research funding systems, based on bibliometric research indicators, is hardly sustainable. It is opposed to the traditional role of academic institutions, namely to forward established knowledge, to cultivate specific competences, and to achieve new interesting results in oral exchange with and between faculty and students.

II. Some mathematicians are stricken by these worries in a time of digitalized mathematical communication. To them, the author's historical case study can be a comforting and stimulating reading.

She describes the collections kept in La Biblioteca Speciale di Matematica (BSM) of Turin University in the first sixty years of its existence (1883–1942). With reference to a famous talk by F. Severi, delivered to the Comité international des bibliothèques in 1952, she emphasizes the role of decentral collections of journals and miscellanea of offprints as one of the most used tools or vehicles for circulation in the first half of the 20th century. For that period of history, she

proves that the then new form of Lesezimmer, Präsenzbibliothek or Department Library took on a greater importance for the dynamics of research and teaching than the patrimony of books and manuscripts in central libraries.

The author analyses the development of the BSM under the direction of E. D'Ovidio (1883–1906), C. Segre (1907–1924), G. Fano (1924–1938), and F. G. Tricomi (1943–1945), the last under the flagrant and almost unbearable conditions after the complete upheaval in the scholarly staff caused by the racial laws and during the war and Nazi-German occupation. She provides a detailed insight into the material, commercial and social aspects of the circulation of mathematics in a very rich local milieu like Turin, characterized by a multiplicity of actors, academic institutions, scientific societies, cultural associations, publishing houses and international booksellers.

The author describes the public and private funds and donations and maps the acquisitions of the various directors. It seems that these acquisitions derived from exchanges and encounters of the directors of the BSM with Italian and foreign mathematicians mostly belonging to the same disciplinary sector – algebraic geometry – or from their collaboration with specialists in other domains, for example with the members of the Peano school. Important were the personal relationships that they established with the editors, publishing houses and libraries in Italy and abroad. A *Catalogo*, not restricted to local circulation, was printed in 1891, 1896, 1905. Its entries were sorted according to the provenance (donation or purchase). It contained a section devoted to *Periodici*, in which journals were indexed alphabetically according to title and/or name(s) of their editors-in-chief.

The author's study gives detailed insight in the *Informatik*, the old art primarily concerned with the analysis, collection, classification, manipulation, storage, retrieval, movement, dissemination, and protection of the written word. Not to be mistaken for the meagre modern concept of informatics understood as “the study of the structure, behaviour, and interactions of natural and engineered computational systems”. From the handling of the collection by the two dominant Turin schools (logic and algebraic geometry), she can derive hints to the framework of the practices of acculturation and shared research.

According to the author, the main *informatik* device for Peano and his co-workers were the five editions of the *Formulario*, a collective text with references and quotations that were constructed by browsing 42 contemporary journals from ten different nations: “Based on a common culture and enhanced through a body of readings shared by the Peanians, these references and quotations were collected and commented upon collectively in the rooms of the BSM”.

Regarding the Italian school of algebraic geometry she finds that an exceptional amount of information can be deduced from Segre's *Resoconti di scritti letti* and from his personal bibliographic *Schedario*, a card index consisting of more than 500 hand-written files, which annotate mathematical papers published in 151 periodicals. “This card index, which Segre constantly updated during his entire life, includes his readings in geometry (in all its facets) as well as in analysis, mathematical physics, foundations of mathematics, elementary mathematics from an advanced standpoint and mathematics education.” Then, the author continues, “From a plurality of hints scattered in correspondence among the members of the school of algebraic geometry, one can easily infer that Segre's disciples shared the readings filed by their leader Segre in his *Schedario*. However, there is no evidence of practices of collective readings by this school in the rooms of the BSM.”

It is remarkable how Segre, more than D'Ovidio, coordinated the loan, exchange – and return – of the scarce off-prints in the pre-xerox times. Former pupils recall, how they “devoured” the volumes (not only selected articles) of

Mathematische Annalen and Nouvelles Annales de mathématique. Moving is also Fano's pride of receiving the *Revista* for the BSM, published by the faculty of sciences of the Universidad Mayor of San Marcos in remote Lima!

For her period, the author shows the eminent role of the personality of the directors and their support by a collective *Zeitgeist*, also in the mutual accept of 'the other school', when Turin was dominated by Segre's school of algebraic geometry and Peano's school of logical foundations. Moreover, she gives us a touch of a bygone era with its fascinating combination of supranational stamp, partly philo-Germanic leanings, and local mathematical culture.

III. All that has gone. The intense atmosphere of shared reading rooms is perhaps lost for ever. Due to the (I concede, marvellous) digitalization and (I concede, almost instant, widely accessible and highly reliable) dissemination, mathematical papers have become ephemeral, ubiquitous, insubstantial, available, valueless, free.

Quite as W. Benjamin noticed in 1935 regarding his *The work of art in the age of mechanical reproduction*: the prestigious and privileged aura of an original piece of mathematical research and of the issue of a journal with limited circulation at hand has gone.

Paraphrasing K. Marx' *Grundrisse* of 1857, in earlier stages of development the single mathematicians and the single mathematical departments seem to be developed more fully, because they have not yet worked out their relationships in their digital and electronic fullness. What we now have concerning mathematical journals and the wider field of mathematical research looks rather like a legitimate antithesis, namely the beauty and greatness of globalization and abstract formal progress without demanding social relevance and meaning.

Then, Marx continues, "It is as ridiculous to yearn for a return to that original fullness as it is to believe that with this complete emptiness history has come to a standstill."

Clearly, we should not romanticize the glorious old times of the construction of mathematical libraries. Nor should we declare ourselves satisfied with the slack of the immense present possibilities running at idle, but rather look forward. To that end, the author delivers an impressive message, namely to cherish aura, individual and collective culture and not to proliferate incomplete and meaningless results under the pressure of the new public management and its digital and electronic capacities.

IV. The paper under review has appeared as part of a special issue of the journal 'Historia Mathematica' devoted to the interplay between mathematical journals on various scales, 1850–1950, edited by Jeanne Peiffer, H el ene Gispert and Philippe Nabonnand. The other contributions will be reviewed separately.

Reviewer: Bernhelm Boo -Bavnbek (Roskilde)

MSC:

- 01A74 History of mathematics at institutions and academies (nonuniversity)
- 01A55 Mathematics in the 19th century
- 01A60 Mathematics in the 20th century
- 01A72 Schools of mathematics
- 01A90 Bibliographic studies

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Biographic References:

D'Ovidio, Enrico; Segre, Corrado; Fano, Gino; Tricomi, Francesco Giacomo

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