Constructing an international library: The collections of journals in Turin's Special Mathematics Library

Erika Luciano

Department of Mathematics, University of Turin, via Carlo Alberto 10, 10123 Torino, Italy

Available online 19 November 2018

Abstract

The Special Mathematics Library of Turin University, founded in 1883, was fundamental in the development of two research schools under the leadership of C. Segre and G. Peano. First founded to house a growing collection of international journals acquired through both purchase and exchange from publishing centres worldwide, it later evolved into a 'presence library' modelled on the legendary Lesezimmer in Göttingen. A systematic study of the library's history and its directors' policies provides interesting insights into the various aspects of the international circulation of journals and their use at different times and in various contexts in Turin (Turin Academy of Sciences, Società di cultura, national university library, etc.).
© 2018 Elsevier Inc. All rights reserved.

Sommario

La Biblioteca Speciale di Matematica, creata presso l'Università di Torino nel 1883, rivestì un ruolo fondamentale nello sviluppo di due scuole di ricerca, sotto la direzione di C. Segre e di G. Peano. Concepita inizialmente per ospitare una collezione di libri e periodici in costante ampliamento, grazie a una mirata politica di acquisti e scambi con l'estero, essa divenne con il passare degli anni una 'biblioteca a scaffale aperto', strutturata sul modello della leggendaria Lesezimmer di Göttingen. Un esame sistematico della storia di questa biblioteca e delle strategie dei suoi direttori fornisce una suggestiva panoramica sulle dinamiche di circolazione internazionale e di utilizzo dei giornali matematici a Torino in una molteplicità di momenti e di contesti (Accademia delle Scienze, Società di cultura, Biblioteca Nazionale Universitaria, ecc.).
© 2018 Elsevier Inc. All rights reserved.

E-mail address: erika.luciano@unito.it.

1. Research schools and the two functions of a mathematical library

In a lecture held at the Comité international des bibliothèques in 1952, F. Severi, an outstanding member of the Italian school of algebraic geometry, stated that libraries can be conceived from two different points of view. The first sees libraries as 'sources of doctrine of formed science, with its almost definitive conquests, its faults, sometimes more useful than half-truths, and its audacious anticipations'.[1] This is the static point of view, according to which a library is essentially a book depository, a perspective inevitably less useful to a working scientist, since the patrimony of any library intended for conservation is 'fatally condemned to lack the dynamism necessary to closely follow the progress of science'.[2] The second point of view is that which conceives a library as an instrument for the advancement of science and knowledge, with a dual function similar to that of the banks, which on one hand preserve money, and on the other hand circulate and invest it to produce new capital. Such a dual function is generally attributed to the 'special libraries' attached to university faculties, whose remarkable development in the nineteenth and twentieth centuries was determined by the increasing specialisation of research, at a time in which 'scientific life develops faster than the great conservation libraries'.[3]

With respect to both perspectives, and especially in relation to the second one, the presence of a special library is an important resource that favours the establishment of a research centre, to the point that Severi states: 'there no longer exists, perhaps, a science laboratory without a special library'.[4] Since special libraries are conceived and created to support ongoing research, in these institutions the collections of journals and the miscellanea of offprints, which by the end of the nineteenth century and the first half of the twentieth century represented one of the tools or vehicles for circulation most used, take on a greater importance than the patrimony of books and manuscripts.

In light of this assumption, it is interesting to study the circulation and the interplay among journals as evidenced in the history of the Special Mathematics Library of Turin University (hereafter abbreviated as SML). A first approach to such an analysis would be to reconstruct the classification(s) and the spatial order of journals on the shelves of the SML, which would shed light on the library's constitution and practices, i.e., how the various people involved saw and used it.[5] Unfortunately, the sources existing nowadays do not allow us to do this. In all the historical catalogues of the SML (1891, 1896, 1905) the journals were classified in alphabetical order, without reference to their features, contents or readership. We know even less about the physical space of the SML as a set of journals organised and juxtaposed according to a certain logic on the shelves, since the topographic plans of the SML were lost in World War II. A sort of a virtual map of the SML might be reconstructed *a posteriori* by cross-referencing two types of data: the still visible shelf-marks affixed in 1948 to the back or covers of journals, and some information written on the old cards of the Library's catalogue, which carry data such as: *Annuario del Ministero della Pubblica Istruzione I sala riservata, I scaffale a sinistra* (Yearbook of the Ministry of Public Instruction 1st reserved room, 1st shelf to the left). However, unfortunately, because of the true difference between the old and the new premises of the SML, such a virtual topographic plan does not suggest interesting perspectives on how the collections of journals were aligned on the shelves, or how they interacted before the transfer of the SML in 1948. Furthermore, neither photographs nor drawings of the SML's premises before 1948 exist.

---

[1] "Sources de doctrine de la science formée, avec ses conquêtes presque définitives, ses fautes, quelquefois plus utiles que les demi-vérités, et ses anticipations audacieuses" (Severi, 1952, 20).

[2] "Fatalement condamnée à manquer du dynamisme nécessaire pour suivre de près la marche de la Science" (Severi, 1952, 20).

[3] "La vie se développe plus rapidement que dans les grandes bibliothèques de conservation" (Severi, 1952, 22).

[4] "Il n'existe plus, peut-être, un laboratoire de science sans une bibliothèque spéciale" (Severi, 1952, 22).

[5] Recent works (Settis, 1985; Peiffer and Seckel, 2002; Felfe and Wagner, 2010; Warburg, 2012) have discussed how maps inform us about reading practices, scales of values, etc.

If the sources do not allow us to develop such lines of inquiry, they nevertheless provide us with a large amount of information on how the various aspects of the international circulation of journals and offprints were dealt with and actualised by the actors of SML: first of all by its directors, but also by its benefactors, advisors and users. So in what follows, attention will be focussed on the policies of the first three directors of the SML, the mathematicians Enrico D'Ovidio, Corrado Segre and Gino Fano, all of whom were members of the Italian school of algebraic geometry, with the aim of establishing how they conceived 'their' library, in its dual nature as a physical place and an abstract, mental space for the construction and circulation of knowledge.

In particular, to have a better representation of the provenances of the journals (and offprints) of the SML we will map the acquisitions of the various directors. Furthermore we will show that, depending on circumstances, these acquisitions derived from exchanges and encounters of the directors of the SML with Italian and foreign mathematicians 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, or from personal relationships that they established with editors, publishing houses and libraries in Italy and abroad, thanks to their position on the editorial committees of academic series and journals such as *Annali di Matematica*. Finally, the choices made by D'Ovidio, Segre and Fano to purchase a certain collection or to subscribe to a journal will be contextualised in light of the institutional roles they played and the exchanges that they had with the ministry of public education, with local philanthropic bodies and with other local, national and international societies, academies and professional associations.

2. The Special Mathematics Library in Turin

In 1883–84 there were eighteen libraries in Turin, twelve of which were fully accessible to the public.[6] This was the period in which Segre and Peano completed their university studies and entered into research, the period in which they spent their days in the reading rooms of the Biblioteca Nazionale Universitaria (National University Library) and of the library of the military academy, the only two institutions that possessed the complete collections of the *Journal de Liouville* and *Nouvelles Annales de mathématiques*, along with several less renowned series such as the *Jornal de sciencias matemáticas e astronómicas*.[7] Equally constant was their attendance at the international bookshop Rosenberg and Sellier, to which Segre turned, for example, to purchase Felix Klein's offprints and treatises.[8] This bookseller and publisher, along with the printing companies Fratelli Bocca, Roux e Favale, Paravia, Utet and Loescher, dominated, so to speak, the Piedmont trade of foreign books and journals.

In March 1883, the SML was founded at the University of Turin, during the deanship of Enrico D'Ovidio.[9] Aware of the need to expand the premises of the national university library, D'Ovidio asked the ministry of education to appoint a commission to propose new spaces adequate to house the increasing assets of the library and to meet users' exigencies. The commission arrived at the following solution: the national library was to be transferred and its former premises placed at the disposal of three special libraries dedicated to the students of the faculties of law, humanities, and sciences, as well as their respective teacher training schools (*scuole di magistero*).[10]

---

[6] Archive of the Turin Academy of Sciences: *Elenco delle biblioteche di Torino*, Torino, Bona, 1884.

[7] UTo-ACS: Segre's handwritten lists of the collections of journals and books conserved in various Turin libraries, entitled: *Biblioteca militare*; (*Non ricevuti nel 1884*); *Altre riviste che si trovano all'Accademia*; *Raccolte italiane possedute dal Jahrbuch f. d. F. d. M.*, ff. 1r-5v, nn.

[8] See Segre to Klein, 21 Aug. 1884, in Luciano and Roero (2012, 127).

[9] The history of the SML is recapped in *Università di Torino, Biblioteca speciale matematica* in Ministero della pubblica istruzione (1911, 603), Ruffini (1899–1900, 85–86), D'Ovidio (1884, 7) and Giacardi and Roero (1999).

[10] *Annuario* 1884–85, 26–27.

The SML was entirely funded by a state-controlled philanthropic body, the Piedmont university Consortium (*Consorzio universitario piemontese*), and by the ministry of public instruction.[11] The financial commitment of the first institution was remarkable: it suffices to mention that in 1887 the Consortium alone granted a lump sum of 1,500 lire for the purchase of books and scientific instruments (i.e., geometric models in plaster, wire and metal[12]), in contrast a special government subsidy of just 500 lire.[13] Moreover, two important legacies contributed to the constitution of the SML: the first was made by the mathematician Francesco Faà di Bruno (Garbolino, 2004, 609–626) and the other by Camillo Ferrati, an engineer who also endowed the library with a perpetual annuity of 200 lire. Giuseppe Bruno, head of the faculty of sciences, also donated some volumes.

The SML was always placed under the direction of the dean of the teacher training school, if this was a mathematician, or under the guidance of a mathematician to be elected by secret ballot. For almost a century the direction was always assigned to algebraic or differential geometers: D'Ovidio (1883–1906), followed by Segre (1907–1924), Fano (1924–1938), and Terracini (1948–1964).[14] The only exception was Francesco Giacomo Tricomi, an analyst, who held the leadership in the decade 1938–48 after Fano was forced to abandon all his institutional, research and teaching assignments because of the racial laws.

Proposals for acquisitions of both new books and journals were submitted by the faculty mathematicians and then presented by the director to the Consortium or to the ministry, depending on the costs of subscription fees, shipping and binding. The precise reconstruction of acquisition policies of the SML,[15] as well as the examination of the various requests to begin, suspend or cancel the subscription to a journal, can be deduced by cross-referencing various types of data, mostly derived from archival sources, and through correspondence, manuscripts and testimonies by members of the schools of Segre and Peano. Furthermore, as far as the years 1930–1948 are concerned, the register of booksellers provides the complete documentation of all purchases and subscriptions commissioned from nineteen local, Italian and foreign publishers.[16]

As stipulated in the Regulations, the SML saw to the compilation of a printed *Catalogo*, published by Paravia, whose entries were sorted according to the provenance (donation or purchase). This obviously included a section devoted to *Periodici*,[17] in which journals were indexed alphabetically according to title and/or the name(s) of their editors-in-chief.[18] Thus Alfred Clebsch and Carl Gottfried Neumann point to *Mathematische Annalen*; August Leopold Crelle to the *Journal für die reine und angewandte Mathematik*; Gösta Mittag-Leffler stands for *Acta mathematica*; James Joseph Sylvester for *The Quarterly Journal of Pure and Applied Mathematics* and the *American Journal of Mathematics*, etc. The *Catalogo* was not restricted to local circulation. Segre sent it to his Italian co-workers, such as Federico Amodeo in Naples, to whom he wrote:

---

[11] *Regolamento per la Biblioteca speciale di Matematica nella Facoltà di Scienze MFN*, in *Annuario* 1889–90, 427–430.

[12] On the history of the collection of geometrical models in SML see Giacardi (2003).

[13] See *Annuario* 1887–88, 16 and SML Archive: *Inventario delle proprietà mobili del Consorzio Universitario esistenti nella Biblioteca Matematica esercizi 1887, 1888 e 1889*.

[14] Literature on D'Ovidio, Fano and Segre is very rich. See for example Conte et al. (2013), Fano (1924, 1926, 1932–33, 1934) and Terracini (1952). However all these sources focus on the activity of research and teaching of these mathematicians and mention their experiences in directing SML only passingly.

[15] See the map in https://cirmath.hypotheses.org/les-documents-de-cirmath/materiaux-supplementaires-pour-le-volume-interplay-between-journals-at-various-scales-historia-mathematica-2018.

[16] SML Archive: *Registro dei Librai anni 1930–48*.

[17] *Catalogo della Biblioteca Speciale di Matematica della R. Università di Torino*, 1891, 35–36; 1896, 87; 1905, 129.

[18] Double indexing by title and name of editor-in-chief was only adopted in the first publication of the *Catalogo* (1891), but it was abandoned in later editions.

I will send you (in agreement with D'Ovidio) a copy of the *Catalogo*: [...] there are still countless important works we lack, and only with the passing of the years will our Library be somewhat complete.[19]

3. Under D'Ovidio's direction

D'Ovidio's position as director of the SML played a role in his capacity to train his protégés for research and to animate a school that would have shortly reached an international *führende Stellung* under the guidance of Segre (Fano, 1932–33, 1934). However, even more than deriving from the needs of his research and teaching activities, D'Ovidio's decision to create a special library for mathematics must be read as a byproduct of his political and institutional commitments (as dean of the faculty of sciences from 1879 to 1881 and from 1894 to 1907, and as rector of the university from 1880 to 1885), which had led him to promote the building of new edifices and to inaugurate the publication of the *Annuario dell'Università di Torino*.

The early years of D'Ovidio's directorship are those of the actual physical erection of the SML.[20] The first purchases of periodicals date to 16 January 1885. The original endowment, which comprised only two journals – *Nouvelles Annales de Mathématiques* and *Bulletin des Sciences Mathématiques et astronomiques* – was soon enriched by the legacies of Ferrati and Faà di Bruno, both of whom passed away in 1888. As a consequence the collections (often incomplete) of seventeen journals were acquired. In particular, the library received from Faà di Bruno's personal library the full sets of *Acta Mathematica*, *Mathematische Annalen* and *Journal für die reine und angewandte Mathematik*. Less consistent was the legacy of Ferrati, which included issues of Belgian and Russian journals. Thanks to the subsidies provided by the University Consortium and by ministerial grants, substantial funding for the following years was allocated to complete these collections and to take out new subscriptions, for example to *Monatshefte für Mathematik und Physik*.

D'Ovidio's subscription policy greatly expanded around 1892–96, arriving at subscriptions to thirty-six titles.[21] To the existing collections were added those offered by his colleague Giuseppe Bruno, in particular some volumes of *Archiv der Mathematik und Physik* and *Journal de Liouville*, which completed the collections donated by Faà di Bruno. Subscriptions were also taken to newly-founded journals such as *Jahresbericht der Deutschen Mathematiker-Vereinigung* and *Revue semestrielle des publications mathématiques*. Meanwhile, donations of single volumes or entire collections of journals to the SML continued, with important gifts arriving from both individual scholars and institutions. For example, D'Ovidio himself and his colleagues, friends and former students Francesco Denza, Angelo Genocchi and Mario Pieri donated seven series, published by local and national academies, and by foreign societies and institutions from Austria, the United States and Venezuela.

The last published *Catalogo* of the SML provides a picture of the library's holdings just before D'Ovidio left its direction. In 1905 the library shelves held forty-eight collections.[22] In addition to the periodicals mentioned previously, through his personal relationships with G. Eneström and through his contacts with

---

[19] Segre to Amodeo, 24 Nov. 1891: "T'invierò (d'accordo con D'Ovidio) una copia del Catalogo: [...] sono ancora innumerevoli le opere importanti che ci mancano, e solo coll'andar degli anni la nostra Biblioteca potrà esser un po' complete" (Palladino and Palladino, 2006, 186).

[20] SML Archive: *Consorzio Universitario Piemontese. Inventario delle proprietà mobili esistenti nella Biblioteca Matematica acquistate dal 1.4.1881 al 31.3.1883; esercizi 1883, 1884, 1885, 1886, 1890, 1891.*

[21] SML Archive: *Consorzio Universitario Piemontese. Prospetto delle variazioni in aumento o diminuzione degli oggetti esistenti nella Scuola di Magistero dal 1.1.–31.12.1892; 1.1–31.12.1893; 1.1–31.12.1894; 1.1–31.12.1895; 1.1–31.12.1896; Ministero della PI. Prospetto delle variazioni in aumento o diminuzione degli oggetti esistenti al 30.6.1888 nella Scuola di Magistero, 1.7.–31.12.1888; 1.1–30.6.1891; 1.7–31.12.1890; 1.7–31.12.1892.*

[22] SML Archive: *Consorzio Universitario Piemontese. Prospetto delle variazioni in aumento o diminuzione degli oggetti esistenti nella Scuola di Magistero di scienze matematiche avvenute dal 1.1–31.12.1897; 1.1–31.12.1898; 1.1–31.12.1899; 1.1–31.12.1900; 1.1–31.12.1901; 1.1–31.12.1902; 1.1–31.12.1903; 1.1–31.12.1904; 1.1–31.12.1905; 1.1–31.12.1906; 1.1–31.12.1907; Prospetti*

the library of the American Mathematical Society, he had signed up for *Bibliotheca mathematica* and *Transactions of the American Mathematical Society*. Meanwhile, the library had begun subscriptions, from the first issue, to journals such as *L'Enseignement mathématique*,[23] considered by D'Ovidio as indispensable for prospective teachers, and *Monatshefte für Mathematik und Physik*, co-directed by one of his preferred interlocutors, the geometer Emil Weyr.

With regard to the purchasing policy and the general features of D'Ovidio's direction, we should point out two significant characteristics. First of all, his policy considered mostly (even almost exclusively) mathematical journals rather than series of *Atti* and *Memorie* produced by academies. In actual fact, D'Ovidio and the mathematicians of his generation preferred to rely on this second category of periodicals for their activity, but because all of them were affiliated with the Turin Academy of Sciences, they enjoyed free access to the series published by societies all over the world, which were stocked in the Academy's library. They could therefore browse these collections there, without buying them for the SML. As far as their pupils were concerned, although it is true that they generally did not have access to the library of the Academy of Sciences, they were able to read in the National University Library the series of *Atti* and *Memorie* published by the most important Italian and foreign scientific societies, which were not at the SML.

This interchange between the SML and its sister libraries, this sort of 'permeability' in their use and management, is well illustrated in the case of *Acta mathematica*, whose first issue was presented by D'Ovidio to the Academy of Sciences on 14 January 1883 [IML: Genocchi to Mittag-Leffler, 15 Jan. 1883, f. 1r]. On this occasion, applauding Mittag-Leffler's noble enterprise, he wrote to his friend:

> I hope that the Library of the Academy will soon subscribe to *Acta*. The University library [i.e., the SML] has already taken its subscription.[24]

One year later, D'Ovidio informed his Swedish colleague that the Academy's library had also subscribed to *Acta*, concluding:

> If you prefer to exchange publications with the Library of the Academy, you have only to tell me and I will propose such solution to the Board of Directors.[25]

The second distinctive feature of D'Ovidio's direction concerns the link between the SML and the teacher training school, directed by D'Ovidio himself from 1883 to 1907. Although this link was officially declared in order to obtain financial support from authorities, it appears to have been rather fragile, since from the beginning D'Ovidio's choice of which books and journals to buy for the SML was not determined by the demands of prospective teachers, given the requests for journals like *Acta mathematica*. This is clearer still when one compares the patrimony of the SML with that of the circulating library of the Associazione Mathesis, the first Italian society for mathematics teachers, founded in Turin in 1896. D'Ovidio, however, was well aware of this fact and, looking back at his years in the service of the SML, he observed that although the library had sustained students enrolled in the teacher training school, it had above all benefited scholars, professors and lecturers,

---

Variazioni inventario 1900–02; Ministero della PI. Prospetto delle variazioni in aumento o diminuzione degli oggetti avvenute dal 1.7-31.12.1900; 1.1–30.6.1901; 1.7–31.12.1901, 1.1–30.6.1902; 1.7–31.12.1904; 1.1–31.12.1919.

[23] On l'*Enseignement mathématique*, see the paper by Gispert in this issue.

[24] "La Bibliothèque de l'Académie ne tardera, j'éspère, à s'abbonner aux Acta. Celle de l'Université a déjà pris son abonnement" [IML: D'Ovidio to Mittag-Leffler, 10 Apr. 1883, fols. 1v-2r].

[25] "Si vous préférez d'entrer en échange de publications avec elle, vous n'avez qu'à me le dire, et je le proposerai au Conseil d'administration" [IML: D'Ovidio to Mittag-Leffler, 18 Apr. 1885, fol. 2v].

putting at their disposal expensive works, scientific journals, voluminous treatises and models, and thus giving them the chance to follow the swift and vast development of mathematical literature in Italy and abroad.[26]

Examining the legacy of the SML under D'Ovidio's direction, we also recognise a quite precise framework of the practices of acculturation and shared research that was established in the school of algebraic geometry directed by Segre and in the school of logic guided by Peano. In general terms, we can state that since 1898, maneuvering between the SML, the national university library, the library of the Turin Academy of Sciences and the library of the Società di cultura,[27] the members of both schools had at their disposal all the journals that they used for scientific work and teaching and through which they circulated their results.

For Peano and his co-workers, evidence of this can be obtained starting from the references listed in the five editions of the *Formulario*, the collective text that represents the *magna carta* of this school.[28] These references and quotations were constructed by browsing forty-two 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 SML.[29] Almost all the journals used for compiling the *Formulario* were held in the SML. The few missing series were consulted at the national university library (*Revue générale des sciences pures et appliquées*, *Revue de métaphysique et de morale*), or belonged either to Peano's personal library (*Bulletin de l'Académie des Sciences de St. Petersbourg, Prace Matematyczno-fiziczne, Tidsskrift for Mathematik*), or to the library held by the *Rivista di Matematica* directed by Peano, which was placed at the disposal of the co-authors of the *Formulario*.[30]

An exceptional amount of information about the periodicals read and consulted regularly by the members of the Italian school of algebraic geometry can be deduced from Segre's *Resoconti di Scritti letti* (Reports of works read) and from his personal bibliographic *Schedario*, a card index consisting of more than 500 hand-written files, which annotate mathematical papers published in 151 journals, academic series, bulletins of societies, and journals for teachers and students. This card index, which Segre constantly updated during his entire life,[31] 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. In other words, these cards record all the works that Segre used in his famous courses of higher geometry and in his lectures at the teacher training school. Through the analysis of Segre's *Schedario* many maps can be derived: in geographical terms, it shows readings that range through 20 specialist journals, 8 journals for teachers and teaching, 32 series edited by academies and 56 journals en-

---

[26] "Ai quali rende accessibili opere di alto prezzo, giornali scientifici, voluminosi trattati e modelli, ponendoli eziandio in grado di seguire il rapido ed ampio svolgersi della bibliografia matematica in Italia e fuori" [*Biblioteca speciale matematica*, in *Annuario* 1899–1900, p. 86].

[27] On the role of both the library and the circulating library owned by the Società di Cultura, see Bergami (1979, 349, 354) and Società di Cultura (1927).

[28] Peano (1899, 189), Peano (1901, 217–218), Peano (1903, 390–392), Peano (1908, pp. XXII–XXIII) and, in APVT, the manuscript by Peano, inserted in his copy of *Formulario Mathematico*, *Bibliographia de Logica Mathematica post 1908*, XIV.

[29] See the notebooks by Vacca *I Adversaria Mathematica Dr. G. Vacca*, fols. 2r, 2v, 9r, 15r, 28v, 62v, 69r, 113r; *Adversaria Mathematica 1905–1916–1922–1944–1946*, fols. 4v, 9v.

[30] The holdings belonging to Peano's library and to that of the *Rivista di Matematica* met different fates. Some of the series kept by Peano in his personal library were given to the SML over a period from 1908 to 1919. In contrast, the library of the *Rivista di Matematica*, and in particular its rich *miscellanea* of 2,683 offprints, was donated by Peano to the SML in June 1928 (see ASUT: *Patrimonio, Recapitolazione periodo 16 ottobre 1927–31 ottobre 1928*, inventory nos. 2252, 2253, 2272) and was unfortunately completely destroyed in 1942. After Peano's death, the remaining part of his mathematical library, including 27 collections of journals, was sold to Milan University. See Luciano (2008, vol. 2, 133–172).

[31] Fano (1924, 222). The handwritten cards that make up his personal Card Index are stored in SML, Segre Archive. See Giacardi and Varetto (2000, 367–368), Conte et al. (2013, 96–99).

dorsed by scientific societies and universities, published in forty-five different publishing centres. From the
very beginning of the twentieth century, Segre was able to find in the SML four out of ten of the journals
and series quoted in his card index and needed for his research and teaching. 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 SML.

In addition to being a tireless reader,[32] Segre was also very active in circulating works by Italian and for-
eign authors through his network of protégés, in asking for information on how to buy books, lithographs
and journals, and in commenting with his team on new releases in literature. It was mainly with his protégés
Guido Castelnuovo and Gino Fano that Segre discussed which texts were most relevant to their research
program and, consequently, which books and journals to ask D'Ovidio to purchase for the SML. As we
can deduce from his correspondence, Segre (more than D'Ovidio) also coordinated the loan and exchange
of excerpts and volumes between the SML and libraries in other cities. For example, he asked Castel-
nuovo:

> Give me the [offprint of the] Note by Hilbert and Hurwitz (the Library of the teacher training school [SML]
> already has it in the *Acta mathematica*, I think). As for the other two papers by Hilbert, the Library and
> I already have them in the *Mathematische Annalen*: so you can donate them [i.e. their offprints] to some
> Roman geometer.[33]

Again, he urged Castelnuovo to return an offprint he had borrowed:

> If you don't need Lüroth's memoir any more, at least for now, the Library of the teacher training school
> would like it back.[34]

The dimension of the corpus of journals that the two Turinese research schools extensively used for their
activity grows even larger if we consider the readings carried out by some 'bridge figures' between the two
groups, such as Mario Pieri, Beppo Levi, Alessandro Padoa, Emilio Artom and Alessandro Terracini. All
of these scholars completed their studies in contact with Segre and Peano and inherited the legacy of both
masters. They produced works that crossed between the borders of the two schools, ranging from algebraic
geometry (many of them completed their degree theses under Segre's advisement and were trained to do re-
search in this field) to studies in foundations of mathematics, from mathematical logic to elementary mathe-
matics from a higher standpoint. Such a wide range of cultural interests is well reflected in the collections of
journals that they used to consult in the SML. A single example will suffice: Emilio Artom, a former pupil
of D'Ovidio, Segre and Peano, then a trainee at the teacher training school under Segre's advisement, and fi-
nally a teacher of mathematics in secondary schools, was a frequent visitor of the reading rooms of the SML,
where he 'devoured' the volumes of *Mathematische Annalen* and *Nouvelles Annales de mathématiques*.

---

[32] At the time of his death, Segre's personal library comprised thirteen collections of journals and an immense *miscellanea* of
offprints. This library was bought by Guido Toja, an engineer and practitioner of actuarial mathematics, and then given by his heirs
to the University of Florence in 1933. See Luciano and Roero (2016, 86–100).

[33] "Regala a me la Nota di Hilbert e Hurwitz (la Biblioteca di Magistero l'ha già negli Acta mathematica, credo). Quanto alle altre
due di Hilbert, la Biblioteca ed io le abbiamo già nei Mathematische Annalen: sicché puoi regalarle a qualche geometra romano"
[ANL Rome: Segre to Castelnuovo, 12 Jan. 1892]. See also ANL-Volterra, Segre to Volterra, 9 Dec. 1900.

[34] "Se la memoria Lüroth non ti occorresse più, almeno per ora, la Biblioteca di magistero la riprenderebbe" [ANL Rome: Segre
to Castelnuovo, 7 Dec. 1893].

4. In the shadow of the Göttingen Lesezimmer

Segre took over the management of the SML in 1907 when D'Ovidio left the position of dean of the faculty of sciences (Fano, 1932–33, 448–449; *Annuario*, 1923–24, 55). He strengthened D'Ovidio's policy, going as far as allocating more than half of the funds received by the Consortium and the ministry to the subscription and binding of periodicals. To the Italian and foreign journals already received, he added new French titles, for example *Bulletin de la Société mathématique de France* and *Bulletin astronomique*. Concurrently, based on his contacts with Felix Klein, Walther Lietzmann and with the publishing house B.G. Teubner, he began to order various series edited in Germany, including *Abhandlungen zur Geschichte der mathematischen Wissenschaften*, *Abhandlungen über den mathematischen Unterricht in Deutschland* and *Mathematisch-physikalische Bibliothek*.

Nevertheless, from a strictly quantitative point of view, Segre basically worked in continuity with his predecessor D'Ovidio. Thus it is not surprising that during his directorship there were few new subscriptions, generally originating from the international partnerships created by Segre with foreign colleagues. This is the case, for example, for the subscriptions to *Bulletin* and *Transactions of the American mathematical society*, which were signed after Segre's meetings with Julian Coolidge and Ernest Wilczynski at the third International Congress of Mathematicians in Heidelberg, in August 1904. Analogously, the fact that Segre devoted 46 lire to the purchase of the entire collection of *Klassiker der exacten Wissenschaften* in 1907, is indicative of his scientific relationships with Wilhelm Ostwald.[35]

In contrast to D'Ovidio, Segre established a closer link between the SML and the teacher training school, of which he was director from 1916 to 1921. Just as Segre's courses of higher geometry were characterised by an authentic supranational stamp,[36] so too were his lectures at the teacher training school (1887–1891, 1907–1921). As a matter of fact, references listed in Segre's *Schedario* and then copied in his *Quaderni*[37] perfectly match both the texts that he purchased and the journals and series to which he subscribed for the SML. The analysis of references to journals scattered in these Notebooks clearly shows the philo-Germanic leanings of his mathematical culture, and in particular the influence exerted on him by his 'masters' (*maestri*), including Felix Klein and Leopold Kronecker. In fact, among the journals that Segre preferentially suggested to his students of higher geometry, *Mathematische Annalen* clearly emerges, followed by *Archiv der Mathematik und Physik* and *Journal für die reine und angewandte Mathematik*. Along with these journals, Segre showed – such as D'Ovidio and other colleagues of the 'old guard' of Italian mathematics – a decisive preference for series published by academies and scientific societies, starting with *Jahresbericht der Deutschen Mathematiker Vereinigung*. As far as the training of teachers is concerned, Segre considered only few foreign journals as references for mathematics education: *L'Enseignement mathématique*, and the aforementioned series *Abhandlungen über den mathematischen Unterricht in Deutschland* and *Mathematisch-physikalische Bibliothek*.

However, the most original feature of Segre's direction was his conception for how the SML should function and be utilised. First of all, he transformed it into a 'presence library', a space for research, where he could work with his graduates and disciples, with texts and documents at hand. As a consequence, under his direction the SML passed from 4,000 visits and a total of 5,200 works available for consultation on-site and 330 received on loan, to a peak of 7500 accesses, and a total of 10,300 works available for consultation

---

[35] *Ministero della PI. Prospetto delle variazioni in aumento o diminuzione degli oggetti avvenute dal 1.1.1903 al 31.12.1919*, nos. 93 and 486.

[36] Coolidge recalled Segre's first lesson, which was opened by a list of some twenty papers in four different languages (Coolidge, 1904, 13).

[37] Each summer Segre carefully developed the topics of the course that he would teach the following autumn. The forty handwritten Notebooks of Segre's university lectures are conserved in SML and digitalised in Giacardi (2013).

on-site, and 465 received on loan. As clearly emerges from the visitors' logs,[38] the SML's function evolved from one of a repository library to that of a place where the activities of reading and consulting definitely prevailed over that of lending.

Concerning the function and use of the SML, Felix Klein's influence on Segre is undeniable. In fact, building on his experience gained during his travel to Germany (in 1891), Segre aimed at adapting to the Turin SML the *Lesezimmer* model devised by Klein for the famous institute library in Göttingen. The combination of mathematical resources available in that *Lesezimmer* was unique:

> These included an outstanding collection of mathematical models and instruments and the finest mathematics library in Germany. One of its treasures was a collection of offprints that Klein made available, and in which one 'seldom searched for anything in vain'. The Göttingen mathematics library ... was a so-called *Präsenzbibliothek*, meaning a non-circulating collection with open shelves. This type of library, an innovation of Klein's that is now quite common in Germany, was designed not only for the convenience it provided but also for the promotion of informal contacts within the Göttingen mathematical community (Rowe, 1989, 202).[39]

Many Italian scholars, including Ernesto Pascal (an Italian student in Göttingen in 1888) and Gino Fano (a post-doctoral fellow there in 1893) had illustrated in detail the features of the *Lesezimmer*:

> I was given by Klein my place with a drawer in the *Lesezimmer*, that is, in a reading room for mathematicians; found there are all the mathematical journals and some forty volumes of handwritten lectures by Klein.[40]
>
> Those who are enrolled in the Seminar can also make use, if they wish, of the reading room (*Mathematisches Lesezimmer*) and its library. The aim of this institution is to make available to students above all those books and journals that it is most frequently necessary to consult; and precisely in order to not betray this purpose and to constantly place everything at the disposal of all, it is strictly forbidden to issue books and journals on loan. Those who wish to take some volume home can contact the General Library (*Universitätsbibliothek*) ... Among the new collections, a major role is played by the journals, especially German and French (of Italian periodicals, unfortunately, not a single one), for a total value of 300 marks a year.[41]

Most likely influenced by his own recollections as well as those of his disciples, Segre fully acknowledged Klein's legacy in his direction of the Turin library (Fano, 1924, 225–226; 1926, 8–9). He, in fact, extended the opening hours and improved the reading conditions for students and recent graduates. The SML, which since its foundation had adopted the access and conditions of use typical of conservation libraries (opening hours limited to school days only, office hours for loans, etc.), opened its reading rooms not only to students and graduates of the faculty of sciences, but also to all those scholars whom the director granted access and

---

[38] See *Annuario* 1906–07, 172; 1907–08, 157; 1908–09, 185; 1909–10, 147; 1910–11, 216; 1911–12, 176; 1912–13, 179; 1913–14, 175; 1914–15, 165; 1915–16, 186.

[39] See also Frewer (1985).

[40] Pascal to Amodeo, 26 Nov. 1888, in Palladino and Palladino (2006, p. 392): *Ho avuto dal Klein il mio posto col cassetto nella Lesezimmer cioè in una sala di lettura per i matematici; vi sono ivi tutti i giornali matematici, e poi una quarantina di volumi di tutte le lezioni manoscritte di Klein.*

[41] "Coloro che sono ascritti al Seminario possono anche usufruire, volendolo, della Sala di lettura (Mathematisches Lesezimmer) e relativa biblioteca. Scopo di questa istituzione è di mettere a disposizione degli studenti soprattutto quei libri e periodici che più frequentemente occorre di consultare; e appunto per non venir meno a questo scopo e lasciare sempre tutto a disposizione di tutti, è assolutamente proibito darne i libri in prestito. Chi desidera avere a casa qualche volume può rivolgersi alla biblioteca generale (Universitätsbibliothek) ... E fra i nuovi acquisti hanno larga parte anche i periodici, specialmente tedeschi e francesi (di italiani, sgraziatamente, nessuno!) per un valore complessivo di 300 marchi all'anno" (Fano, 1894, 185).

the coveted key of the library.[42] Segre also personally assembled and put at readers' disposal a collection of lithographed lecture notes by Klein, Adolph Hurwitz, Heinrich Weber, and many others, as well as a rich miscellanea of offprints.

Thanks to this enlightened model of functioning, the reputation of the SML crossed national borders and helped put Turin on the map of international circulation of fellows and scholars. Many of Segre's American students recalled the atmosphere of this place with enthusiasm and nostalgia. In particular, Coolidge considered the existence of such a library to be one of the main factors recommending Turin as a destination for American mathematicians looking for a study sojourn abroad:

> The requirements for such studies [abroad] are libraries, lectures, and personal help. Where are they best supplied? . . . In Paris the Bibliothèque nationale is difficult to access; the library of the Sorbonne is overcrowded, and open only a limited number of hours a day; the smaller libraries, like that of the École normale, are ill supplied with funds. . . . In Turin there is an excellent mathematical library, opened twice daily, from which with the professor's permission students may withdraw what books they will. The large National Library is in the university building, and is open all day to whoever wishes to enter. Lastly, the privilege is sometimes granted to use the fine library of the Royal Academy of Science, a delightful place, which rejoices especially in possessing the proceedings of all imaginable learned societies. I doubt whether anything corresponding to this last collection could be found in those universities, which are in the smaller cities; duplicates of the two former would certainly exist in any of the larger Italian universities (Coolidge, 1904, 12–13).

Segre's directorship of the SML is just one facet of his intense activity in the years 1907–1924. In fact, during the same period, he was Secretary of the class of sciences of the Turin Academy and, from 1904 onwards, he was on the editorial board of *Annali di Matematica pura ed applicata*. In both these roles, Segre participated in the rapid changes taking place in the twentieth-century world of Italian mathematics publishing; he experienced the decline of many academic collections and the parallel process of specialisation and internationalisation of most of the leading journals. Moreover, as co-editor of *Annali*, Segre obtained and made available to the SML offprints and excerpts from all over the world, in addition to the issues of the *Jahrbuch über die Fortschritte der Mathematik*, *Monatshefte für Mathematik und Physik*, and *Annales de l'École normale supérieure*,[43] which he received in exchange for *Annali*.

5. War years

Between 1916 and 1919 the SML experienced a period of significant decline in terms of supply of international journals, a trend that can be surely explained by events related to the First World War.[44] In this period almost all subscriptions were eventually suspended. The library continued to receive only *L'Enseignement mathématique, Bulletin des sciences mathématiques, L'intermédiaire des mathematiciens* and *Acta mathematica*. In addition to war, another factor was the crisis of the teacher training schools, which would be suppressed in 1921.[45] That event affected the grants allocated by the Consortium and the ministry, which nevertheless continued to represent the only financing institutions of the SML in the decades that followed.

---

[42] Such decisions were formally acknowledged only in 1923 through the approval of a new *Regolarmento interno*, see *Annuario*, 1922–23, 212–215.

[43] See Pincherle to Segre, 15 May 1923 and 3 Nov. 1923, in Luciano and Roero (2016, 27–31, 82–84).

[44] On the effects of WWI on mathematical journals publishing and international relationships see also the papers of Gispert and of Tazzioli in this issue.

[45] On the history of teachers training schools see Furinghetti and Giacardi (2012).

In these circumstances and in all his institutional roles, Segre made every possible effort to maintain international relationships. For example, as former secretary of the class of sciences of the Turin Academy, he asked that the shipping of *Atti* and *Memorie* to hostile or neutral countries be continued.[46] Similarly, as dean of the faculty of sciences and director of the SML, he actively worked to help students and lecturers who were enlisted in the military to obtain loans from the SML of books and journals necessary for their examinations or graduation theses.[47] Further, Segre insisted that the SML should go on receiving German publications, as they were 'essential for our scientific institutes', despite the prohibition of imports of goods and commodities (books and journals included) coming from the Central Powers.[48] Segre tried to fight this sanction, without success, in opposition to some interventionist members of his school. This stance even caused Segre to be branded pro-German and exposed him to the criticism of foreign and Italian mathematicians at the outbreak of the war, when Italy did not join Germany and Austria–Hungary, although siding with the Triple Alliance (Mazliak and Tazzioli, 2009, 23; Aubin and Goldstein, 2014, 189–192).

The international relationships of Segre took on a new impulse after the end of the war. He revived his links with mathematicians from the former Central Powers, in particular with Hilbert and Klein (Mazliak and Tazzioli, 2009, 23; Aubin and Goldstein, 2014, 189–192), and in the meantime he devoted great efforts to reconstructing the network of exchanges needed by the SML. Despite assistance from the Rockefeller Foundation,[49] the post-war economic crisis and its aftermath forced the SML to suspend some subscriptions. In compensation, important donations arrived in 1919 from Peano (*Prace Matematyczno-fiziczne, Wiadomosci Matematizne, Jornal de sciencias mathematicas e astronomicas, Mathesis*), from D'Ovidio, on the occasion of his scientific jubilee in 1918, and from the mathematical physicist Carlo Somigliana (in particular many issues of Japanese journals). However, only in 1922, with a special budget allowance, was Segre able to fill the gaps that SML had accumulated in international collections during the war years.[50]

During the last phase of his direction, Segre also made noticeable efforts in the campaign of international mobilisation for the survival of *Annali di Matematica* (Luciano and Roero, 2016, 131–132, 195–207). To face the serious economic state experienced by the journal, Segre asked the Americans for help, expressing his concern to Virgil Snyder, in Turin at the time of a study sojourn. Through the *Bulletin of the American Mathematical Society*, Snyder sent out an invitation to his American colleagues, which was echoed by foreign disciples and supporters of Segre. The excellent results of this subscription campaign succeeded in avoiding the closure of *Annali* and indirectly benefited the SML too, by reactivating the endowment of international journals that it received through Segre in exchange for *Annali*.

Finally, Segre requested his friends and correspondents to allow the SML to receive at a reasonable price the journals edited by the American Mathematical Society and *Acta mathematica*. For example, in 1921 he wrote to Mittag-Leffler:

> The mathematical Library of the Faculty of Sciences, which I direct, has always subscribed (indirectly through local booksellers) to Acta Mathematica. But in recent times the exchange rate of your money (as well as those of England, Switzerland, etc.) with Italian paper money has increased to such a level that we had to suspend the subscription a year ago, hoping to see the exchange rate later lowered, and of being able to buy at cheaper prices the missing volumes. Vain hope! Now, I do not want our professors and students

---

[46] See, in the Archive of the Turin Academy of Sciences, the folder IST.10.2.5 *Norme per gli scambi di pubblicazioni e registri indirizzari (1784–1976)*. See also: "Seulement aujourd'hui j'ai pu avoir une réponse à votre question. On m'a dit que le tome 64 des Memorie vous a été envoyé en juillet 1914, et le tome 65 en juillet 1916: tous les deux au moyen des échanges internationaux. Maintenant on m'a promis de vous en envoyer un nouvel exemplaire. Après la 1ère Partie du t. 66 nous n'avons plus pu publier les *Memorie*, mais seulement les *Atti*" [IML: Segre to Mittag-Leffler, 27 Feb. 1920].

[47] ANL-Volterra, Segre to Volterra, 13 Jan. 1917.

[48] Segre to the dean of the Turin University, 25 Feb. 1916 in Giacardi and Roero (1999, 444).

[49] On the Rockefeller Foundation's support of journals publishing see Siegmund-Schultze (2001).

[50] ASUT: *Corrispondenza – Carteggio* 1926 1.4.

to be unable to find the latest volumes of your glorious journal in our library! But what can I do? Some colleagues have informed me that for some Swiss, English and American scientific journals, the publishers have agreed to offer favourable terms: that is to say, the payment of the subscription could be made in Italian lire, or at least in paper francs, instead of gold francs, or sterlings, etc.[51]

6. The Special Mathematics Library between internationalist ideals and nationalistic ideologies

Following Segre's death in 1924, the SML, which by that time counted 39,377 books and manuscripts,[52] was first entrusted for a brief period to Carlo Somigliana, dean of the faculty of sciences, and afterwards, for a year, to a disciple of Peano, Tommaso Boggio. On 7 November 1925, Boggio was succeeded by Gino Fano, who would remain as director until the autumn of 1938.[53]

The role played by Somigliana and Boggio was basically one of maintaining the status quo. Over about two years, the SML experienced a modest increase: according to the final report on inventory changes, approved by the Ministry in 1926, it had purchased 1,705 new books and periodicals, and no instruments or models.[54]

With Fano, a new period in the history of the SML began. First of all, while the international drive of the library dated back to the years of its creation, the true strengthening of its cultural cosmopolitanism occurred in this time, and mirrored the new director's personality. Unlike his *Maestro* Segre, who had left Turin only to sojourn in Germany and in German speaking Switzerland, Fano had travelled across Europe and beyond, entering into contact with scientific centres worldwide, and intensifying the exchanges with the so-called 'peripheries'.

The most evident sign of the internationalist impact of Fano on the SML is the activation of dozens of new subscriptions to foreign journals, including the Russian *Recueil mathématique de la Société Mathématique de Moscou*, the Swedish *Archiv for Mathematik, Astronomi och Fysik*, the Polish *Fundamenta Mathematicae* and the Rumanian *Mathematica Cluj*.[55] Fano was personally in contact with the editors or the authors of the majority of these journals. A single example will suffice: the SML received the *Revista* published by the faculty of sciences of the Universidad Mayor of San Marcos in Lima, thanks to Fano's relationships with Alfred Rosenblat, who had spent years studying in Italy at the school of algebraic geometry, before being invited as visiting professor in Peru.[56]

---

[51] "La Biblioteca matematica della Facoltà di Scienze, que je dirige, a toujours été abonnée (indirectement par des libraires d'ici) aux Acta Mathematica. Mais dans ces derniers temps le change de votre monnaie (comme de celles d'Angleterre, Suisse, etc.) en papier italien, s'est élevé de telle sorte que nous avons dû, il y a une année, suspendre l'abonnement, dans l'espoir de voir plus tard s'abaisser le change, et de pouvoir acheter à meilleurs frais les tomes qui venaient à manquer. Vain espoir! Or, je ne veux pas que dans notre Bibliothèque nos professeurs et nos étudiants ne puissent trouver les derniers tomes de votre si glorieux journal! Mais comment faire? Des collègues m'ont informé que pour certains journaux scientifiques suisses, anglais, américains, les éditeurs ont accepté de faire des conditions de faveur: c'est-à-dire que le paiement du prix d'abonnement soit fait en lire italiennes, ou du moins en francs papier, au lieu de francs or, ou sterlines, etc." [IML: Segre to Mittag-Leffler, 10 Dec. 1921]. See also IML: Mittag-Leffler to Segre [1921, ff. 1r-2v].

[52] ASUT: *Processo di consegna dei beni mobili di proprietà dello Stato esistenti nella Biblioteca Matematica dal sig. prof. Somigliana a Boggio*.

[53] ASUT: *Corrispondenza – Carteggio* 1926 1.4.

[54] ASUT: *Processo di consegna dei beni mobili di proprietà dello Stato esistenti nella Biblioteca Matematica dal sig. prof. Boggio a Fano*.

[55] From 1926 to 1935, the *Annuari* of the University of Turin itemised the *Elenco delle Riviste italiane ed estere esistenti presso gli Istituti scientifici della R. Università*. The patrimony of journals kept in SML is listed in *Annuario* 1926–27, 415–416; 1927–28, 399–437; 1928–29, 415–416; 1929–30, 393–396; 1930–31, 413–415; 1931–32, 460–462; 1932–33, 488–491; 1933–34, 618–621; 1934–35, 463–466.

[56] UTo-Fano: Rosenblat to Fano, 21 Apr. 1937, f. 1r.

Secondly, compared to Segre, Fano had stronger interests in engineering, physics and mechanics,[57] which is why he opened the shelves to journals such as *Ingenieur Archiv*, *Zentralblatt für Mechanik* and *Die Naturwissenschaften*. Indicative of Fano's sensitivity to the history of mathematics and science can be seen in his decision to have the SML subscribe to periodicals such as *Osiris*, *Archeion*, and *Quellen und Studien*.

Fano also enhanced the function of the SML for the advancement of research. In fact, taking as models the various Seminari Matematici (Mathematical Seminars) created in those years in Rome, Milan and Padua, from 1929 forward he began to host in the SML the Conferenze di Matematica e Fisica, later renamed Seminario Matematico dell'Università e del Politecnico di Torino. Fano, flanked by his colleague Terracini, was one of the leading players of this initiative, and some of his most famous lectures were published in the journal *Rendiconti del Seminario Matematico dell'Università e del Politecnico di Torino*, edited by the SML from 1931 forward.

During his administration, Fano also managed some important bequests: those of the collections of offprints of his colleagues at the University and the Politecnico, Somigliana, D'Ovidio, Guido Fubini, and Bonaparte Colombo,[58] to which must be added the legacies of Segre and Peano.[59] The miscellanea thus gathered reached such a dimension (more than 4,115 offprints) that Fano decided to have it entirely catalogued by his former student, Ada Terraciano, in 1926.[60]

On 21 November 1938, due to the racial laws,[61] Fano was removed from the role of director of the SML; he was also expelled from his university positions, and from all Italian scientific institutions and academies. In order to fully understand this delicate phase in the history of the SML, we should recall that the Jewish presence was actually numerically and qualitatively important in the Turin University: twenty-three professors and tenured lecturers in the faculty of sciences were of the Jewish 'race', as were four full professors of mathematics out of a total of nine. Between 1938 and 1943, the majority of the mathematicians mentioned before for having greatly contributed to the SML opted for exile. The first to leave Turin, bound for Tucumán in Argentina, was Terracini, in January 1939, followed by Fano, who reached Lausanne in September 1939. Both these scholars promoted in their host universities the work of the Italian school of algebraic geometry to which they felt they belonged, transplanting the best Turinese 'traditions' in mathematics into new milieus, and leading to intriguing scenarios of acculturation and circulation of knowledge. The teams of authors of foreign journals such as *Commentarii mathematici helvetici* benefited from their unexpected collaboration. The publishing arena of South America developed beyond expectations, because Terracini and his friend Beppo Levi (another of Segre's protégés, and a refugee in Rosario, Argentina) founded and edited three new journals: *Publicaciones del instituto de matematicas*, *Revista de matematica y fisica teorica de la Universidad nacional de Tucumán* and *Mathematicae notae*.

The complete upheaval in the scholarly staff caused by the racial laws resulted in a series of replacements and displacements in and from other institutions. Following Fano's dismissal, lacking alternatives, for the first time in its history the management of the SML was forced to look for a mathematician outside of

---

[57] "Gino Fano ... kept the young Ugo apprised of the great discoveries in physics and mathematics that were taking place around the world. In a memoir, Ugo Fano said he recalled being introduced to Niels Bohr's new atomic theory at the dinner table when he was 12" (Glanz, 2001).

[58] ASUT: *Patrimonio, Recap. SC Bibl. matem*. 1924–1946: donations by C. Somigliana (from 1924–25 to 1928–29); by E. D'Ovidio (from 1924–25 to 1928–29); by G. Fubini (from 1925–26 to 1928–29); by G. Fano (from 1926–27 to 1928–29); by B. Colombo. The miscellanea also included bequests by Italian and foreign institutions, universities and editorial staffs.

[59] ASUT: *Affari ordinati per classi*, XIVB 306, fasc. 1–4, Biblioteche, *Verbale di deposito temporaneo di Manoscritti*, Torino-Ancona, 1 Mar. 1926 and ASUT: *Corrispondenza – Carteggio* 1926 1.4. This contains the minutes of the temporary deposit of the manuscript notebooks of Segre's lectures by his widow Olga Michelli, sent by Fano to the dean.

[60] SLM Archive: *Libro Cassa Fondi Universitari, Provvedimenti varii*, 17 May 1926, 106.

[61] On racial laws and their consequences on Italian scientific community, see Israel and Nastasi (1998), Israel (2010), Capristo (2002, 2014), Luciano (2017, 2018).

Segre's school: the analyst Francesco G. Tricomi, who would have to face the difficult years of war and of Nazi-Fascist occupation in the years 1943–1945 (Tricomi, 1967, 79–80). At the moment of the transition to Tricomi, the SML counted 146,951 books, journals and manuscripts, clear evidence of the policy of constant increase pursued by Fano in his decade of direction.[62]

Tricomi carried on in the international spirit so dear to D'Ovidio, Segre and Fano, by taking new subscriptions (Tricomi, 1967, 64–88). International journals, such as those created in Argentina by Terracini and Levi, continued to arrive to the SML, albeit irregularly, until 15 October 1942. On 8 December 1942, an air bombardment struck Turin. The rich collection of offprints (3,856 documents out of 5,300), was almost completely destroyed.[63] The patrimony of periodicals was less damaged because, fortunately, the fire spared the two reading rooms of the SML. The losses affected the latest volumes or issues of some journals, which were currently being catalogued and thus were not placed on shelves.[64] The most heavily damaged series was that of *Studia Mathematica*, the representative journal of the Polish 'school' of functional analysis, which lost four volumes out of 8.

Fano returned to Italy in 1946, his rights and status having been reinstated; Terracini did not go back to Italy until 1948. Upon his return, he straightaway assumed the direction of the SML.[65] With that, the directorship of the library came back to a member of the school of Segre.[66]

7. Conclusions

The study of the collections kept in the Special Mathematics Library of Turin University in the first fifty years of its existence has given insights into the material, commercial and social aspects of the circulation of mathematics in a very rich local milieu like Turin, characterised by a multiplicity of actors and places: the University and Politecnico above all, but also the Academy of Sciences, many scientific societies and cultural associations (Mathesis, Società pro Cultura, etc.), at least six publishing houses devoted to mathematics and sciences, in addition to several international booksellers.

Secondly, the reconstruction of the purchase and subscription policies has shed light on the ways in which the Turin mathematicians used and conceived the SML, both as a physical place and as an abstract space for collective construction and transfer of knowledge. This is even more intriguing because of the fact that for almost a century, the SML was directed by scholars who were all linked to the Italian school of algebraic geometry, founded by D'Ovidio and which Segre came to lead. On one hand the SML offered to the school of Segre (and to a lesser extent that of Peano) all the sources (books, journals, lecture notes, manuscripts, etc.) they needed in order to formulate their own mathematical culture, to construct their own identity and to contextualise their activity within the framework of international literature. On the other hand, Segre and his *protégés* contributed to writing the history of the SML, as its directors and consultants. At the same time they served on the editorial boards of outstanding journals and academic series and, in this role, they not only succeeded in promoting and disseminating the contributions of their teamwork, but also wove a capillary network of international exchanges with Italian and foreign mathematicians and with other figures from outside their domain (teachers, translators, editors and publishers). They consciously

---

[62] ASUT: *Processo di consegna dei beni mobili di proprietà dello Stato esistenti nella Biblioteca Matematica 21.11.1938, in seguito alla cessazione del sig. prof. G. Fano a F. Tricomi*; *Affari ordinati per classe* XIV B 393, 402.

[63] SML Archive: *Elenco degli opuscoli andati perduti per eventi bellici*, June–October 1946, pp. 1–6; *Elenco di fascicoli e volumi di riviste perduti per eventi bellici*, 28 Mar. 1946, 26 Jun. 1946, 10 Oct. 1946.

[64] ASUT Patrimonio: *Recap. SC Biblioteca Matematica 1946–1983*, Tricomi to the dean of Turin University, 25.6.1965, n. 4855.

[65] ASUT: *Fascicolo personale del Prof. A. Terracini*, letters dated 14.11.1945, 21.11.1945, 1.2.1946, 8.2.1946, 18.5.1946, 21.12.1946, 5.5.1952 and SML *Correspondance*: 8.9.1947 and 15.3.1947.

[66] SML Archive: *Processo verbale di consegna dei beni mobili di proprietà dello Stato esistenti nella Biblioteca Matematica*, December 1948.

placed such a network in the service of the SML, and its construction and development really relied on these exchanges.

Finally, the biography of Fano has also suggested a new perspective on the consequences of nationalism and racist ideology for journals and research institutions and on the tension, under a totalitarian regime, between the physical control over individuals and objects, and the free, supranational circulation of knowledge.

Abbreviations

ANL-Castelnuovo: Archivi Storici, Accademia Nazionale dei Lincei, Roma, Fondo Guido Castelnuovo
ANL-Volterra: Archivi Storici, Accademia Nazionale dei Lincei, Roma, Fondo Vito Volterra
APVT: Università di Torino, Archivi di Giuseppe Peano e Giovanni Vacca
ASUT: Archivio Storico dell'Università di Torino
IML: Mittag-Leffler Institut, Djursholm
SML: Biblioteca Speciale di Matematica, Dipartimento di Matematica 'G. Peano', Università di Torino
UTo-ACS: Università di Torino, Archivi di Corrado Segre
UTo-Fano: Università di Torino, Fondo Gino Fano
UTo-Terracini: Università di Torino, Fondo Alessandro Terracini

References

Annuario dell'Università di Torino, 1883–1964. Stamperia Reale, poi Villarboito, poi ITER, poi Giappichelli. Torino.

Aubin, D., Goldstein, C. (Eds.), 2014. The War of Guns and Mathematics. AMS, Providence.

Bergami, G., 1979. La "Società di Cultura" nella vita civile e intellettuale torinese. Stud. Piemont. VIII (2), 345–364.

Capristo, A., 2002. L'espulsione degli ebrei dalle accademie italiane. Zamorani, Torino.

Capristo, A., 2014. Gather What You Can and Flee. Jewish Intellectual Emigration from Fascist Italy. CPL Editions, New York.

Casnati, G., Conte, A., Gatto, L., Giacardi, L., Marchisio, M., Verra, A. (Eds.), 2016. From Classical to Modern Algebraic Geometry. Birkhäuser, Basel.

Catalogo della Biblioteca Speciale di Matematica della R. Università di Torino. 1° fascicolo, Maggio 1891, 2° fascicolo, Maggio 1896, 3° fascicolo, Maggio 1905. Paravia, Torino.

Conte, A., Giacardi, L., Novaria, P., 2013. Corrado Segre (1863–1924) a 150 anni dalla nascita. In: Catalogo delle Mostre documentarie – Novembre 2013. KWB, Torino.

Coolidge, J.L., 1904. The opportunities for mathematical study in Italy. Bull. Am. Math. Soc. (2) 11, 9–17.

D'Ovidio, E., 1884. Mutazioni e aggiunte avvenute nella R. Università di Torino dal 1872 in poi. In: Appendice ai Cenni storici sulla Regia Università di Torino pubblicati nell'anno 1872. Stamperia Reale, Torino, pp. 3–7.

Fano, G., 1894. Sull'insegnamento della matematiche nelle Università tedesche e in particolare nell'Università di Gottinga. Riv. Mat. 4, 170–188.

Fano, G., 1924. Corrado Segre. Cenno necrologico. Annu. R. Univ. Torino 1924–25, 219–228.

Fano, G., 1926. Onoranze a Corrado Segre, discorso commemorativo. Rend. Circ. Mat. Palermo Suppl. XV, 3–11.

Fano, G., 1932–33. Enrico D'Ovidio. Annu. R. Univ. Torino 1932–33, 443–449.

Fano, G., 1934. Enrico D'Ovidio. Boll. UMI 12, 153–156.

Felfe, R., Wagner, K. (Eds.), 2010. Museum, Bibliothek, Stadtraum. Räumliche Wissensordnungen 1600–1900. LIT Verlag, Berlin.

Frewer, M., 1985. Das mathematische Lesezimmer der Universität Göttingen unter der Leitung von Felix Klein (1886–1922). Bibl. Wiss. 19, 1–48.

Furinghetti, F., Giacardi, L., 2012. Secondary school mathematics teachers and their training in pre- and post-unity Italy (1810–1920). ZDM Int. J. Math. Educ. 44 (4), 537–550.

Garbolino, L., 2004. Il lascito di Faà di Bruno alla Facoltà di Scienze MFN di Torino. In: Giacardi, L. (Ed.), Francesco Faà di Bruno. Ricerca Scientifica, insegnamento e divulgazione. DSSP, Torino, pp. 609–626.

Giacardi, L., 2003. La collezione di modelli geometrici della Biblioteca speciale di Matematica 'G. Peano'. In: Gia-cobini, G. (Ed.), La memoria della scienza. Musei e collezioni dell'Università di Torino. Università degli Studi e Fondazione CRT, Torino, pp. 251–266.

Giacardi, L. (Ed.), 2013. Corrado Segre e la Scuola Italiana di Geometria Algebrica. Web site http://www.corradosegre.unito.it/docente.php.

Giacardi, L., Roero, C.S., 1999. Biblioteca Speciale di Matematica "Giuseppe Peano". In: Roero, C.S. (Ed.), La Facoltà di Scienze Matematiche Fisiche Naturali di Torino 1848–1998, vol. 1, Ricerca, Insegnamento, Collezioni scientifiche. DSSP, Torino, pp. 437–458.

Giacardi, L., Varetto, T., 2000. Il Fondo Corrado Segre della Biblioteca 'G. Peano' di Torino. Quad. Stor. Univ. Torino 1, 337–370.

Glanz, J., 2001. Ugo Fano is dead at 88; physicist linked to Fermi. New York Times (February 15).

Israel, G., 2010. La scienza italiana e le politiche razziali del regime. Il Mulino, Bologna.

Israel, G., Nastasi, P., 1998. Scienza e razza nell'Italia fascista. Il Mulino, Bologna.

Luciano, E., 2008. Giuseppe Peano docente e ricercatore di Analisi 1881–1919. PhD thesis. Dept. of Mathematics, Torino.

Luciano, E., 2017. Mathematics and race in Turin: the Jewish community and the local context of education (1848–1945). In: Bjarnadóttir, K., Furinghetti, F., Menghini, M., Prytz, J., Schubring, G. (Eds.), "Dig Where You Stand" 4. Proceedings of the Fourth International Conference on the History of Mathematics Education. Nuova Cultura, Rome, pp. 189–201.

Luciano, E., 2018. From emancipation to persecution: aspects and moments of the Jewish mathematical milieu in Turin (1848–1938). Boll. Stor. Sci. Mat. 38 (1), 127–166.

Luciano, E., Roero, C.S. (Eds.), 2012. From Turin to Göttingen: dialogues and correspondence (1879–1923). Boll. Stor. Sci. Mat. 32 (1), 7–232.

Luciano, E., Roero, C.S., 2016. Corrado Segre and his disciples. The construction of an international identity for the Italian school of algebraic geometry. In: Casnati, G., et al. (Eds.), From Classical to Modern Algebraic Geometry. Birkhäuser, Basel, pp. 91–241.

Mazliak, L., Tazzioli, R., 2009. Mathematicians at War. Volterra and His French Colleagues in World War I. Springer, Dordrecht.

Ministero della pubblica istruzione, 1911. Monografie delle Università e degli istituti superiori, vol. 1. Roma.

Palladino, F., Palladino, N., 2006. Dalla moderna geometria alla nuova geometria italiana: viaggiando per Napoli, Torino e dintorni: lettere di Sannia, Segre, Peano, Castelnuovo, D'Ovidio, Del Pezzo, Pascal e altri a Federico Amodeo. L.S. Olschki, Firenze.

Peano, G., 1899. Formulaire de mathématiques. Rev. Math. II (3).

Peano, G., 1901. Formulaire de mathématiques, vol. III. Bocca-Clausen, Turin.

Peano, G., 1903. Formulaire mathématique, édition de l'an 1902–03. Bocca-Clausen, Turin.

Peano, G., 1908. Formulario Mathematico, Ed. V (vol. V of the complete Formulario). Bocca, Torino.

Peiffer, J., Seckel, R.-J., 2002. Le géométral de la bibliothèque, ou comment l'espace détermine la conception du catalogue. Rev. Bibl. Natl. Fr. 9, 52–56.

Roero, C.S. (Ed.), 1999. La Facoltà di Scienze Matematiche Fisiche Naturali di Torino 1848–1998, vol. 1, Ricerca, Insegnamento, Collezioni scientifiche, vol. 2, I docenti. DSSP, Torino.

Rowe, D.E., 1989. Klein, Hilbert and the Göttingen mathematical tradition. Osiris (2) 5, 186–213.

Ruffini, F., 1899–1900. L'Università di Torino. Profilo storico. Annuario 1899–1900, 31–98.

Settis, S., 1985. Warburg continuatus. Descrizione di una biblioteca. Quad. Stor. 58 (1), 5–38.

Severi, F., 1952. Les bibliothèques en tant qu'instruments de travail scientifique. In: Actes du Comité International des Bibliothèques, Rome, vol. 17, pp. 19–23.

Siegmund-Schultze, R., 2001. Rockefeller and the Internationalization of Mathematics Between the Two World Wars. Documents and Studies for the Social History of Mathematics in the 20th Century. Birkhäuser, Basel.

Società di Cultura, 1927. Cenni sulla vita e gli scopi della Società di cultura. Lavagno, Casale Monferrato.

Terracini, A., 1952. Necrologio di Gino Fano. Boll. UMI 7, 485–490.

Tricomi, F.G., 1967. La mia vita di matematico attraverso la cronistoria dei miei lavori (Bibliografia commentata 1916–1967). Cedam, Padova.

Warburg, A., 2012. L'Atlas Mnémosyne, avec un essai de Roland Recht. L'écarquillé-INHA, Paris.