

Scholarship in Cyberspace : Music Research in the Digital Age

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Abstract

Digital resources for humanistic research have expanded dramatically in the last two decades. Scholars can browse libraries and archives located around the world and read digitized documents on networked computers in the comfort of their university offices and private homes. This essay identifies and discusses several electronically accessible archives and bibliographic sources in the field of music theory, and goes on to briefly describe the usefulness of digitized resources in research on the reception of composer Anton Bruckner's symphonies and music theorist Heinrich Schenker's early education.

Keywords

digital scholarship, digital archives, digital library, open-access scholarship, music bibliography, music theory, Anton Bruckner, Johannes Brahms, Eduard Hanslick, Heinrich Schenker

Beginning in the early 1900s, each successive generation witnessed significant cultural and sociological transformations linked to advances in technology. Consider the emergence and rapid growth of radio broadcasting on a broad scale in the 1920s, of television broadcasting in the 1950s, of commercial air travel in the 1920s, revolutionized by jet travel in the 1950s and 60s. From the late 1970s on, the most potent transformational force in all aspects of society, private, public, and professional, has clearly been the computer in both the personal and commercial domains. Computer technology in all of its dimensions has become utterly indispensable for business, government, and educational institutions. From the 1980s on, academic scholarship, too, has come to depend vitally on the ever increasing power and versatility of computers. Beginning in the early 1990s, even the revolutionary role of computers in society was itself revolutionized by the Internet. The advent of the World Wide Web has made massive repositories of digitized literature, ancient and modern, as well as searchable bibliographic databases readily available at the click of a mouse in libraries around the world, or even in the comfort of our homes. For those of us who learned and began practicing the craft of humanistic research before the age of computers and the World Wide Web, it is a scholar's dream come true.

The perspective offered here on this evolving scholarly cyberspace is that of a music theorist specializing in the intersection of intellectual history and thought about music over the centuries, with particular emphasis on writings of the eighteenth and nineteenth centuries. However, the tools and digital resources described herein are in some cases essential for research in other humanistic fields, and have counterparts, often in greater number, in non-humanistic fields (e.g. social and natural sciences).

The journey of scholarly research begins with searches in general reference works and in discipline-specific bibliographies, which lead to key primary and related secondary sources. In the field of music, the most widely used general reference in the English-speaking world is *Grove Music Online* [1].

Figure 1. *RILM Database website*. Source: *RILM International Repertory of Music Literature* [online], 2014 [access: 2014-09-15]. Accessible at World Wide Web: <http://www.rilm.org>.

Citations there lead to searches for secondary literature in the online bibliographic database known as RILM [2] and RIPM [3], which focuses on eighteenth, nineteenth, and twentieth-century periodical literature on music. Both are available through individual and institutional subscription. Equipped with citations gleaned from those sources, the process continues with searches for primary and secondary literature in digitized form, when available.

The screenshot shows the RIPM website interface. At the top, the RIPM logo is on the left, and three service categories are listed: 'Retrospective Index to Music Periodicals (1759-1962)', 'Online Archive of Music Periodicals (Full Text)', and 'e-Library of Music Periodicals (Full Text)'. A left-hand navigation menu includes links for Home, About RIPM, RIPM's Suite of Music Periodicals / All Titles, RIPM Retrospective Index (1760-1960), RIPM Online Archive (Full Text), RIPM e-Library (Full Text), The RIPM & RILM Collaboration, RIPMPlus Platform, Trial & Subscription Information, What are they saying about us?, Periodica Musica, Contributors, Announcements, and Clearance Sale. The main content area features a central banner with the text 'Now Available on the RIPMPlus Platform' and 'RIPM Online Archive of Music Periodicals' and 'RIPM e-Library of Music Periodicals NEW! 166 Searchable Full-Text Music Periodicals'. Below this is a large image of a music periodical cover titled 'LA MÚSICA ILUSTRADA' and 'GRAN TEATRO DEL LICHO'. To the right of the image is a sidebar with the text 'New Music Periodicals (1759-1962) Periodicals Indexed Records / 306 Volumes' and a 'Request Trial or Subscription Information' button. At the bottom right, there is a quote: 'New Full-Text Periodicals, Thousands of New Annotated Records and New Volumes Added Every Six Months'.

Figure 1. *RIPM Database website*. Source: *RIPM Retrospective Index to Music Periodicals* [online], 2014 [access: 2014-09-15]. Accessible at World Wide Web: <http://www.ripm.org>.

For digitized secondary sources in music and many other fields, JSTOR [4] offers a rich repository of digital texts that include, according to its website, "more than 2,000 academic journals, dating back to the first volume ever published, along with thousands of monographs and other materials". Here, all of the major journals in music scholarship are available electronically through institutional subscription. Access to digitized primary sources, particularly for literature from ancient times up through the nineteenth century, is often free of charge and available, in multiple editions and languages, through various Internet portals.

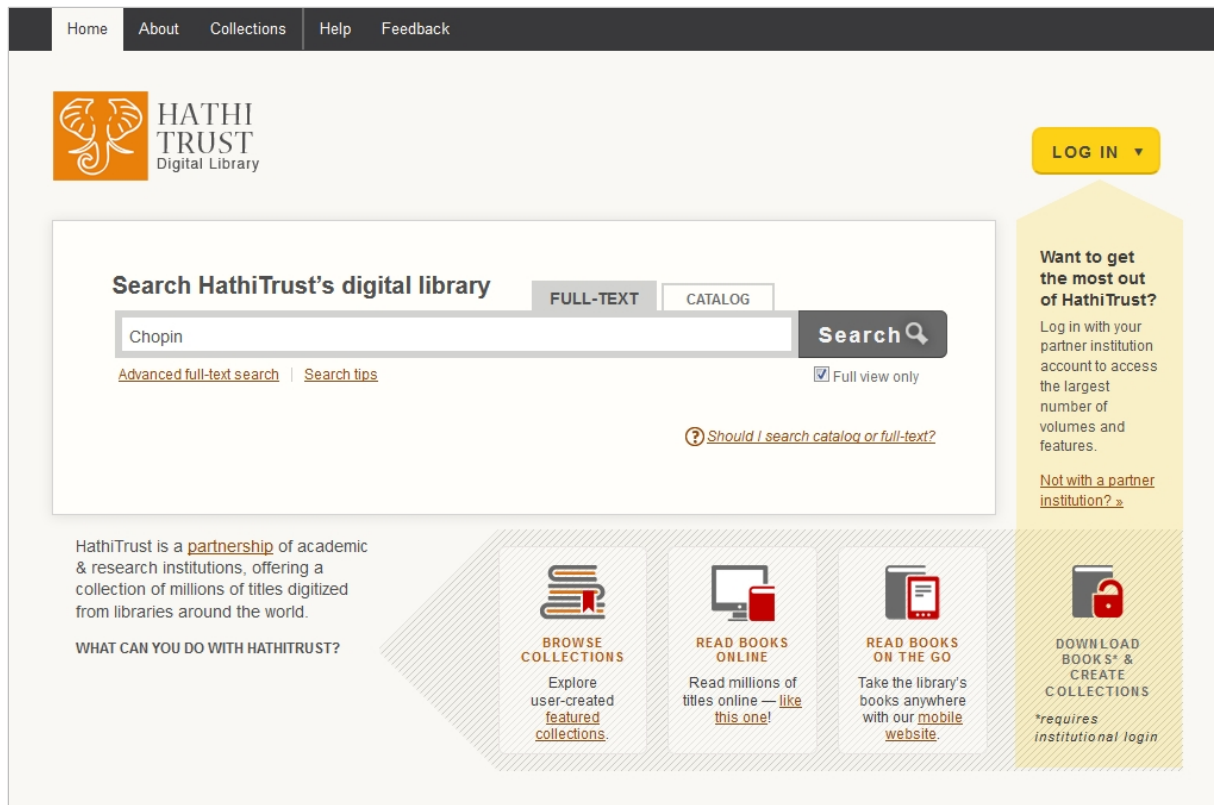


Figure 2. *HathiTrust Digital Library website*. Source: *HathiTrust* [online], 2014 [access: 2014-09-15]. Accessible at World Wide Web: <http://www.hathitrust.org>.

One of the best-known digital libraries of humanistic literature, covering a broad range of disciplines across many centuries, is the HathiTrust [5], “a partnership of academic and research institutions, offering a collection of millions of titles digitized from libraries around the world”. As an example, a search in the HathiTrust repository for works by and about the eminent nineteenth-century music journalist and aesthete, Eduard Hanslick (1825-1904), yields links to texts of 7,594 items, including the full text of his celebrated treatise, *Vom Musikalisch-schönen* (1854), of his two-volume autobiography, and of book-length collections of his numerous concert and opera reviews. Other important collections of digitized texts in music, and in the humanities generally, include Zeno.org (2,432 books by 927 authors); Archive.org (over 6 million public-domain electronic books); and, of course, Google Books (books.google.com). In those digital libraries we find the full text of treatises by major eighteenth and nineteenth-century authors in music theory (for example, among others, Johann Mattheson, Jean-Philippe Rameau, Johann Philipp Kirnberger, Heinrich Christoph Koch, Moritz Hauptmann, and Simon Sechter).

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- Texts on Music in English from Medieval & Early Modern Eras
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Welcome to CHMTL

Established in 1998, the Center for the History of Music Theory and Literature (CHMTL) brings together various research activities and projects in the fields of music theory and historical musicology centered at the Jacobs School of Music, also in collaboration with other institutions in the United States and abroad.

Our aim is to serve the scholarly community by gathering, researching and disseminating documents relevant to the history of musical thought. While primarily focused on music theory, our work also aims to document the deep links between music and the other arts and sciences, which have influenced intellectual life from the medieval era to the present. Our earliest projects, first and foremost the *Thesaurus Musicarum Latinarum*, made pioneering use of technology and the internet by making freely available hundreds of music treatises in Latin dating from the Late Antiquity. In the twenty-first century CHMTL aims to continue to be at the forefront of research in computer-assisted studies of the music of the past.

CHMTL currently hosts projects managed by scholars based at Indiana University and elsewhere. We welcome suggestions and proposals from institutions and individuals engaged in research on any aspect of the history of music theory and literature, and on applications of digital humanities to musicology and related disciplines.

The launch of our new institutional website (November 2012) coincides with the start of a new phase of expansion of the Center. Current projects are being modernized and redeveloped (access to existing resources is still available via the old website while new sub-sites are under construction) and we anticipate embarking on new research and editorial initiatives, hosting workshops and conferences, and making available occasional fellowships for visiting scholars. As these plans develop, notices will be posted in our News page. Updates are also available via subscription to our mailing list and on Twitter.

Giuliano Di Bacco
DIRECTOR OF CHMTL

News

- 18 and 20 November: Jan Herlinger on two gentlemen of Padua
- CHMTL announces new Lecture Series starting November 2013
- New and revised treatises added to TML
- Interdisciplinary Workshop: August 31 – September 1

Figure 3. Center for the History of Music Theory and Literature at Indiana University website.
Source: Center for the History of Music Theory and Literature at Indiana University [online], 2014
[access: 2014-09-15]. Accessible at World Wide Web: <http://www.chmtl.indiana.edu>.

Of special interest for music theory is the archive of electronic texts maintained by the Center for the History of Music Theory and Literature at Indiana University [6]. Through their portal, we have access to three major collections, the Thesaurus Musicarum Latinarum [7], which includes treatises in Latin dating from the Late Antiquity; saggi musicali italiani [8], embracing major treatises in Italian; and the Traitésfrançais sur la musique [9]

focusing on major treatises in French. In those three collections, scholars have access to significant portions of music-theoretical literature of the past in Latin, Italian, and French, in its relation to “other arts and sciences which have influenced intellectual life from the medieval era to the present”. A second important source of primary literature in music theory is located at the International Music Score Library/Petrucchi Music Library [10]. There, we find over 420 writings on music from the sixteenth through the twentieth century, from Gioseffo Zarlino (1517-1590) to Paul Hindemith (1895-1963), amid numerous other influential authors.

Early Music Theory | **Johannes Tinctoris** | Project team: Ronald Woodley, Jeffrey J. Dean, David Lewis

Complete Theoretical Works

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 'Johannes Tinctoris and Music Theory in the Late Middle Ages and Early Renaissance', 9-10 October 2014. London: store.london.ac.uk/browse/extra_i...
 Expand

Early Music Theory @EarlyMusTheory 13 Aug
 DL is working on the mechanism for displaying facsimile images. JJD has begun editing book I of Tinctoris' "De arte contrapuncti".
 Expand

Early Music Theory @EarlyMusTheory 7 Aug
 JJD has at last finished transcribing the Brussels MS of Tinctoris' "De arte contrapuncti", book I, and updating the transcriptions of V BU.
 Expand

Browser Note

JOHANNES TINCTORIS (c. 1435–1511) is widely acknowledged as one of the most important writers on music of the late Middle Ages and early Renaissance. His twelve Latin treatises demonstrate not only an exceptional technical command of the intellectually demanding musical notation and theory of the time, but also an intimate acquaintance with contemporary compositional practice, derived from a close knowledge of the composers of his day and their music, both in northern Europe, where he began his career, and in Italy, where he was employed from the 1470s to the early 1490s at the Aragonese royal court in Naples.

This project, currently in its initial stages of development, presents a complete new edition of Tinctoris's treatises, along with full English translations and multiple layers of commentary material, covering a wide range of technical, historical and critical issues arising from both the texts themselves and the wider context of Tinctoris's life and the musical environment of early Renaissance Europe. Combining the highest levels of historical, textual and critical scholarship with innovative technological presentation, this open-access edition explores new methods of relating text-based materials to the numerous, often complex, music examples that punctuate the treatises.

The legacy version of the Tinctoris project, hosted by The Stoa Consortium, is still available, but in due course it will be subsumed completely within the new site.

Support for the project is gratefully acknowledged from:

Arts & Humanities Research Council | BIRMINGHAM CONSERVATOIRE

Johannes Tinctoris, depicted seated at his desk
 Universitat de València, Biblioteca Històrica
 MS 835, fol. 2 (detail)

Figure 4. *Johannes Tinctoris's archive website*. Source: *Johannes Tinctoris Complete Theoretical Works*. In *Early Music Theory* [online], 2014 [access: 2014-09-15]. Accessible at World Wide Web: <http://earlymusictheory.org/Tinctoris>.

The above-mentioned digital collections are broadly conceived, encompassing works across many centuries and nationalities. By contrast, some archives are highly specialized in limiting themselves to a single, significant author. One such archive, still in progress, is devoted to Renaissance composer and music theorist Johannes Tinctoris (1435-1511), of the Netherlands [11]. The site is intended to make available Tinctoris's major treatises, which were quite influential in the late fifteenth and sixteenth centuries, particularly regarding questions of compositional technique in works of three and more voices. The life and works of Arnold Schoenberg (1874-1951) are the subject of another such dedicated website [12]. Of particular significance is the searchable database

of selected writings [13], which covers a broad range of topics [14]. Also available (as PDF files) are a complete catalog of Schoenberg's writings, and separate annotated lists of books and periodicals in his library. It is sites such as these, and others mentioned above, to which we music scholars have come to rely on so heavily for our primary and secondary-source study in preparing publications and public lectures. Enterprises such as the California Digital Library [15], whose mission is to facilitate the "pursuit of scholarship and to extend the University's public service mission" are indispensable to modern-day scholarship. The CDL's mass digitization projects [16] and others like them at other institutions constitute the foundation of future scholarly endeavors in all fields of research.

The screenshot shows the California Digital Library (CDL) website homepage. At the top left is the CDL logo and the text "University of California CDL California Digital Library". To the right are navigation links: "Staff Directory", "Contact CDL", "Report a Problem", and "System Status". Below this is a search bar with a "go" button. A secondary navigation bar contains: "September 17, 2014", "About CDL", "Services and Projects", "Information Gateways", "Committees and Groups", and "News and Media". The main content area features a large banner for "UC3 Launches DMPTool2" with a "Read more" link. Below the banner is a "CDL Services" section with four sub-sections: "Collect", "Publish", "Preserve", and "Access". To the right of the services section is an "Information Gateways" section with links for "For Campus Libraries", "For Content Contributors", "For Faculty", "For Vendors", and "For Technologists". Below that is a "Go directly to" section with links to "Callisphere", "eScholarship", "Merritt Repository Service", "Melvyl", "Online Archive of California", "UC Libraries", and "Web Archiving Service". At the bottom right, there is a "Meet one of our web producers, Craig Thompson" section with a "Read more" link. The footer contains a "Share / Save" button, copyright information "Copyright © 2014 The Regents of The University of California", and links to "Terms and Conditions", "Privacy Policy", and "Accessibility Policy".

Figure 5. *California Digital Library website*. Source: *California Digital Library* [online], 2014 [access: 2014-09-15]. Accessible at World Wide Web: <http://www.cdlib.org>.

After addressing a number of general digital resources for humanistic academic research, I turn now to two of my own projects that involve readily available digital texts which I was able to study at my desk in Santa Barbara, California, instead of traveling thousands of miles to study printed texts in libraries in Poland and Austria. One of the projects deals with the lack of musical understanding of the symphonic works of the Austrian composer Anton Bruckner (1824-1896), as illustrated in published reviews of late nineteenth-century Viennese music critics,

particularly those of Eduard Hanslick, mentioned earlier, but of several others as well (Gustav Dömpke, Richard Heuberger, Max Kalbeck). The other project deals with the primary and secondary-school education of Viennese music theorist Heinrich Schenker (1868-1935) as a basis for understanding his later musical tastes, cultural identity, and political commitments.

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Alle hier vorgestellten Beiträge finden Sie auch unter "ANNOdazumal" beziehungsweise "Kurzbeiträge zu historischen Zeitungen" in der linken Menüleiste.

15. September 1864
Florenz wird Hauptstadt von Italien!

Die Hauptstadt des Königreichs Italien (1861-1946) wurde unter Viktor Emanuel II. am 15. September 1864 von Turin nach Florenz verlegt.
Die Neue Freie Presse berichtete: *Unsere Stadt ist in großer Aufregung, [...] da die Stadt durch diesen Beschluß großen Schaden erleidet.*
Die Turiner sahen es nicht gerne, dass man ihnen den Status der Hauptstadt aberkannte, es kam zu zahlreichen Tumulten, wie die Innsbrucker Nachrichten und die Neue Freie Presse am 24. September 1864 sowie die Neuen Freien Presse am 23. September 1864 schrieben. Die Verlegung der Hauptstadt basierte auf einem Arrangement mit Paris. Das Vaterland schreibt ausführlich über die Geschehnisse im Bezug auf die "römische Frage". Frankreich hielt den Kirchenstaat besetzt. Die Verhandlungen sahen vor, dass Frankreich Rom binnen zwei Jahren verlässt und Viktor Emanuel II. seinen Regierungssitz von dem Kirchenstaates respektierte (siehe dazu auch Neue Freie Presse, Wiener Abendpost und das Das Vaterland, alle 21. September 1864). Einen ausführlichen

Landkarte Italien. Veröffentlicht durch die Herren Smith, Byrne und Edwards im Mai 1799. Stecher: B. Baker. P. 6262, Tafel 63. Bildarchiv Austria/ÖNB.

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→ 4 neue oder ergänzte Titel online! (21.07.14)
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→ 4 neue oder ergänzte Titel online! (24.06.14)
→ 13 neue Titel aus der Zusammenarbeit mit ABO online! (13.06.14)
→ 10 neue oder ergänzte Titel online! (11.06.14)
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→ ANNO-Suche für 1914-1918 freigeschaltet sowie für Zeitschriften! (27.05.14)
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Figure 6. ANNO - AustriaN Newspapers Online website. Source: AustriaN Newspapers Online [online], 2014 [access: 2014-09-15]. Accessible at World Wide Web: <http://anno.onb.ac.at>.

The concert reviews of Hanslick and his critic colleagues in Vienna are published in a variety of that city's newspapers and journals. Were it not for digital texts, it would be necessary to spend time in the Austrian National Library, in Vienna, in order to locate and study the reviews. Fortunately, the digitization project known as ANNO [17], the "virtual newspaper reading room of the Austrian National Library", allows free electronic access to all of the major newspapers and journals of the late 1800s. As of August 2014, there are 12.5 million pages available for online reading. Full-text searches apply to three million pages (24%) published in 300,000 issues that appeared in the years 1700-1875 and 1914-1918. The ANNO website provides a link to an alphabetic listing of all represented

periodicals, and provides for each a month-by-month, day-by-day display for each publication year. Consequently, it is possible almost instantly to access the exact issue and pages of a desired article. Through the computer interface, it is possible, further, to enlarge the print of the digital images for easy reading, to download pages in PDF format, and to send pages by email.

With ANNO, I was able to locate and read, and in some cases print most of the major reviews by Hanslick and other critics of performances of Bruckner's symphonies, to compare the reviews, and to draw some conclusions about the different ways in which people heard and understood (more often misunderstood) the music. The study of the reviews contributes substantively to my broader study about the differences between the compositional techniques and structural characteristics of Bruckner's symphonies and those of Johannes Brahms (1833-1897), whose works were much more favorably received by Viennese critics and audiences. Bruckner's first successes came, notably, after performances outside of Austria, for example in Germany.

The second project for which I have relied extensively on digital texts available through the Internet is the study of Heinrich Schenker's secondary education (middle and high school) in the late 1870s and early 1880s in Lvov and Berezhany, located in what was at the time Galicia, after 1772 a province of the Austrian Empire, later (after 1867) a Crown Land of the Austro-Hungarian Empire. I learned from secondary sources that middle and high schools (Gymnasien) published annual reports, and that the reports contained information about the curriculum of each grade (fifth through twelfth), about themes of study during the year, about the student population (size, nationalities, ethnicities, religious association, and languages spoken), and about the faculty. Luckily – because I do not read or speak Polish – I came across the Polish title of an annual report of one of Schenker's schools, and used it in an Internet-wide search in hopes of locating the reports in libraries. My search led to the Pedagogical Digital Library [18], to the Podkarpacka Digital Library [19], and finally to the Digital Libraries Federation [20]. I quickly discovered that almost all of the annual reports were available digitally, all fully searchable. With the help of Dorota Witczak, a key staff member and contact person at the Pedagogical Digital Library, I was able to locate digital copies of the remaining annual reports, including one which Schenker was not supposed to have attended but did because of special circumstances (building renovations). In the end, I was able to completely sketch out Schenker's secondary education, which included several hours of weekly instruction in Jewish religion about which no one had previously known. Without an archive of Internet-accessible digital texts such as the one maintained at the Pedagogical Digital Library, my work on this subject would have been far more difficult and time-consuming, not to mention expensive.

As exciting and as transformative as the above-mentioned resources have been in the academic world, they are but initial surges of a sustained series of mounting waves of digital resources currently in development and emerging on the horizon. Under the rubric "eScholarship", for example, the ten campuses of the University of California, have implemented policies of "open access" [21] for scholarly products produced by UC faculty, aimed at the open dissemination to the public of research for the benefit of society in its cultural and commercial spheres. Such scholarly production falls under the general heading of "scholarly communications" [22]. Other major universities have developed and implemented similar open-access policies on scholarly communications (Harvard, Princeton, and Columbia Universities, among numerous others). When fully developed, this open-access approach will make a broad range of scholarly research available on a worldwide scale, for instance monographs, journal articles,

single-author essay collections, multi-author essay anthologies, and various categories of reference works (topical indexes, bibliographic databases, etc.). To find a comparable momentous event in the world of scholarly publishing, we would have to look back to Johannes Gutenberg's invention of mechanical movable type and the printing press in the fifteenth century. That revolution in the dissemination of knowledge has profoundly influenced and shaped society and the individual from Gutenberg's time right up to the present. Similarly, and perhaps even more profoundly, the digital revolution and scholarship in cyberspace will shape our intellectual and social world for centuries to come.

Footnotes:

[1] *Grove Music Online* [online], 2014 [dostęp: 2014-09-15]. Dostępny w World Wide Web: <http://www.oxfordmusiconline.com/>.

[2] *RILM International Repertory of Music Literature = Répertoire International de Littérature Musicale* [online], 2014 [dostęp: 2014-09-15]. Dostępny w World Wide Web: <http://www.rilm.org>.

[3] *RIPM Retrospective Index to Music Periodicals = Répertoire International de la Presse Musicale* [online], 2014 [dostęp: 2014-09-15]. Dostępny w World Wide Web: <http://www.ripm.org>.

[4] *JSTOR* [online], 2014 [dostęp: 2014-09-15]. Dostępny w World Wide Web: <http://www.jstor.org>.

[5] *HathiTrust* [online], 2014 [dostęp: 2014-09-15]. Dostępny w World Wide Web: <http://www.hathitrust.org>.

[6] *Center for the History of Music Theory and Literature*. In *Indiana University* [online], 2014 [dostęp: 2014-09-15]. Dostępny w World Wide Web: <http://www.chmtl.indiana.edu>.

[7] *Thesaurus Musicarum Latinarum TML* [online], 2014 [dostęp: 2014-09-15]. Dostępny w World Wide Web: <http://www.chmtl.indiana.edu/tml/index.html>.

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- [13] *Writings*. In *Arnold Schönberg Center* [online], 2014 [dostęp: 2014-09-15]. Dostępny w World Wide Web: http://www.ww.schoenberg.at/index.php?option=com_content&view=article&id=375&Itemid=338&lang=en.
- [14] According to the website, the categories include "pedagogical writings, literary and compositional models, commentaries, writings about music criticism, analysis, and theory, about philosophy, religion, Judaism, politics, and contemporary history; lectures, interviews, open letters, memoranda, notes, testimonials, and diaries."
- [15] *California Digital Library CDL* [online], 2014 [dostęp: 2014-09-15]. Dostępny w World Wide Web: <http://www.cdlib.org>.
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Biographical note:

Lee A. Rothfarb earned degrees at the Eastman School of Music (B.M., Composition, 1971), the Hartt School of Music (M.M., Theory, 1979), and at Yale University (Ph.D., Theory, 1985). Before joining the faculty at the University of California, Santa Barbara, in 1994, he taught at the University of Michigan, Tulane and Harvard Universities. His first book, *Ernst Kurth as Theorist and Analyst* (1988), won the Society for Music Theory's 1989 Outstanding Publication Award. A second book, *Ernst Kurth: Selected Writings*, appeared in 1991. *August Halm: A Critical and Creative Life in Music* was published in 2010. Rothfarb's essays have appeared in the *Journal of Music Theory*, *19th Century Music*, *Beethoven Forum*, *Indiana Theory Review*, *Theoria*, *Musiktheorie*, *Schweizer Jahrbuch für Musikwissenschaft*, the yearbook of *Musik in Baden-Württemberg*, *Festschrift for Patricia Carpenter*, and in other essay anthologies. He is the founding editor of the Society for Music Theory's electronic journal, *Music Theory Online*. In 2013, the Society for Music Theory honored him with a Lifetime Membership. Rothfarb's current research deals with early music-analytical reception of Bruckner's symphonies, nineteenth-century aesthetics, and the impact of Heinrich Schenker's middle and high-school education on the formation of his mature cultural and political commitments.