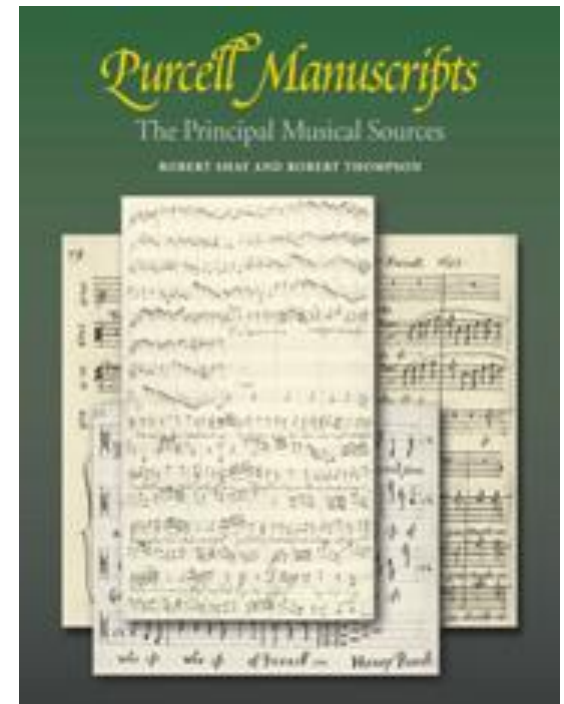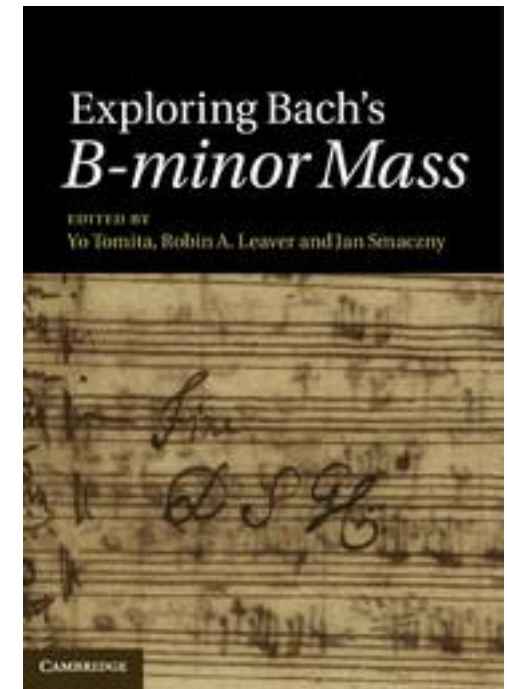# A Big Data History of Music

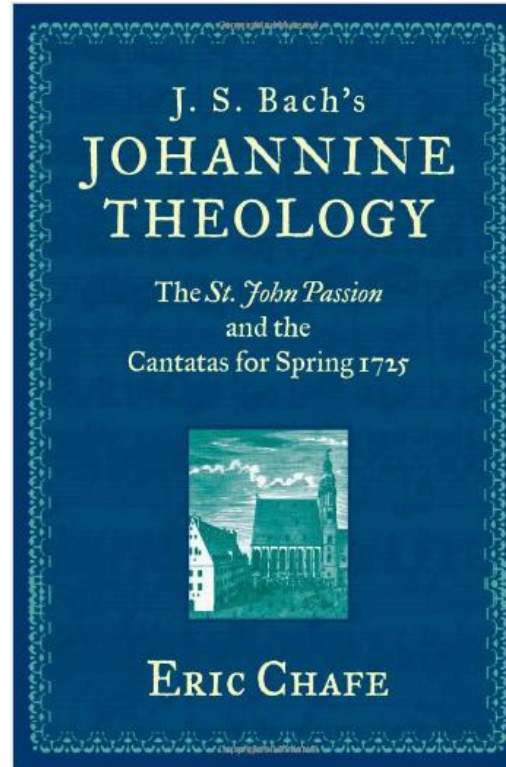## Stephen Rose, Royal Holloway
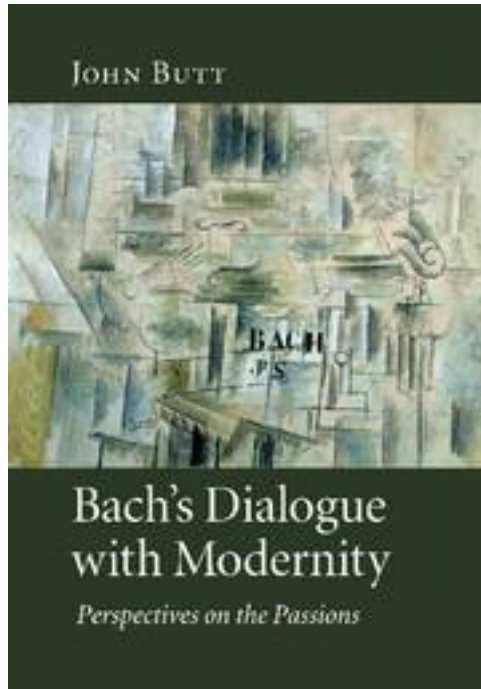
Trends in music history – source studies

Trends in music history – social / intellectual contexts of 'work'

JOHN BUTT

Bach's Dialogue with Modernity

Perspectives on the Passions

J. S. Bach's JOHANNINE THEOLOGY

The *St. John Passion* and the Cantatas for Spring 1725

ERIC CHAFE

Exploring Bach's *B-minor Mass*

EDITED BY
Yo Tomita, Robin A. Leaver and Jan Smaczny

CAMBRIDGE

Franco Moretti's 'distant reading'

The novel has an uncertain relation to politics and social movements. Radical writers have usually chosen shorter and more public forms, writing plays, poems, journalism and short stories. Novels take time . . . The great novels of the revolutionary movements that erupted around 1917 often did not appear until the 1950s and 1960s, when the political energies of the movements had receded.

Michael Denning, 'L'internazionale dei romanzieri', in *Il romanzo*, vol. III.

New novels per year. Sources: For France: Angus Martin, Vivienne G. Mylne and Richard Frautschi, eds, *Bibliographie du genre romanesque français 1751–1800*, Paris 1977. For Milan: Giovanni Ragone, 'Italia 1815–70', in *Il romanzo*, vol. III, and *Catalogo dei libri italiani dell'Ottocento*, Milano 1991.

Franco Moretti, *Graphs, maps, trees: abstract models for a literary history* (2005), p.11

Charting the 'Great Unread'
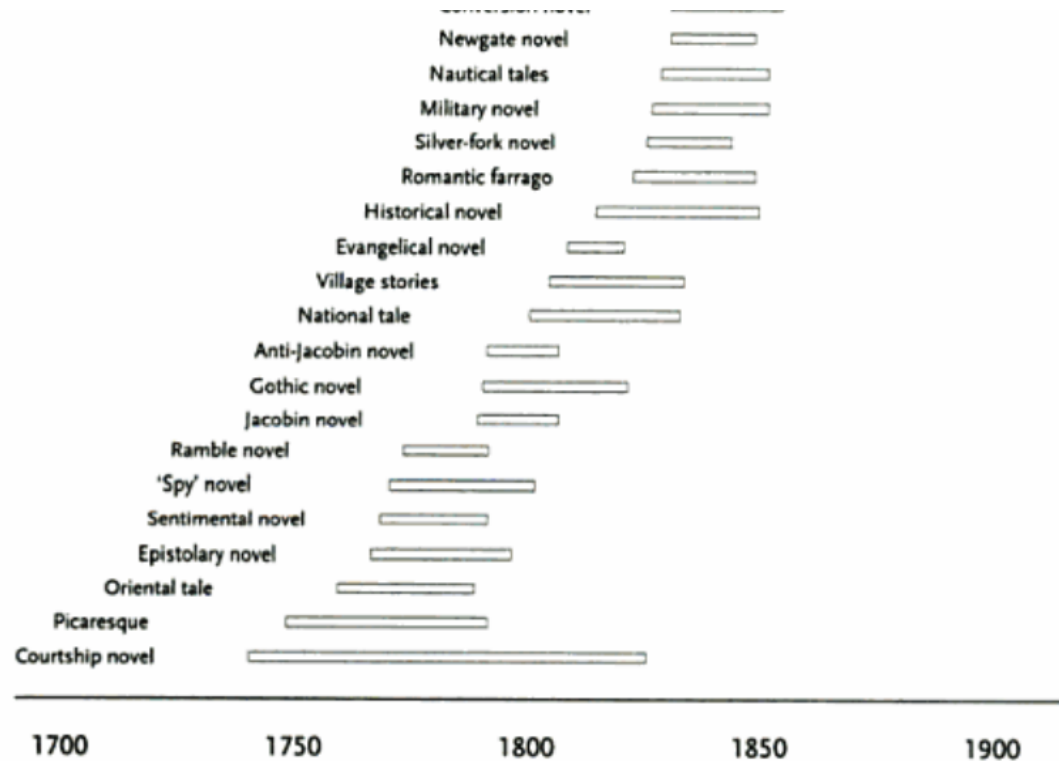
Franco Moretti, *Graphs, maps, trees: abstract models for a literary history* (2005), p.19

Big Data in music…

Machine readable scores?

Audio libraries?
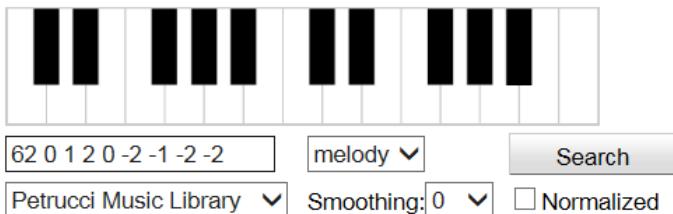
Metadata about music publications?
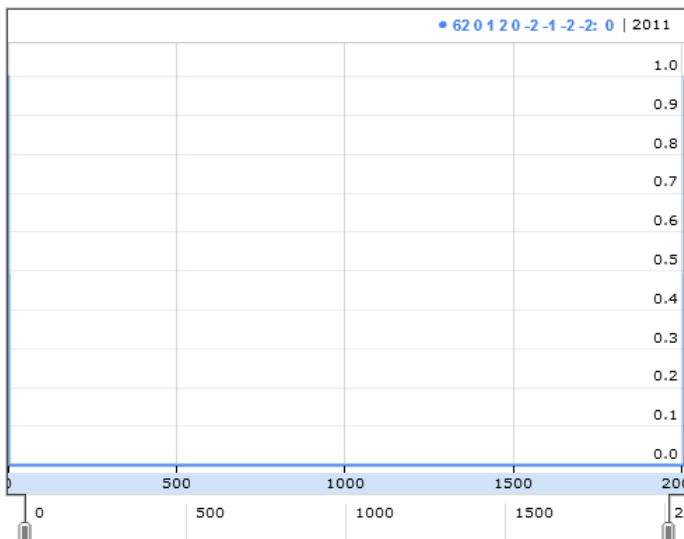
Machine readable scores e.g. www.peachnote.com

Audio Big Data
e.g. Digital Music Lab
chord visualiser
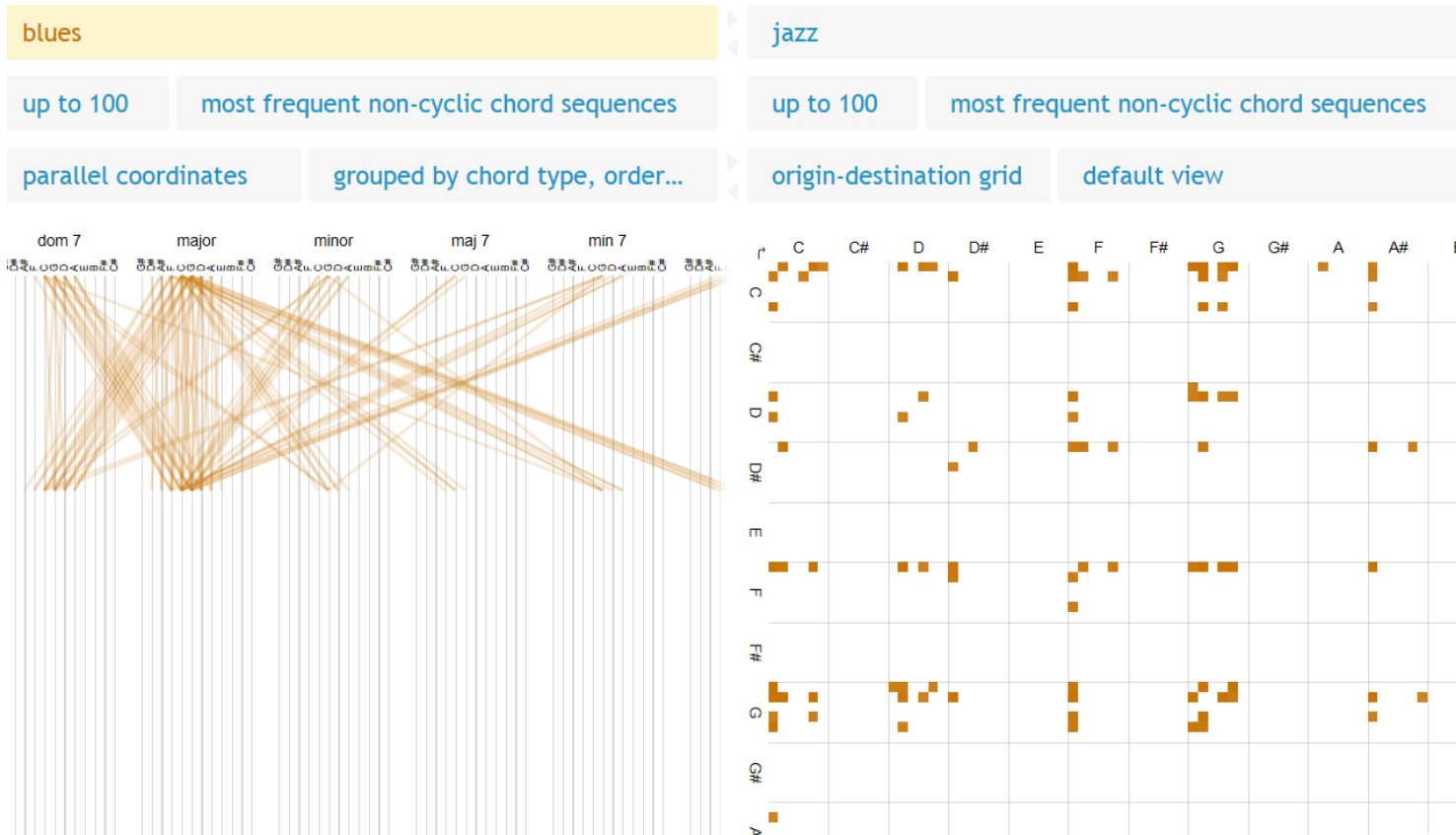
Vision for project

How can the vast amount of bibliographical data held by research libraries be unlocked for music researchers to analyse?

Can this data be interrogated in ways that challenge the traditional narratives of music history?

Aims of project

- To clean and enhance two existing bibliographical datasets

- To pilot big data research techniques on these and five other datasets

- To make the British Library datasets publicly available for download

Project datasets

- RISM A/I (*Répertoire International des Sources Musicales*) - single-composer printed editions issued before 1800), ca. 100K records. *opac.rism.info since May 2015*

- RISM B/I - printed anthologies, 1500-1700, ca. 17K records. *Not yet fully online*

- RISM A/II - music manuscripts, 1600-ca. 1850, opac.rism.info, incorporating the RISM UK catalogue of music manuscripts, ca. 900K records

- British Library catalogue of printed music, explore.bl.uk, ca. 1 million records

- British Library catalogue of manuscript music, searcharchives.bl.uk, ca. 16K records

- Augustus Hughes-Hughes: *Catalogue of Manuscript Music in the British Museum* (London, 1906-9), ca. 35K records. *Not yet online*

- Concert Programmes Database, www.concertprogrammes.org.uk, ca. 6K records

Project datasets

- British Library catalogues of printed music and manuscript music now available as CSV files for download at www.bl.uk/bibliographic/download.html

RISM volumes

RISM online catalogue

Data facets or types

Composers

Musical works

Places

Time

Subjects/genres

Printers/publishers

Data facets captured in music datasets

	Composer	Work title	Country of origin	City of origin	Creation date	Subject/ genre	Printer/ publisher
A/I	Y	some		Y	some	Y	Y
B/I	Y			Y	Y		Y
CPM	some	some	Y	Y	Y (though many are approx.)	some	some
A/II	Y	Y			Y	Y	N/A
BL MSS	Y	some			Y		N/A
H-H	Y	Y			Y	Y	N/A

Key:
A/I – RISM A/I (single-composer printed editions)
B/I – RISM B/I (printed anthologies)
CPM - British Library catalogue of printed music
A/II – RISM A/II (music manuscripts)
BL MSS – British Library catalogue of manuscripts
H-H – *Catalogue of Manuscript Music in the British Museum,* ed. A. Hughes-Hughes

MARC21 format

FMT	MU
LDR	cm a22001933 4500
001	004763607
008	850515s1783 ne ||| ||||||||||| lin	
040	|a Uk |c Uk
1001	|a Clementi, Muzio, |d 1752-1832.
24010	|a Sonatas, |m piano, |n op.9
24500	|a Trois sonates pour le forte piano ou le clavecin / |c composées par Muzio Clementi. Oeuvre IX.
260	|a À Amsterdam : |b [s.n.], |c [1783?]
300	|a 38p. ; |c fol.
336	|a notated music |2 rdacontent
337	|a unmediated |2 rdamedia
338	|a volume |2 rdacarrier
85241	|a British Library |b MUSIC |j h.319.o.(2.)
SYS	004763607

Transforming the data from MARC21 library format

Spreadsheet row

206	Birch, W. H. (William Henry), 1826-1888.				Grand triumphal march [for pianoforte], etc.		
207	Birch, W. H. (William Henry), 1826-1888.				W. H. Birch's Vocal Miscellany, a selection of choruses, glees, quartets, trios, etc.		
208	Hurlebusch, Conrad Friedrich.				De 150 Psalmen Davids, met de zelver Lofgezangen, gemaakt voor het clavier en orgel, na hunne gegron		
209	Hurlebusch, Conrad Friedrich.				De 150 Psalmen Davids, met der zelver Lofgezangen, gemaakt voor het clavier en orgel, na hunne gegro		
210					[Sji'r segala Mazmūr-Da-ūd, dan pūdji-an jang lajin, etc. (Ta'limu-'Idini-'Imesēhiji, ija itu, pang' adjaran 'a		
211	Haym, Nicola Francesco, 1678-1729.	Dodeci sonate à trè, cioè due violini,			\<Violino primo. - Violino secondo.\> [Parts.]		
212	Mozart, Wolfgang Amadeus, 1756-1791.	Zauberflöte.			\<Zweyter Theil.\>.		
213	Mozart, Wolfgang Amadeus, 1756-1791.	Zauberflöte.			Die Zauberflöte. \<Zweyter Theil\>.		
214	Mozart, Wolfgang Amadeus, 1756-1791.	Zauberflöte.			Ouverture fürs Clavier oder Piano forte.		
215	Locatelli, Pietro Antonio, 1695-1764.	Concertos,		op.1.	[XII concerti grossi a quattro, e a cinque ... opera prima ...].		
216	Clementi, Muzio, 1752-1832.	Sonatas,	piano,	op.9	Trois sonates pour le forte piano ou le clavecin /	composées par Muzio Clementi. Oeuvre IX.	
217	Kywtok, B. I. W.				God save the King in VIII easy variations for the piano f composed by B.I.W. Kywtok.		
218	Scaccia, Angelo Maria.				Concerti con Violino Obligato, due Violini, Alto Viola e Basso Continuo. Opera Prima. [Parts.]		
219	Valentini, Giuseppe.				x concerti a violino primo, secondo e basso concertino, e violini primo e secondo concerto grosso, viole		
220	Mossi, Giovanni.				Concerto xiio a Quatro Violini e Violoncello Obligati. [Parts.]		
221	Jozzi, Giuseppe, approximately 1710-approximately 1770.				VIII sonate per cembalo, ppera prima /	da Giuseppe Jozzi.	
222	Simono, D.				Recueil Nouveau d'Airs, Menuets, Contredanses, Gavottes & Gigues, de Differens Autheurs, Italiens, Fr		
223	Schmid, J. B.				vi. Sonates de Clavecin, avec Accompagnement ad libitum de deux Violons et Basse Continue, etc. [Par		
224	Collasse, Pascal, 1649-1709.	Thetis et Pelée			Les Airs de la Tragedie de Thetis et Pelée.		
225	Hol, Rijk, 1825-1904.				Ontwaking. Lied voor eene Zangstem met Klavierbegeleiding. Woorden van J. A. Bakker. Op. 78.		
226	Schuurman, F. H.				Aan het Vaderland. Gedicht van L. Uhland, vertaald door B. van Meurs. Lied voor Tenor met Piano. Op. 2		
227					De cl Psalmen Des Propheten Davids ... overgeset Door Petrum Dathenum; En ... op eenen Sleutel geste		

Sheet1

Ready

Transforming the data from MARC21 library format

MARCedit tool used to transform library catalogue records into TSV files

http://marcedit.reeset.net/
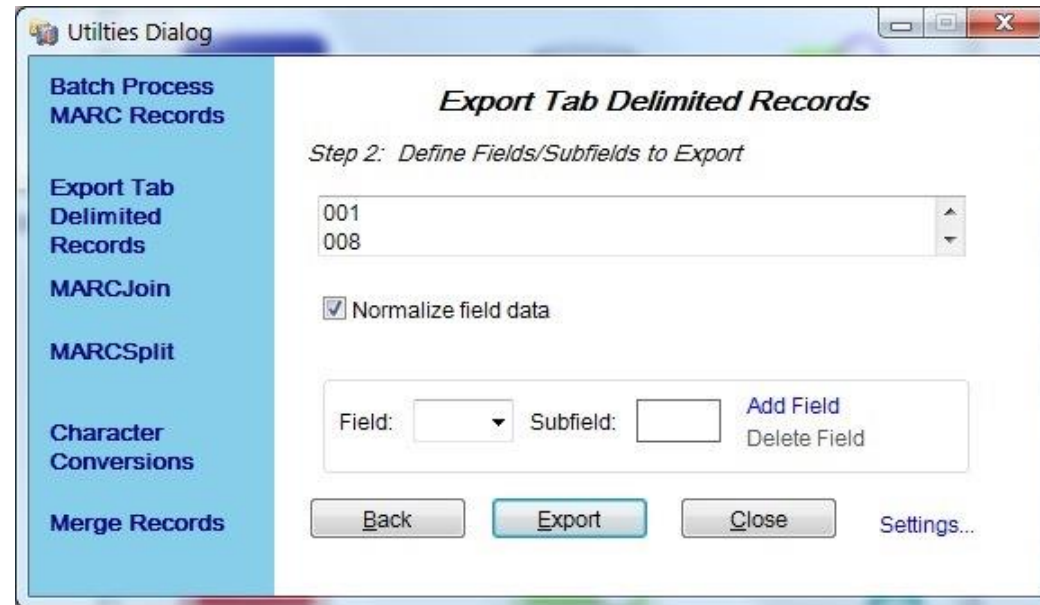
Library data diversity: date information

- [WM 1825]

- [ca. 1825]

- [1825?]

- [1825]

- 1825

- [1825-1830]

- [before 1825]

- [after 1825]

- [between 1825 and 1830]

Row Labels	Count of Dates
1825	1
[1825?]	1
[1825]	1
[1825-1830]	1
[after 1825]	1
[before 1825]	1
[between 1825 and 1830]	1
[ca. 1825]	1
[WM 1825]	1
Grand Total	**9**

Data preparation

Date	Date	Date	Date
[WM 1825]	1825	1820s	19th century
[ca. 1825]	1825	1820s	19th century
[1825?]	1825	1820s	19th century
[1825]	1825	1820s	19th century
1825	1825	1820s	19th century
[1825-1830]		1820s	19th century
[before 1825]			19th century
[after 1825]			19th century
[between 1825 and 1830]		1820s	19th century

Data preparation

Date	Date	Date	Date
[WM 1825]	1825	1820s	19th century
[ca. 1825]	1825	1820s	19th century
[1825?]	1825	1820s	19th century
[1825]	1825	1820s	19th century
1825	1825	1820s	19th century
[1825-1830]		1820s	19th century
[before 1825]			19th century
[after 1825]			19th century
[between 1825 and 1830]		1820s	19th century

Row Labels	Count of Dates
1825	5
Grand Total	5

Row Labels	Count of Dates
1820s	7
Grand Total	7

Row Labels	Count of Dates
19th century	9
Grand Total	9

Open Refine
(http://openrefine.org/)

Google™ Custom Search

Search ✕

A free, open source, powerful tool for working with messy data

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Documentation

Community

Post archive

Mapping OpenRefine
Ecosystem

2014 survey results

Welcome!

OpenRefine (formerly Google Refine) is a powerful tool for working with messy data: cleaning it; transforming it from one format into another; extending it with web services; and linking it to databases like Freebase.

Please note that since October 2nd, 2012, Google is not actively supporting this project, which has now been rebranded to OpenRefine. Project development, documentation and promotion is now fully supported by volunteers. Find out more about the history of OpenRefine and how you can help the community.

Using OpenRefine - The Book

Using OpenRefine, by Ruben Verborgh and Max De Wilde, offers a great introduction to OpenRefine. Organized by recipes with hands on examples, the book covers the following topics:

Open Refine
(http://openrefine.org/)

Handel publications by date, as assigned in British Library catalogue
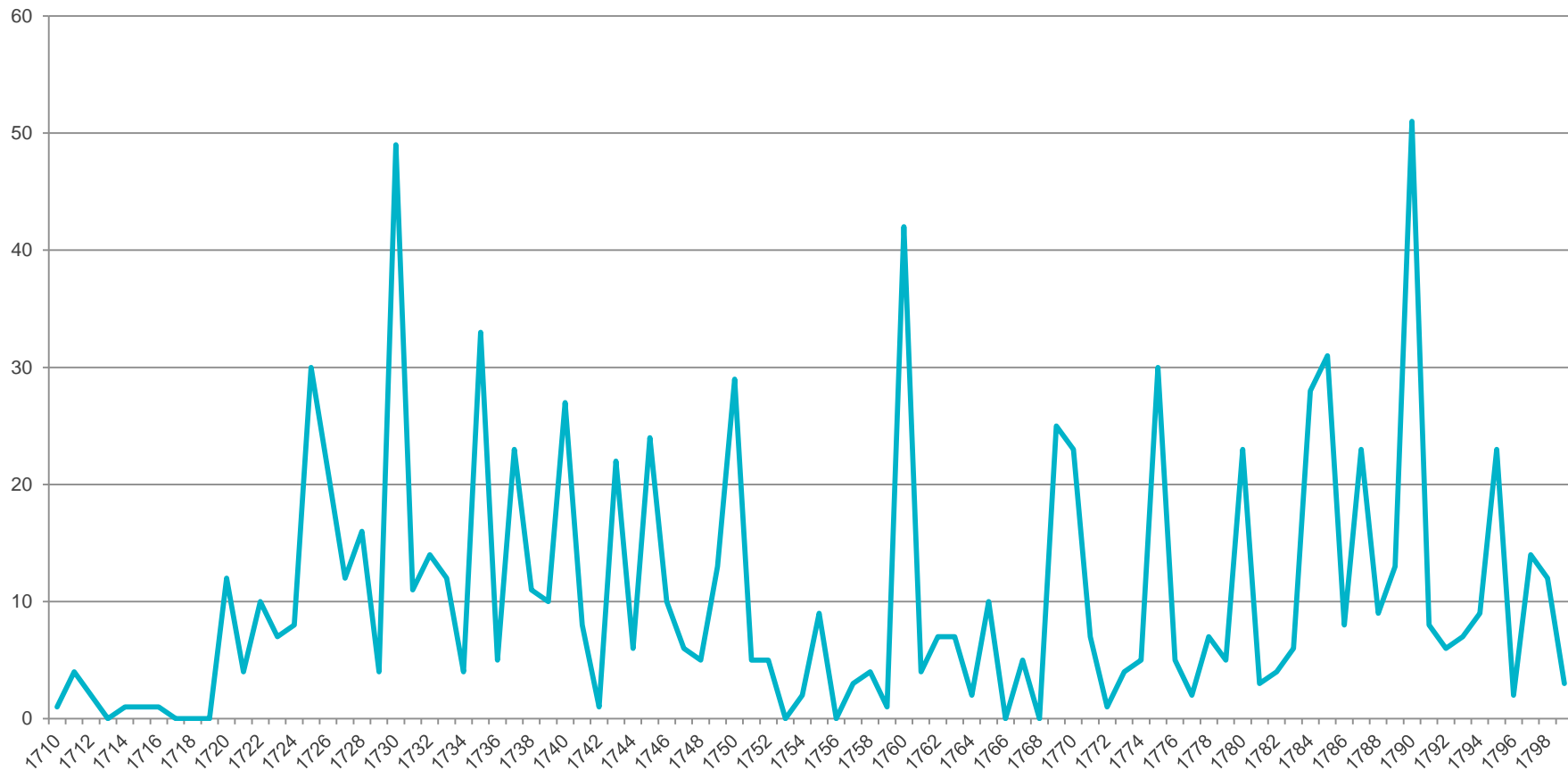
The rise and fall of music printing, 1500-1700

RISM A/I and B/I data
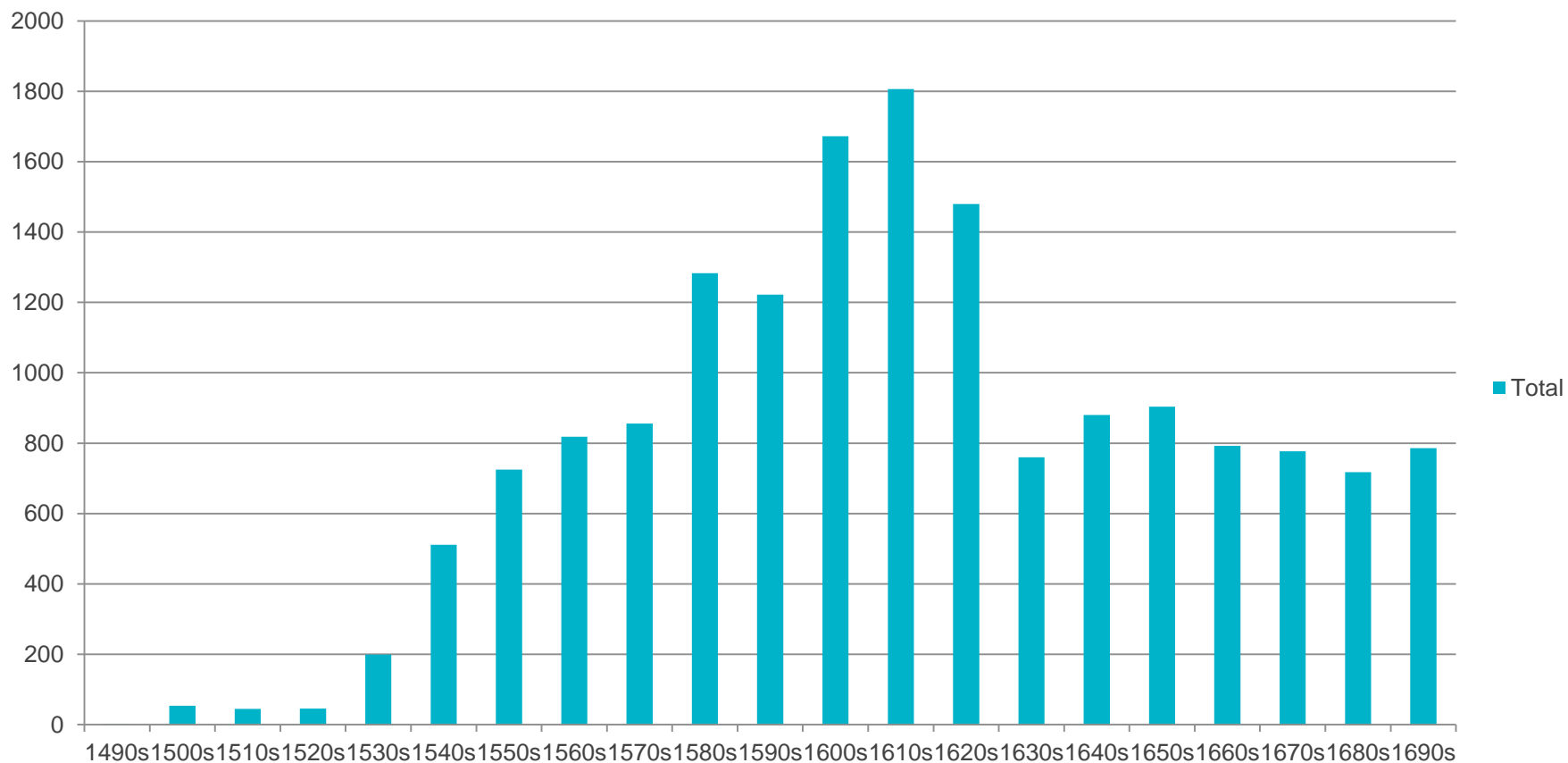
Single-composer prints (RISM A/I) versus anthologies (RISM B/I), 1500-1700
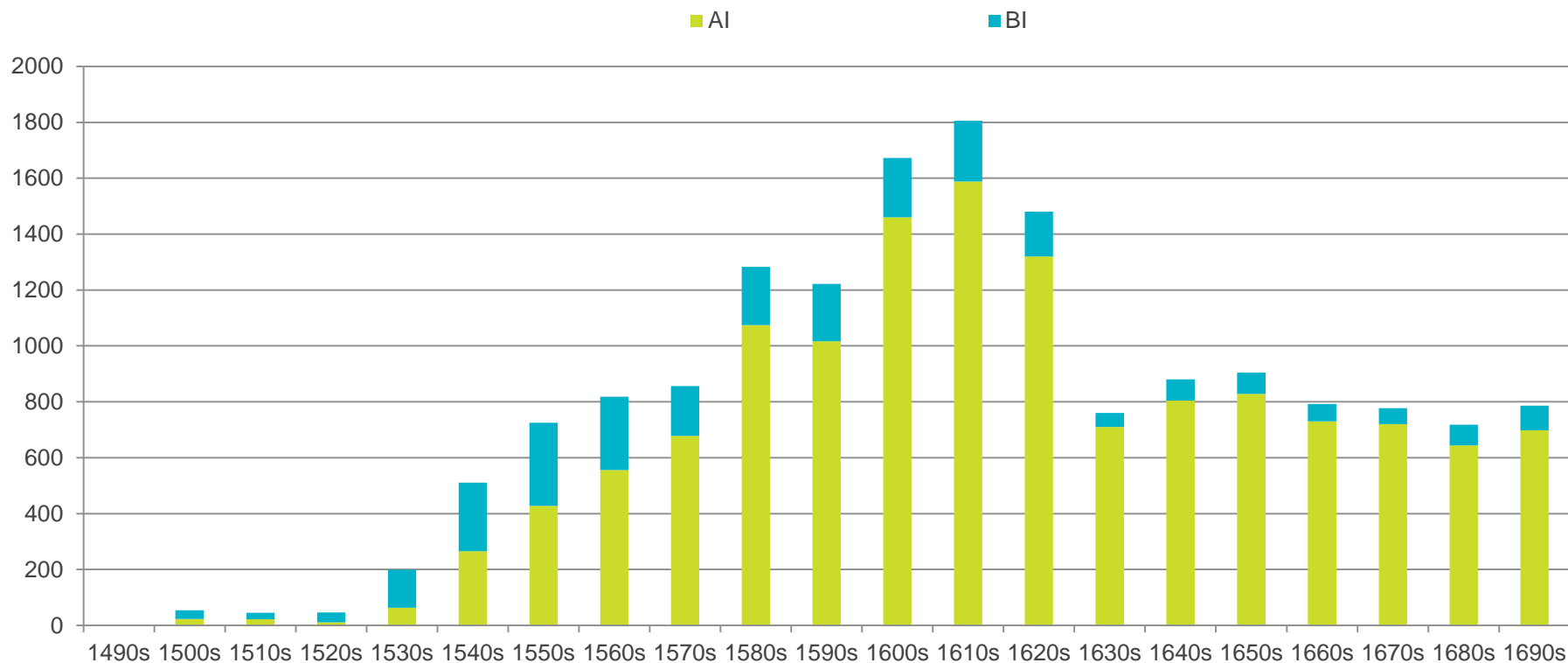
Petrucci anthologies

Harmonice musices Odhecaton [Canti A] (Venice, 1501)
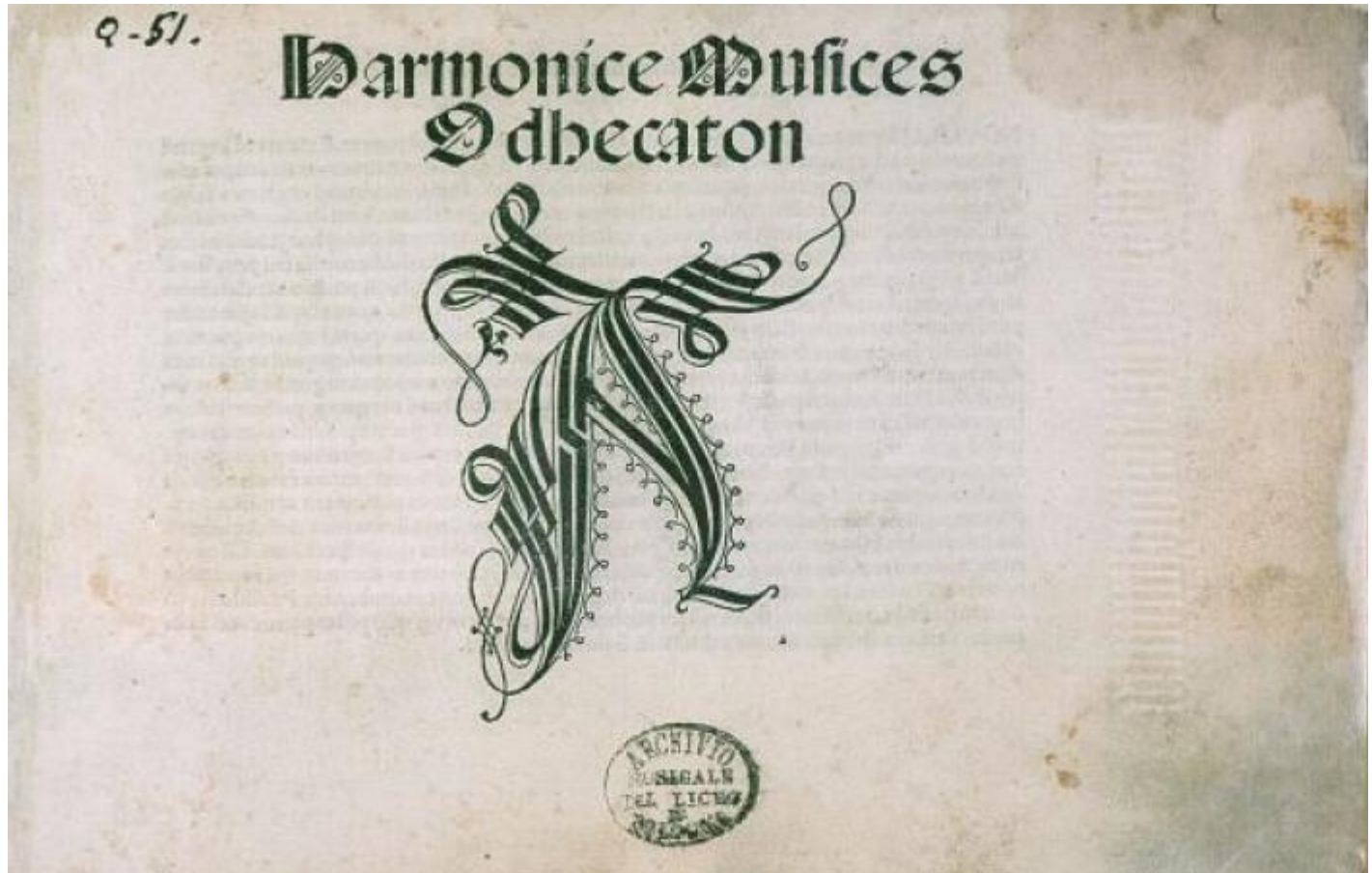
Monumentalising the composer

Lassus, *Magnum opus musicum*, Munich 1604

Music printing by year, 1500-1649

RISM A/I and B/I data
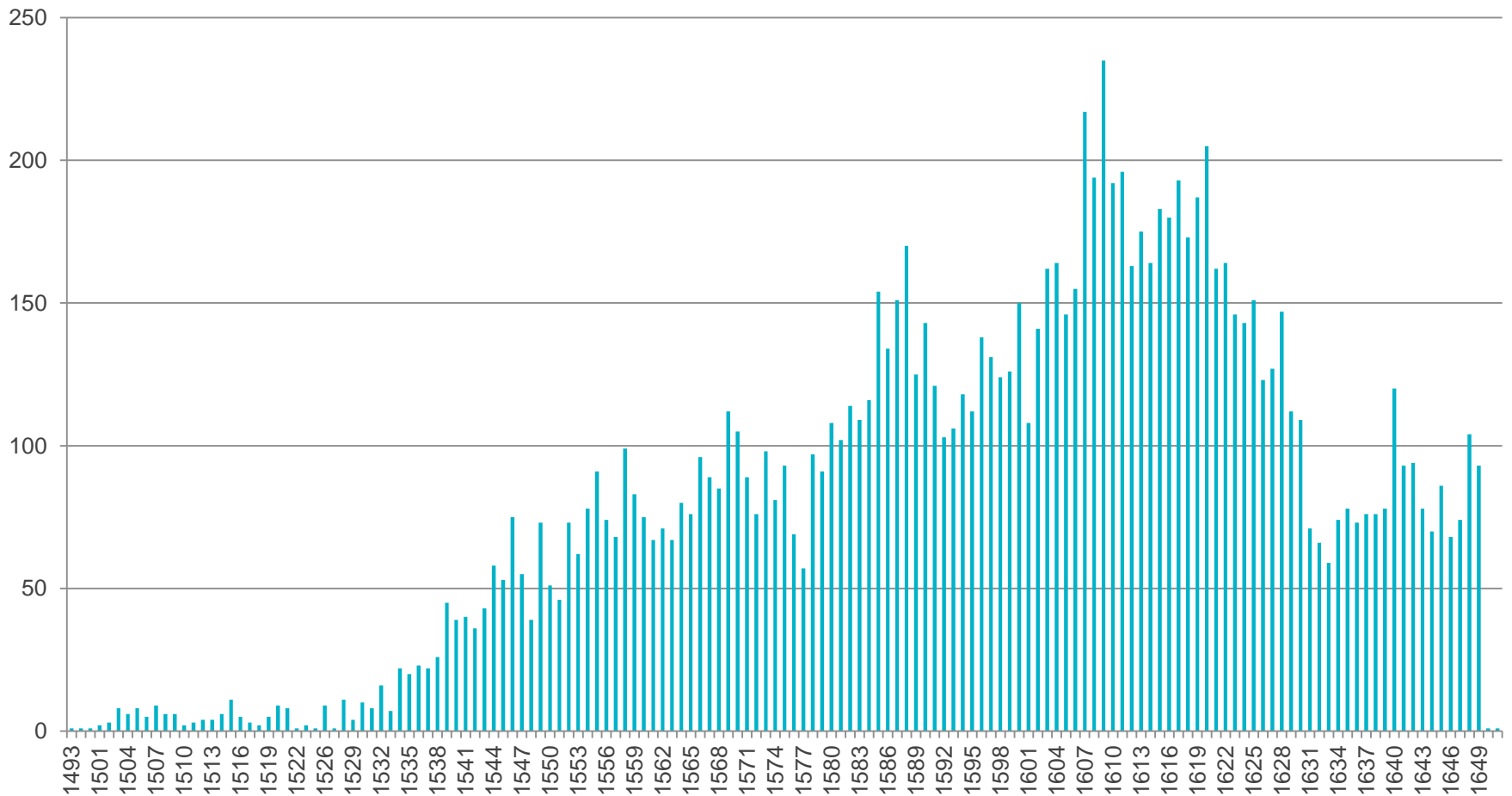
Music printed in major centres, 1500-1649

Legend: Venice, Rome, Paris, Nuremberg, London, Antwerp
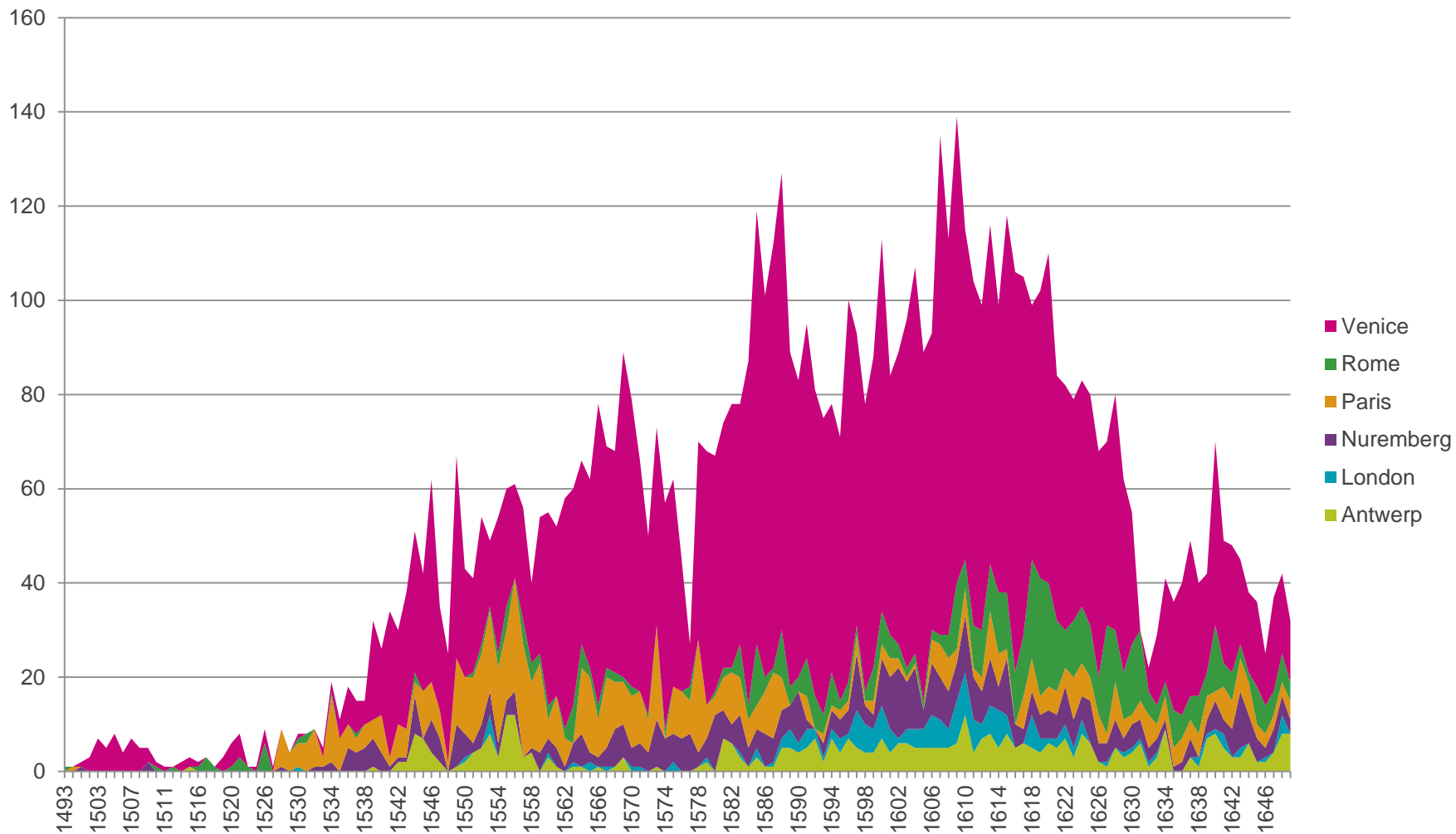
Battle of Lepanto, 1571

Plague, 1576/7
(including Titian's funeral)

Il primo libro delle Napolitane à tre voci, Giosef Policretto, & altri eccellentissimi musici (Venice, 1571)
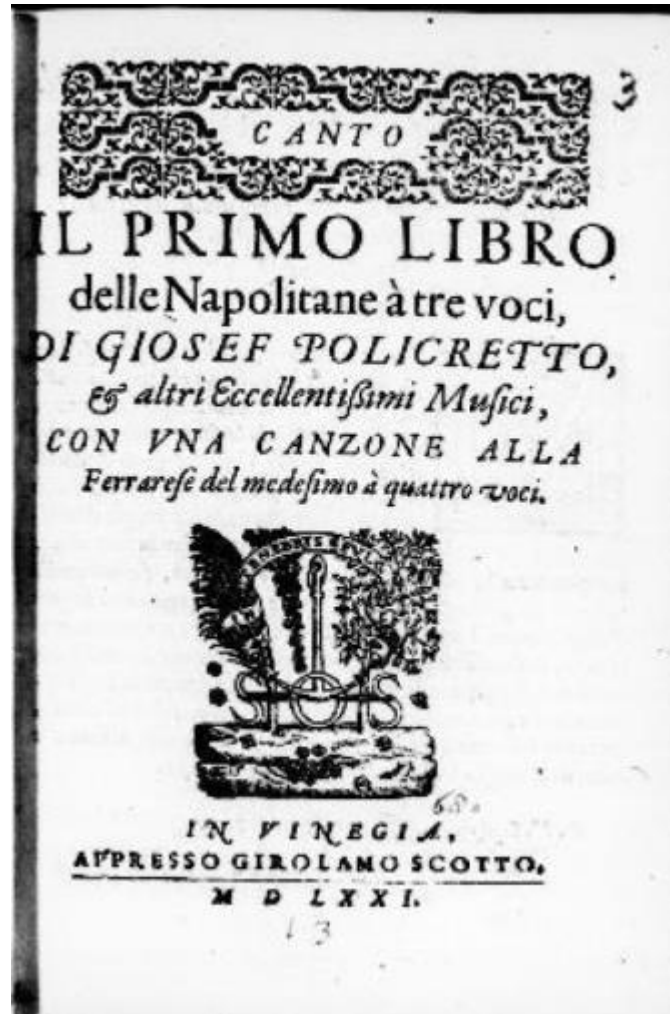
Lifespan of early modern industries

'the typical pattern of a sharp rise followed by an abrupt fall can very easily be imagined as the probable profile in the pre-industrial economy'

(Fernand Braudel, *Civilization and capitalism: the wheels of commerce*, trsl. London 1982)

Main music-printing centres, 1570s
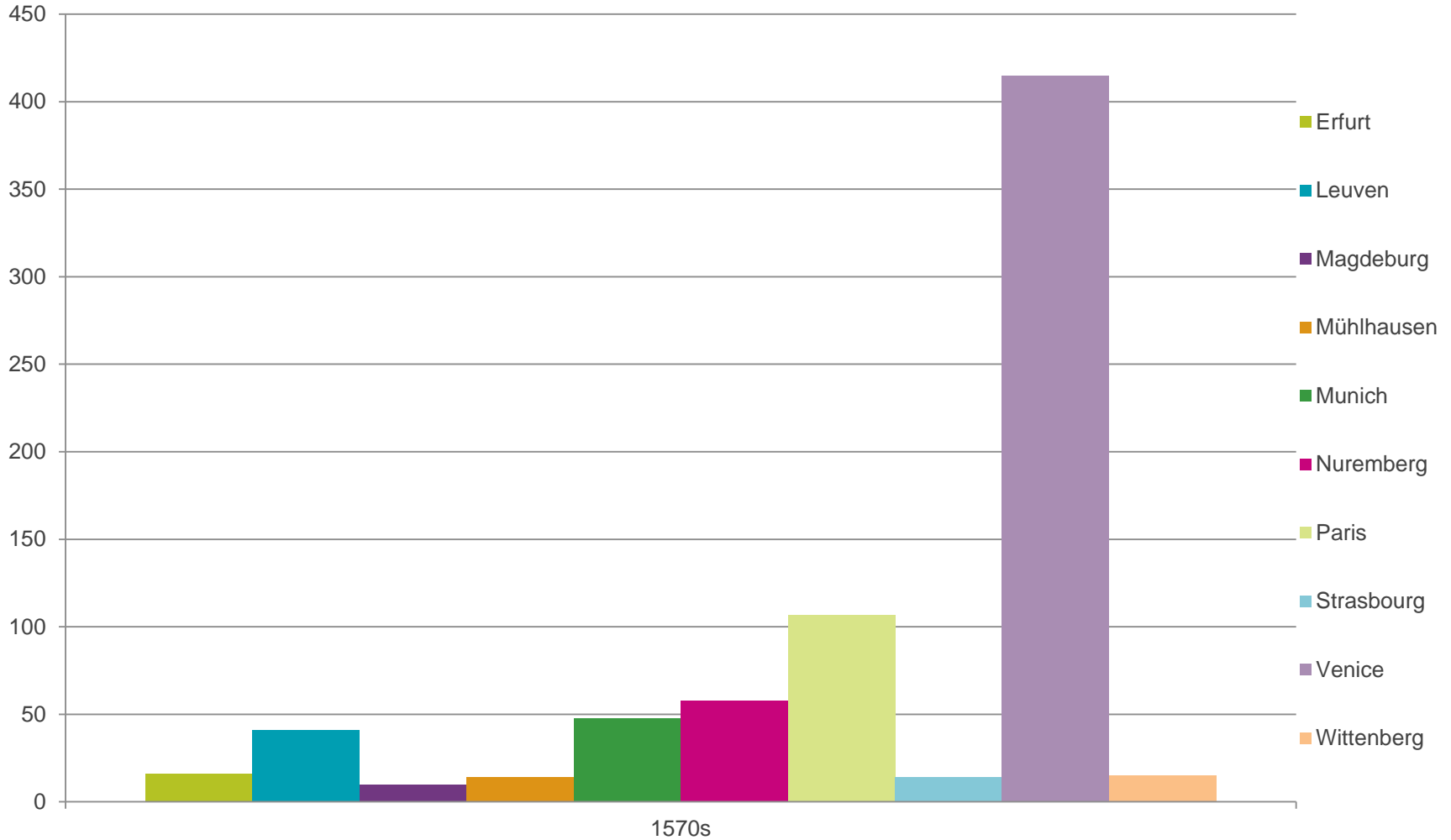
All music-printing centres, 1570s
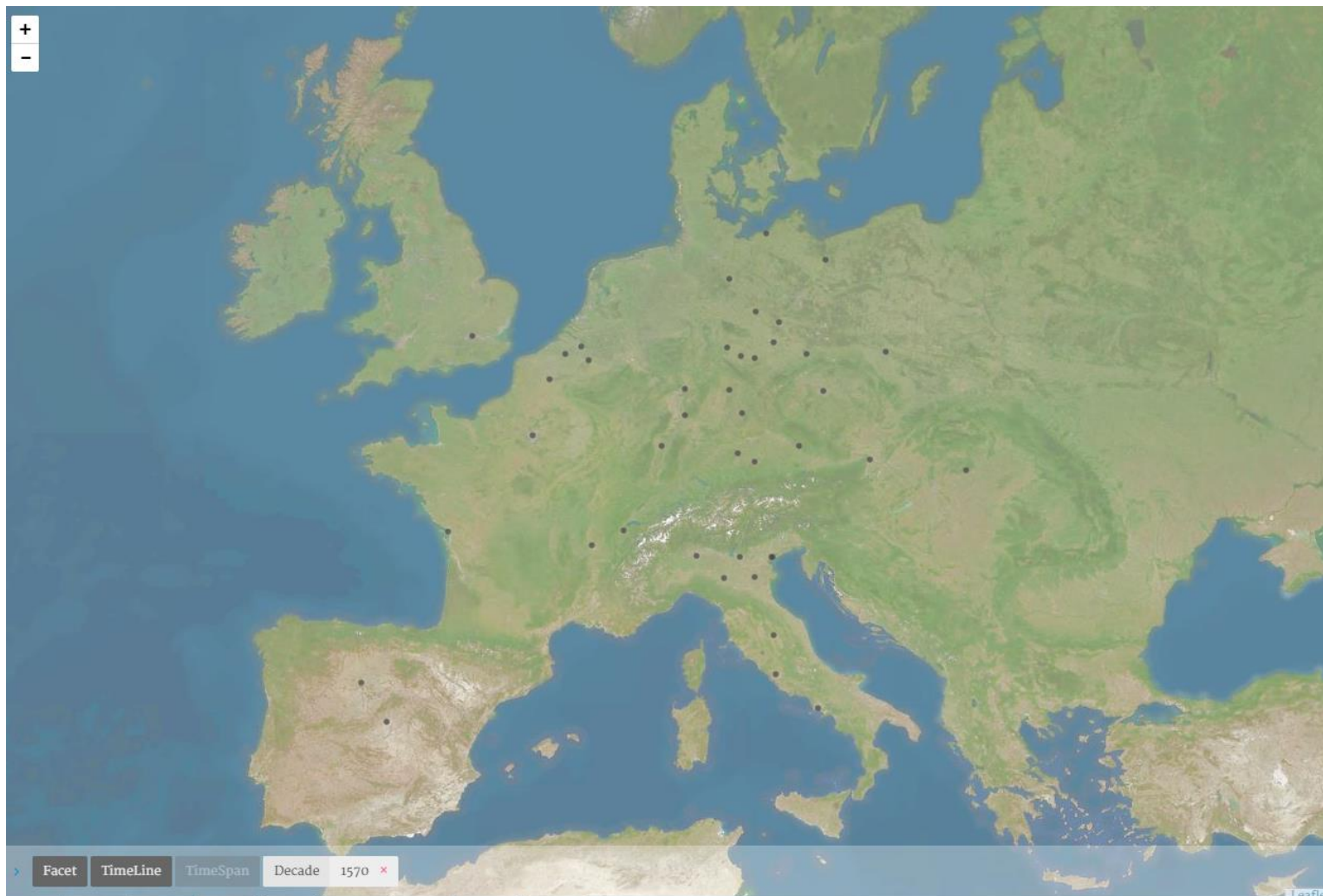
All music-printing centres, 1640s
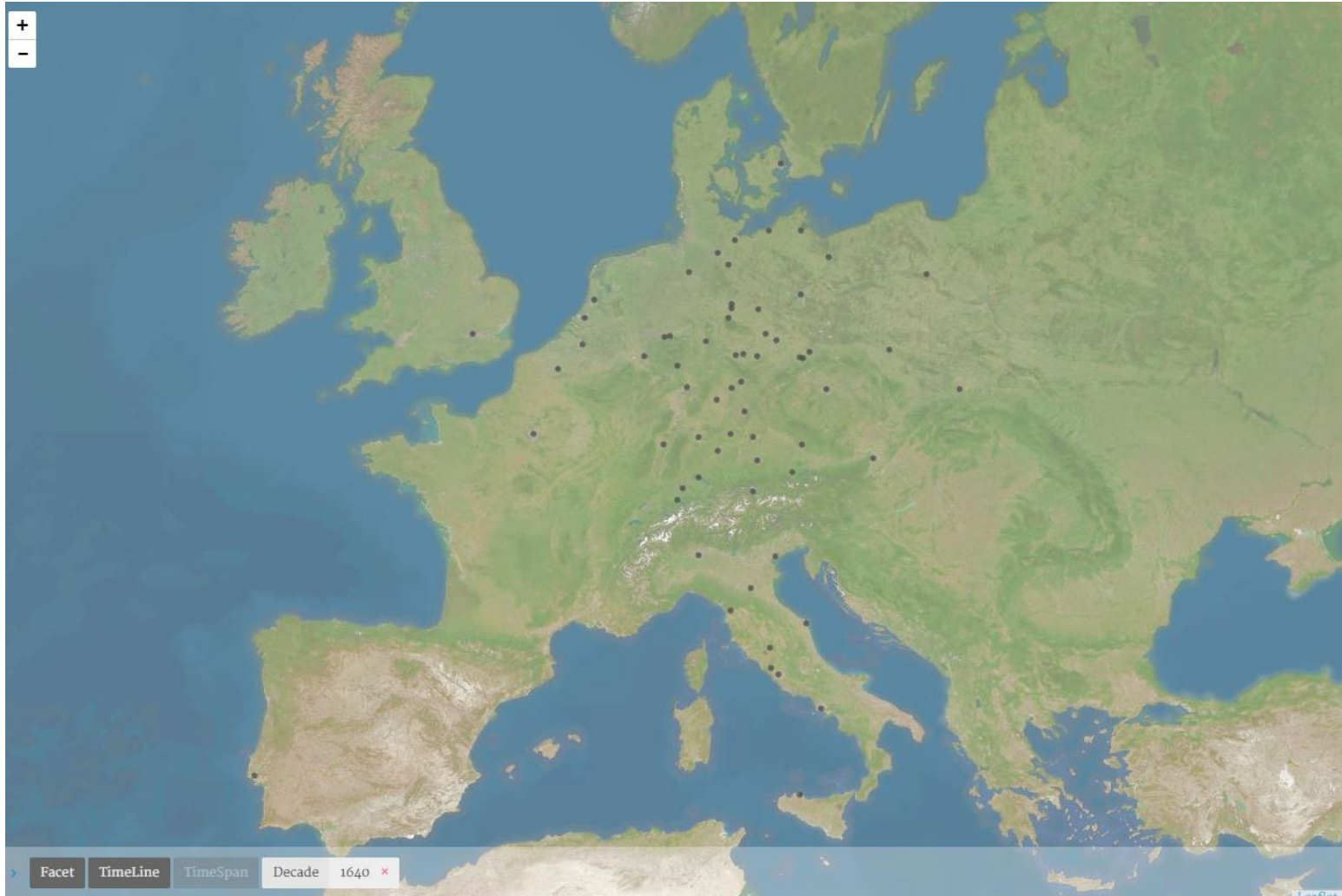
Main music-printing centres, 1690s
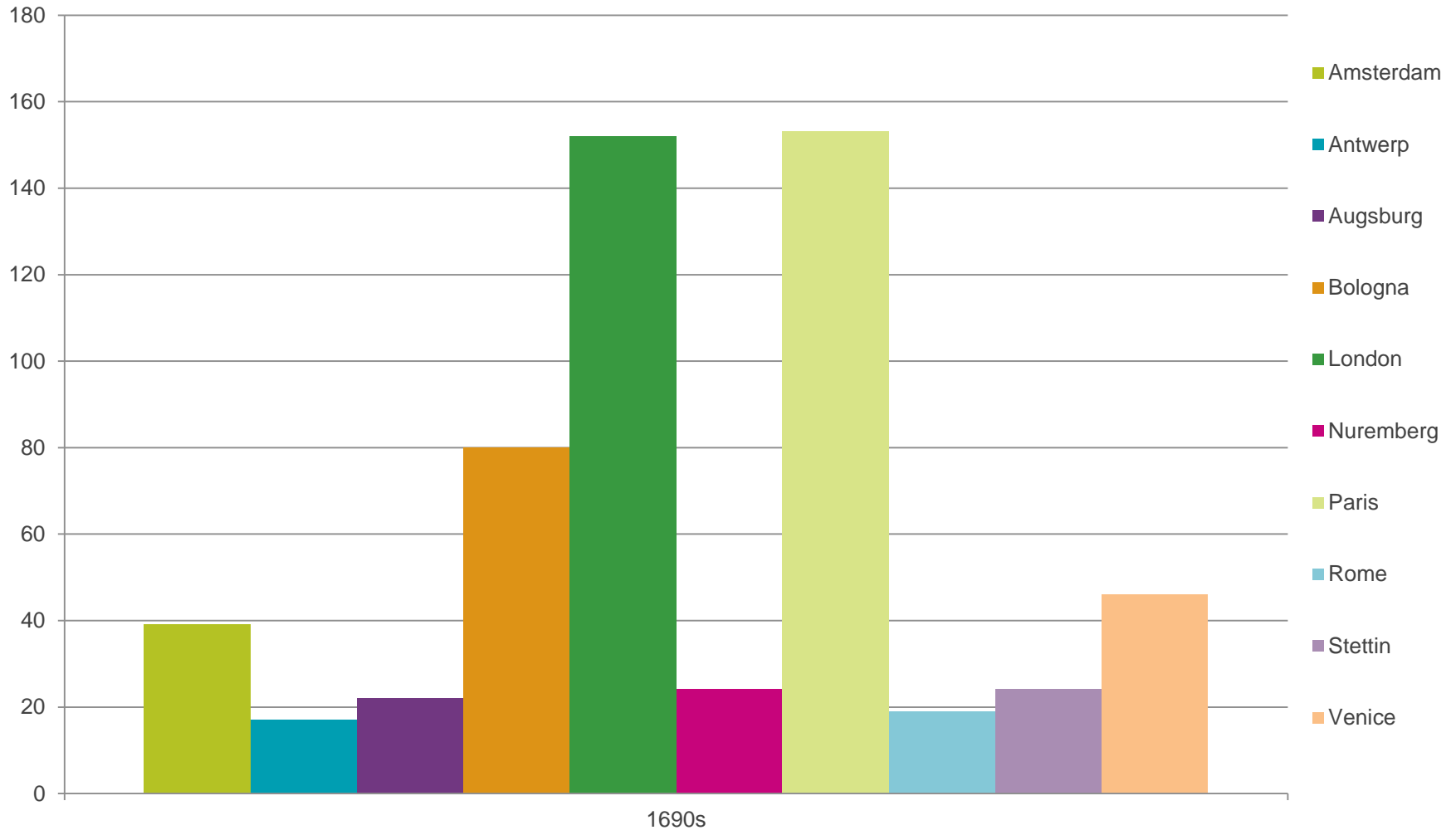
Composer case-study:

Palestrina

Palestrina presenting his music to Pope Julius III. *Liber primus missarum* (Rome, 1554)

Palestrina: places & dates published
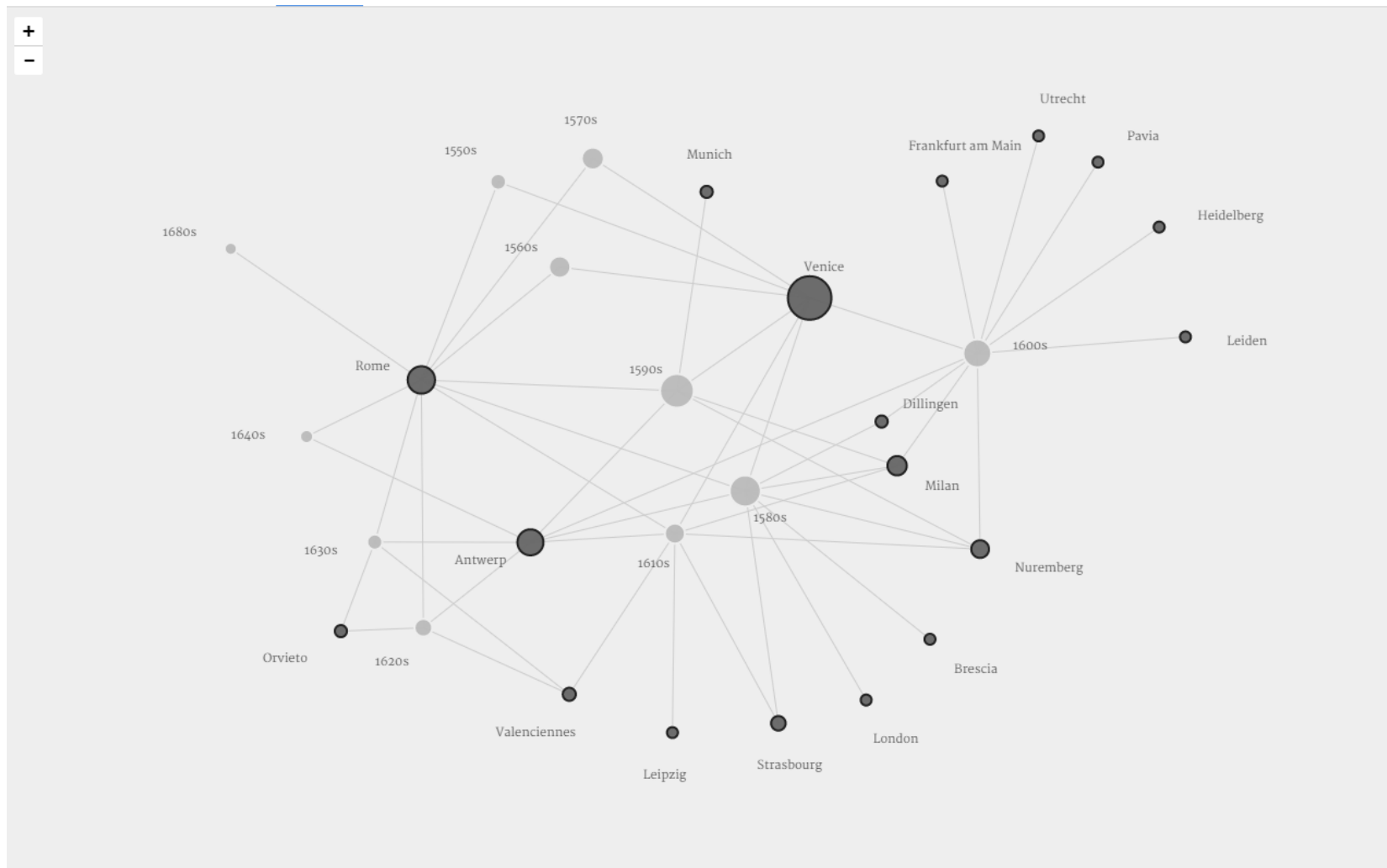
The myth of
Palestrina as saviour of polyphony

Music would have come very near to being banished from the Holy Church by a sovereign pontiff had not Giovanni Palestrina found the remedy, showing that the fault and error lay, not with music, but with the composers, and composing in confirmation of this the Mass entitled *Missa Papae Marcelli*

Agazzari, 1607

Palestrina: genres and places
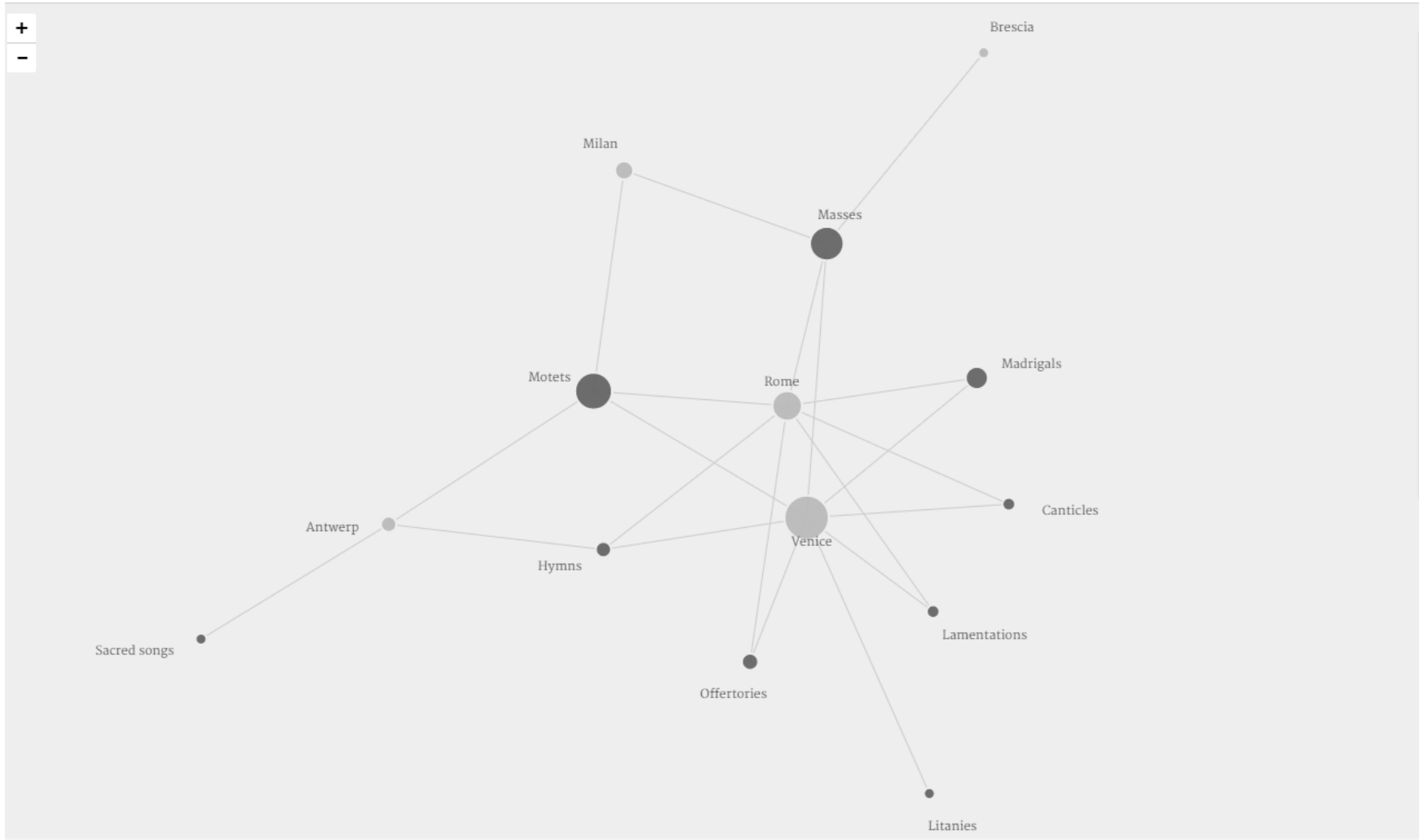
Palestrina: places & dates published
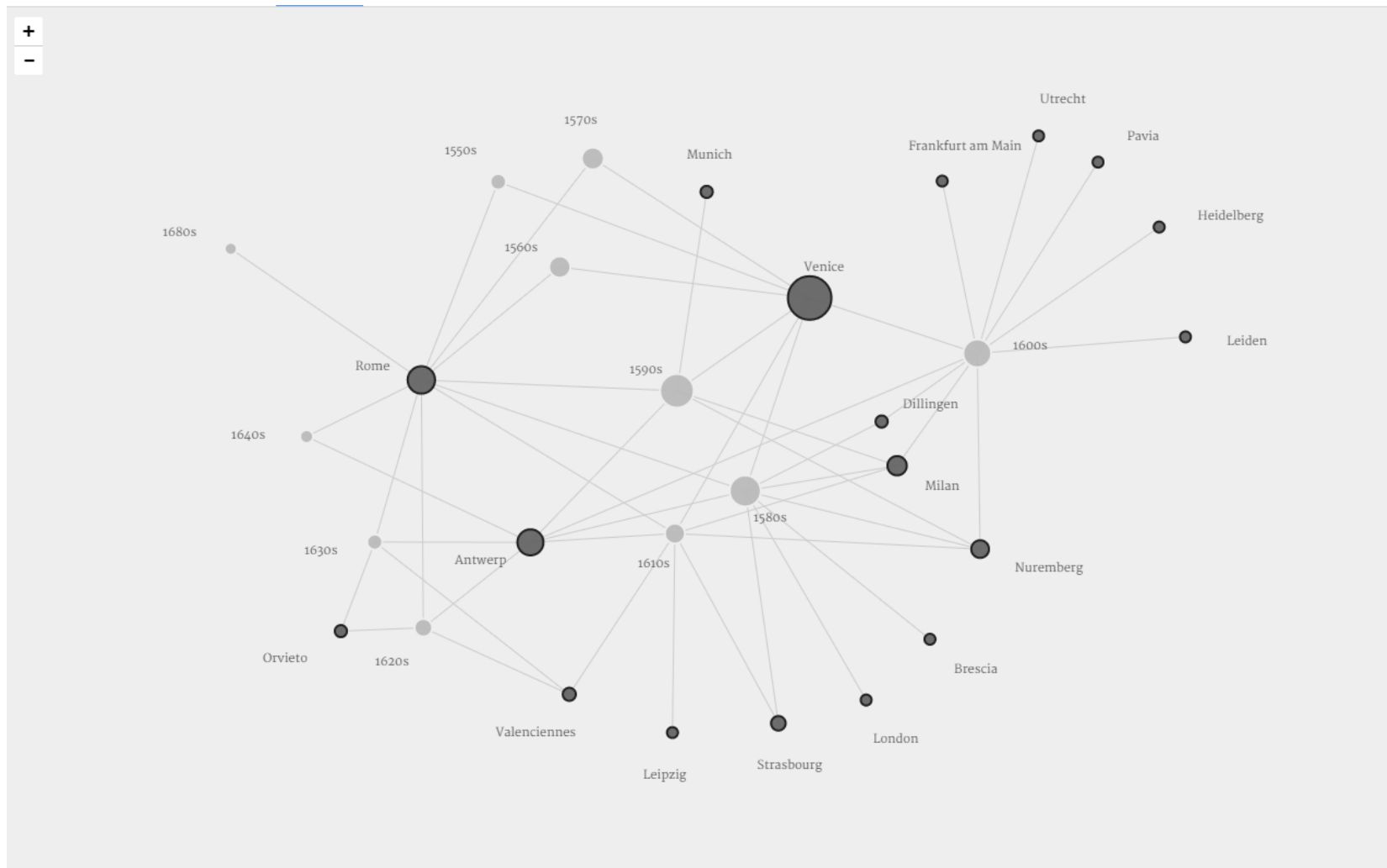
Palestrina's madrigal 'Vestiva i colli' Englished in *Musica transalpina* (London, 1588)

Palestrina manuscripts

The cult of Palestrina

GRADUS
AD
PARNASSUM,
Sive
MANUDUCTIO
AD
COMPOSITIONEM MUSICÆ
REGULAREM,
Methodo novâ, ac certâ, nondum antè tam exacto ordine in lucem edita :

Elaborata à
JOANNE JOSEPHO FUX,
Sacræ Cæfareæ, ac Regiæ Catholicæ Majestatis CAROLI VI. Romanorum Imperatoris
SUPREMO CHORI PRÆFECTO.

VIENNÆ AUSTRIÆ,
Typis Joannis Petri Van Ghelen , Sac. Cæf. Regiæque Catholicæ Majestatis Aulæ-Typographi , 1725.
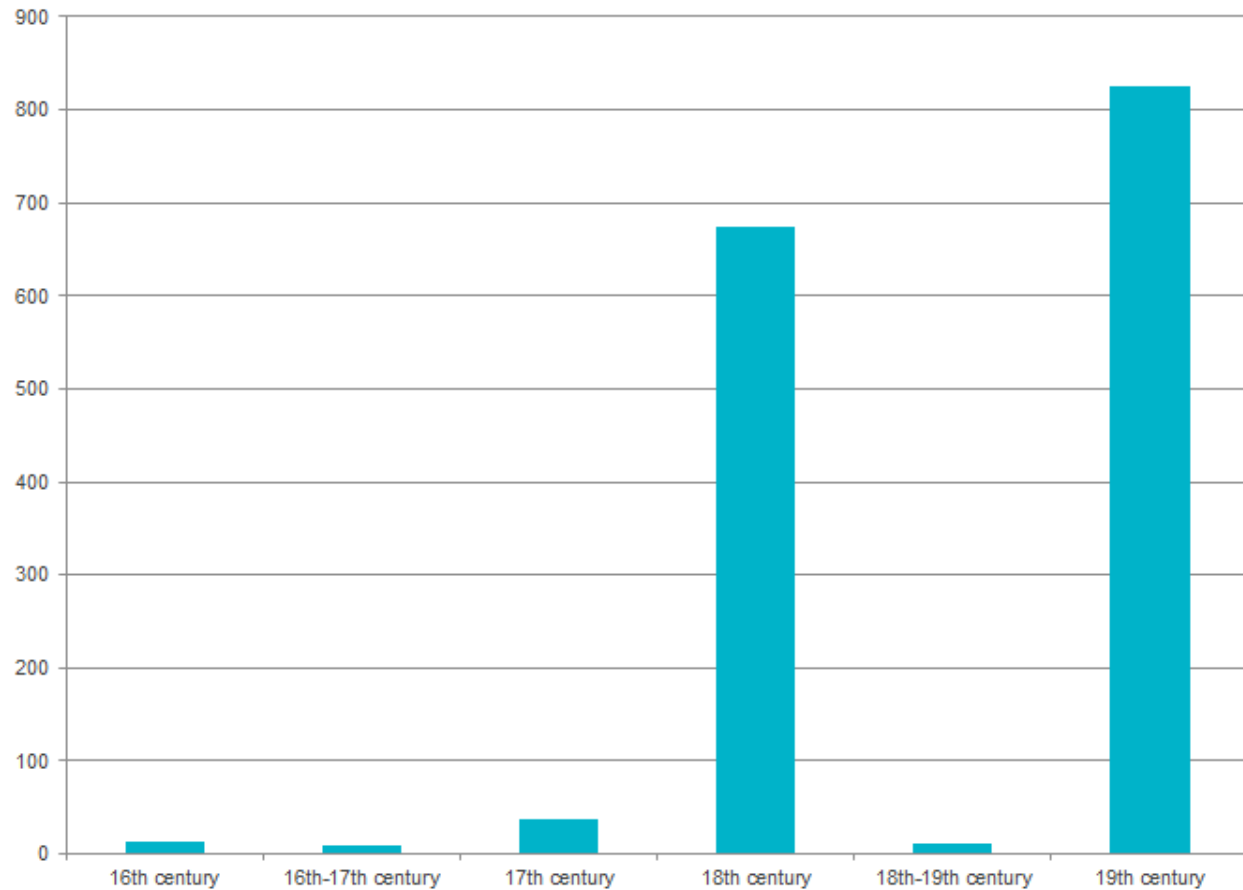
'By *Aloysius*, the master, I refer to Palestrina, the celebrated light of music…to whom I owe everything that I know of this art, and whose memory I shall never cease to cherish with a feeling of deepest reverence'

Fux, *Gradus ad parnassum* (Vienna, 1725)

The rise of 'Scottish' music
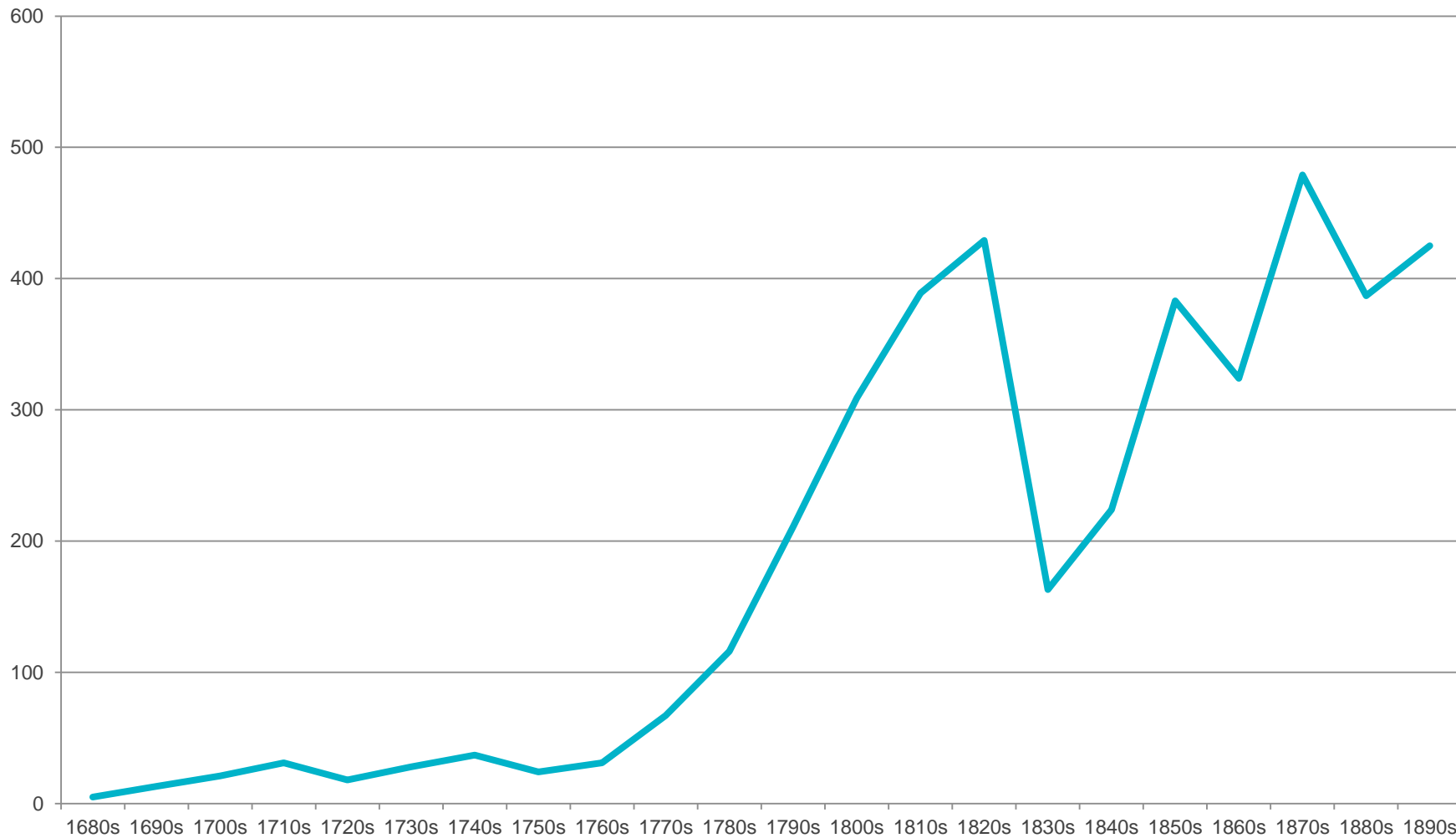
Pretty KATE of Edenborough: BEING A New Scotch Song, Sung to the King at WINDSOR.

A New Scotch Song sung to the King at Windsor, c.1685
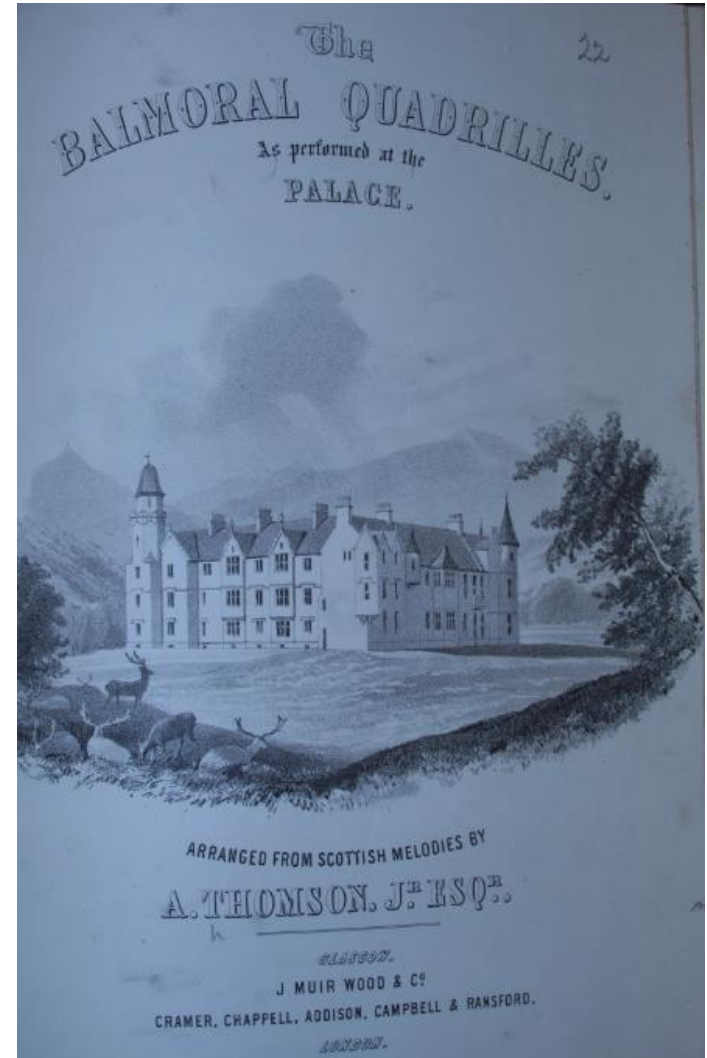
Address to the Sun from … Ossian, c.1783

Queen Victoria's visits from 1842
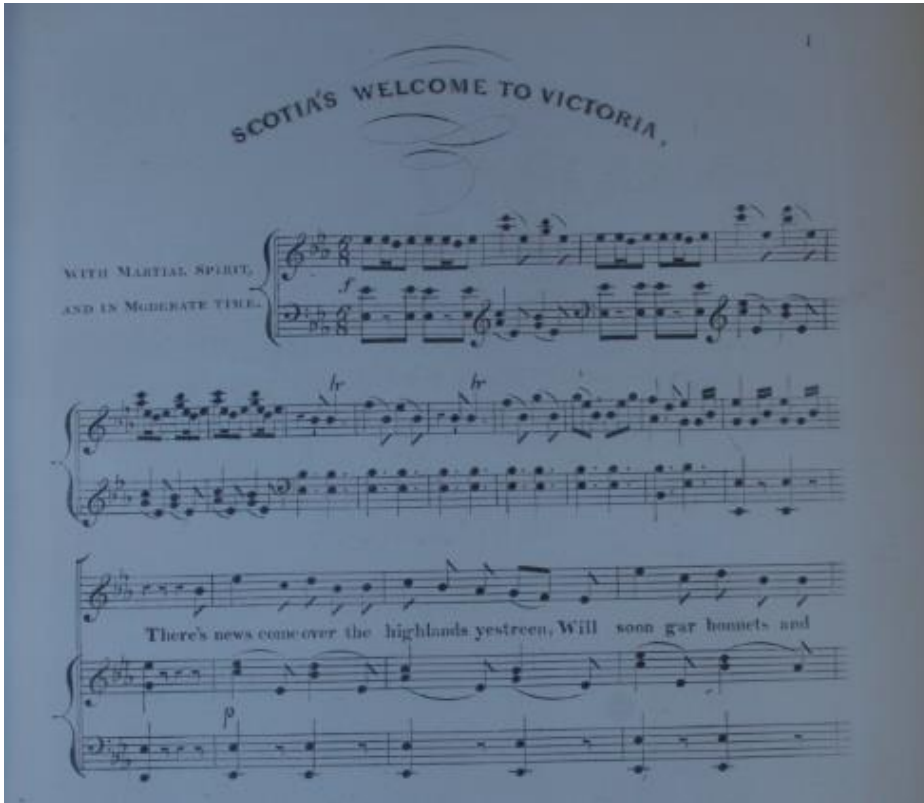
'Scotia's welcome to Victoria', arr. Henry Bishop c.1842

The Balmoral Quadrilles c.1850

Download data from
www.bl.uk/bibliographic/download.html

Contact
stephen.rose@rhul.ac.uk
sandra.tuppen@bl.uk