

III.1 Assembling Metadata

Dirk van Miert and Elizabethanne Boran

With contributions from Gábor Almási, Ivan Boserup, Clizia Carminati, Per Cullhed, Antonio Dávila Pérez, Vittoria Feola, Andreas Fingernagel, Ad Leerintveld, Gerhard Müller, Alexa Renggli, Patryk Sapala, Justine Walden, and Axel E. Walter

1 Introduction

The most basic precondition for collaborative scholarship on learned correspondence is to assemble relevant data scattered in innumerable places across and beyond Europe. This complex task is rendered more difficult by the fact that the sources of such data can be distinguished in several different ways. One such distinction relates to the *media* in which letters are preserved: some letters are preserved in print, others in manuscript. Another distinction relates to the state of the catalogue *records*. Some collections of correspondence are thoroughly catalogued at the item level: in such cases, individual letters are listed separately, whether those letters are published in a printed volume or preserved in manuscript. In other cases, the only available catalogue records describe collections of letters rather than individual items: on the one hand, basic bibliographical data relate to whole collections of printed letters; on the other, collection-level descriptions relate to entire folders or boxes of manuscript letters. The limiting case is collections of manuscript materials which include letters but have yet to be catalogued at all.

This chapter will explore some of the systems and processes needed to assemble epistolary metadata in all of these forms on a large scale. Since published letter collections are better catalogued, more accessible, and easier to work with than manuscript collections, these printed materials are handled first. Since the first stage in the process of collecting a census of printed letters is to collect bibliographical data on printed letter collections, the assembling of collection-level descriptions naturally precedes the extraction from them of item-level records. Prior to either stage, however, a brief consideration of the history and nature of printed letter collections is in order. A similar order of exposition will then be followed in dealing with the more troublesome problem of manuscript letter collections. The question of how individual letter records can be reduced to the same format and reconciled with other data will be postponed to the next chapter.

2 Letters in Print

2.1 Printed Letter Collections: The History and Hazards of a Textual Genre

Publishing one's own letters was already a customary procedure in Ancient Rome: Cicero and Pliny the Younger carefully selected and prepared some of their letters for public dissemination. Ever since Cicero's *Epistolae ad Atticum* were rediscovered by Petrarch (1304–1374) in 1345, humanists sought to emulate their ancient forebears by collecting their own letters in volumes of correspondence. The discovery stimulated Petrarch to make a selection of his own letters and to publish them after a process of thorough re-editing. The humanist Pietro Bembo (1470–1547) did the same thing a generation later, and the Renaissance movement as a whole spread such activity across Europe.¹ The arrival of the printing press ensured that this tributary of manuscript correspondence would be transformed into an ocean of readily available letter models throughout Europe. The proliferation of letter collections in Renaissance Europe undoubtedly held implications both for early modern letter writing and for how collections were created. As Cecil H. Clough observes, 'A letter collection was seen by the humanist of the Renaissance as a literary work in its own right'.² This reminds us that early modern letter collections should be treated warily: whether preserved in manuscript or in print, a 'letter collection' may have undergone a variety of different kinds of editorial intervention in the early modern period.

¹ Cecil H. Clough, 'The Cult of Antiquity: Letters and Letter Collections,' in Cecil H. Clough, ed., *Cultural Aspects of the Italian Renaissance. Essays in Honour of Paul Oskar Kristeller* (New York: Zambelli, 1976), 33–67.

² *Ibid.*, 35.

In the first place, the principal correspondent himself, in collecting his own correspondence for posterity with an eye to publication, was often tempted to weed out material he deemed unsuitable for inclusion. A prime example is the policy of the learned archbishop of Armagh, James Ussher (1581–1656), who excluded from his archive letters from family members, projecting instead an emphasis on his official role.³ A further phase of selection is evident in Ussher's seventeenth-century editor, Richard Parr (1616/17–1691), who included in his work on Ussher's life and letters not only letters by and to Ussher, but also letters which were, at best, only tangentially connected with him.⁴ Further varieties abound. Some editors, early modern and modern, included epistles dedicatory, while others did not.⁵ Equally, fictitious letters might be included alongside genuine epistles, since 'letter collections' in manuscript and printed form did not necessarily imply a collection of correspondence actually sent, but often harked back to the *ars dictaminis*, the medieval treatises on the art of letter writing, by including letters written as models for emulation rather than for sending. Printed letter collections (known as 'epistolaries') also collected a variety of material: edited collections were not always devoted to one scholar but sometimes included an anthology of letters and other sources by many different hands.⁶ The ready market for printed epistolaries ensured that scholars increasingly kept manuscript archives of their correspondence. As a result, the archive of early modern correspondence available in both manuscript and printed form is vast and is not limited to Latin sources. Vernacular letter books became increasingly common and were used not only by scholars but also by ambassadors, merchants, and, increasingly, anyone who could write. In short, whether dealing with manuscript collections or printed letter collections, scholars must be alert to a range of possibilities: are the documents that have been preserved undoctored autographs, silently censored manuscript copies, letters never actually dispatched, or perhaps even purely literary compositions never intended for sending?

More surprising is another form of exclusion which reflects the origin of the epistolary as a Renaissance literary genre: most letter collections published before the late seventeenth century contain only the letters written by the principal correspondent, without the answers that person might have received; and this exclusion is maintained irrespective of whether these collections were published by the author during his or her lifetime, or posthumously published by relatives or students, acting either on instructions from the primary author or of their own accord. From the latter half of the seventeenth century onwards, however, a development is

³ Elizabethanne Boran, ed., *The Correspondence of James Ussher 1600–1656*, 3 vols. (Dublin: Irish Manuscript Commission, 2015).

⁴ Richard Parr, *The Life of the Most Reverend Father in God, James Ussher* (London: Nathanael Ranew, 1686).

⁵ Michael Hunter, Antonio Clericuzio, and Lawrence M. Principe, eds., *The Correspondence of Robert Boyle*, 6 vols. (London: Pickering and Chatto, 2001), i, xxxiv.

⁶ For an early example, see *Epistulae diversorum philosophorum* (Venice: Aldus Manutius, 1499).

noticeable away from the literary criterion, in which a collection of letters represents the epistolary compositions of a single pen, towards the historical criterion, in which an epistolary preserves the discussions undertaken at a distance between one learned individual and their contemporaries, in which even minor scholars were deemed worthy of a place.

The transition appears to have begun in 1670, when Johann Andreas Bosius (1626–1674) published the letters that Thomas Reinesius (1587–1667) had exchanged with Christian Daum (1612–1687) arranged chronologically, to make their conversation as easy to follow as possible. Three more traditional collections of letters, exclusively by Reinesius, had recently appeared, and Bosius felt the need to explain in his preface the still unusual editorial choice of publishing both sides of the conversation:

*I have included the letters by Daum because otherwise the letters of Reinesius cannot be sufficiently understood, and because I am aware that great men have deplored the fact that the same thing has not been done in the letters of Scaliger, Casaubon and other famous men. I will do the same for other letters, if I am allowed to publish more.*⁷

A rather different experiment was conducted in Petrus Burmannus's edition of the correspondence of Marquard Gudius (1635–1689) and Claude Sarrau (d. 1651), published in 1697. As Burmannus explained, 'I have first given the letters of Gudius himself to friends and acquaintances, and then I added the ones which friends wrote to him'.⁸ This may represent a compromise between the traditional letter collection, emphasizing the literary productions of one author, and the emerging practice of documenting entire epistolary conversations. From an historical perspective, the disadvantages of this method of organization seem obvious: Burmannus invited his reader first to read all of Gudius's letters to others and then to move back in time again to start with letters that others wrote addressed to Gudius. Anyone wanting to read the epistolary conversation in chronological order was forced continuously to flip back and forth. Closer inspection reveals, however, that the collection was so incomplete that there were hardly any letters responding to one another anyway. But when others organized more complete correspondences in this way, its disadvantages became apparent: in the edition of 'the letters of Gerardus Joannes Vossius and of other illustrious men to him' published in 1690,

⁷ *Thomae Reinesii Epistolae [...] ad cl[arissimum] v[irum] Christianum Daumium: In quibus De variis scriptoribus disseritur, loca obscura multa [...] Accedunt alia ejusdem, et ipsius Daumii epistolae ad Reinesium*, ed. Joannes Andreas Bosius (Jena: Gothofredus Schulzen, 1670), sig. A4v: 'Adjeci Damianas, quod satis alias intelligi Reinesianae non possent, quodque non ignorabam, magnos viros doluisse, quod idem Scaligeri, Casauboni, aliorumque clariss. virorum epistolis factum non esset. Idemque et aliis, si plures edere licuerit, praestabo'.

⁸ *Marquardii Gudii et doctorum virorum ad eum epistolae [...] et Claudii Sarraui [...] epistolae*, ed. Petrus Burmannus (Utrecht: Franciscus Halma and Gulielmus van de Water, 1697), sig. **v: 'Praemisimus ipsius Gudii ad Viros, quibuscum ipsi amicitia et usus intercessit, Epistolas, quibus subjunximus, quas ejus amici ad illum dederunt'.

the epistolary dialogues could only be reconstructed by leafing back and forth between Vossius's letters in the first part of the volume and those addressed to him in the second.⁹

As the *historia litteraria* displaced Renaissance epistolography as the main motivation for publishing letter collections, the preference for publishing epistolary conversations in chronological order was finally consolidated. A watershed can be found in 1708, when the advice of the polymath Daniel Morhof (1639–1691) was posthumously printed in his much used *Polyhistor*. Morhof dedicated a paragraph to 'Ordering letters chronologically' and wrote: 'But this I would prefer with authors of letters, to have the answers joined, so that we can judge everything better. I would also mention the letter dates. For good reasons, Thomasius desires both of these in the preface which precedes his edition of the letters of Boxhorn'.¹⁰ Theodor Janssonius ab Almelooven (1657–1712), the industrious editor and life-writer, referred to both Bosius and Morhof in the preface to his monumental third edition of the correspondence of Isaac Casaubon (1559–1614):

*Because the famous Andreas Bosius taught me that learned men greatly deplored that there were no answers added to the letters of Scaliger and Casaubon, since without these they could not be sufficiently understood, I have at the top of each letter in the margin written the number of the letter of Scaliger, or Baudius or Lipsius or others to which Casaubon responds. At the top I have given the number of the letter which responds to it. But if these responses have not yet been published, I have included them.*¹¹

This paper trail was continued by Adamus Henricus Lackmannus (1694–1754) in 1728: in the preface to his rather miscellaneous edition of the *Letters to Lossius* and other people's letters to various others, he agreed that it is useful to add the answers, citing the prefaces of Bosius and Burmannus in support and referring to

⁹ Gerardi Joannis Vossii et clarorum virorum ad eum epistolae collectore Paolo Colomesio Ecclesiae Anglicanae presbytero. *Opus omnibus philologiae et ecclesiasticae antiquitatis studiosis utilissimum*, ed. Paulus Colomesius (London: Samuel Smith, 1690). The book was republished in 1691 and 1693, with different page ranges.

¹⁰ Daniel Morhof, *Polyhistor, sive de notitia auctorum et rerum commentarii, quibus praeterea varia ad omnes disciplinas consilia et subsidia proponuntur*, vol. 1 (Lübeck: Petrus Böckmannus, 1688), bk. 1, ch. 23 ('De epistolarum scriptoribus', p. 275: 'Illud tamen ego velim, in epistolarum scriptoribus semper responsorias adjungi; ita rectius de omnibus judicemus. Velim et tempore epistolarum sollicite adnotari. Quae duo non sine causa desiderat in Epistolographis Thomasius praefatione illa, quam Boxhornii epistolis a se recusus praemisit').

¹¹ Isaac Casaubon, *Epistolae, insertis ad easdem responsionibus, quotquot hactenus reperiri potuerunt, secundum seriem temporis accurate digestae*, ed. Theodor J. ab Almelooven (Rotterdam: Caspar Fritsch and Michael Böhm, 1709), sig. **r: 'Deinde quum Vir clarissimus, Andreas Bosius [note: Praefat. praem. Daumii et Reinesis Epistol. Vide Morhof. Liter., bk. 1, ch. 23. §. 5.], me docuisset viros doctissimos vehementer dolere, Scaligeri Casaubonique Epistolis non additas Responsorias, quod sine iis satis intelligi nequeant; Epistolarum principiis in ora adscripti numerum Epistolarum Scaligeri, Baudii, Lipsii aliorumve, ad quas respondet Casaubonus; in calce vero, quo loco ad Casaubonianas illorum virorum Responsoriae reperiantur; insertis tamen iis Epistolis, quae hactenus lucem non viderunt'. Almelooven referred to Johannes Möller's 1708 edition of Morhof's *Polyhistor*.

precedents such as Almeloveen's edition of Casaubon's letters.¹² By the end of the 1720s, it had become normal practice to document the epistolary dialogue as fully as possible. The scholarly reader needed to be able to reconstruct the contents of the discussions and learn not only about the ideas developed by a single author or the style in which they were expressed, but about his web of communication and the benefit he derived from communication with others. This coincided with a growing awareness of the context of learning, and a shift from a focus on the history of heroic scholarship to the history of scholarship in more general terms. Perhaps this points to a growing historical self-awareness in the republic of letters itself.

Yet other pitfalls remained hidden in early modern printed epistolaries, ready to trip up the unwary scholar. Modern critical editions – such as those of Justus Lipsius (1547–1606), Joseph Justus Scaliger (1540–1609), and Casaubon – are based wherever possible on autograph letters; and painstaking, word-for-word collation with the early modern printed collections has revealed the many ways in which early modern editors silently tweaked texts, censored passages, or ignored entire letters, for stylistic, personal, or political reasons. The posthumous edition of the correspondence of Casaubon, published in 1638, for instance, silently omits not only references to his family life but also to social pleasantries exchanged with his correspondents, apparently in an attempt to construct Casaubon's posthumous identity as a more masculine and resolute hero. Some of his scathing remarks on Catholic enemies were toned down, producing the impression of a more composed and less passionately involved scholar.¹³ Unfortunately, returning to the autograph letter is not always possible, and not merely because the original letter has been lost accidentally. The sad fact is that autographs or apographs were often destroyed after the printed editions became available, evidently in order to make it impossible to 'get behind' the edited letters.

¹² *Epistolae diversi argumenti, maximam partem a variis ad Lucam Lossium & post eum a Duraeo, Langwedelio, Boeclero, Portnero, Berneggero, Freinshemio aliisque ad alios exaratae*, ed. Adamus Henricus Lackmannus (Hamburg: widow of Theodorus Christophorus Felginerus, 1728), sig. [8]v: 'Immo et ex re et emolumento Rei litterariae est, Epistolis adjungere responsiones. Joannes Andreas Bosius, edens Thomae Reinesii, Medici ac polyhistoris excellentissimi, ad v[irum] c[larissimum] Christianum Daumium Epistolas, in praefat. ita: Adjeci Daumianas, quod satis alias intelligi Reinesianae non possent, quodque non ignorabam, magnos viros doluisse, quod idem Scaligeri, Casauboni, aliorumque clarissimorum Virorum epistolis factum non esset. Eundem fere in sensum Petrus Burmannus in limine praestantissimi operis Epistol. quod, adplaudentibus musis, *Ultrajecti* 1697. lucem vidit: praemisimus ipsius Gudii ad viros, quibus cum ipsi amicitia et usus intercessit, Epistolas, quibus subjunximus, quas ejus amici ad illum dederunt. Add. Gerardi Joannis Vossii et Clarorum Virorum ad eum Epistolae. Joannis Kepleri, item, Pauli Sarpii, Isaaci Casauboni et aliorum. Quis enim omnes recenscat?'

¹³ Paul Botley and Maté Vince, eds., *The Correspondence of Isaac Casaubon in England*, vol. 1 (Geneva: Droz, 2018), 65–6.

2.2 Assembling Collection-level Descriptions: Towards a Bibliography of Early Modern Printed Letter Collections

Despite these pitfalls and limitations, printed letter collections provide an attractive starting point for assembling the huge quantities of data needed to form a data-driven impression of the republic of letters as a whole. Their advantages as a point of departure are several. Many letters are only preserved in print. Printed letter collections are more accessible than manuscripts, since they typically survive in multiple copies. Printed texts are easier to read than handwritten ones, opening up the possibility of experimenting with crowdsourced metadata and automatically generated machine-readable text. Printed collections already benefit from the work of their editors in assembling related material in one place. Bibliographical records provide ready-made collection-level descriptions of printed letter collections. Large numbers of these records can be identified relatively easily via meta-catalogues such as *WorldCat* or the *Karlsruher Virtueller Katalog* as well as national bibliographies of early modern books, such as short title catalogues VD 16, VD 17, EEBO, and ECCO, in addition to chronologically more comprehensive catalogues such as *Gallica* or geographically more inclusive ones such as *Europeana*.¹⁴ Moreover, titles can be automatically exported from these catalogues to bibliographical reference databases such as *Zotero*, *Endnote*, or *Refworks*, facilitating the first stage of data collection considerably.

Best of all, four substantial bibliographies of letter collections already exist, providing abundant material with which to begin. The oldest of these is the bibliography of epistolaries published by Arenhold in 1746, which lists 816 titles, organized by country of publication, which cover the entire European space.¹⁵ More recent bibliographies of printed letter collections have been national in scope. A second major resource is the bibliography embedded within Monika Estermann's four-volume inventory of printed letters to and from German authors of the seventeenth century, which lists 567 epistolaries.¹⁶ Whereas these epistolographies were printed between 1600 and 1750, a second set of four volumes was added to this series by Thomas Bürger, who gives a bibliography of approximately 1,066 works printed between 1751 and 1980 that contain published letters.¹⁷ A third

¹⁴ See www.worldcat.org; <https://kvk.bibliothek.kit.edu>; www.ustc.ac.uk; <http://estc.bl.uk/>; <https://www.kb.nl/en/organisation/research-expertise/for-libraries/short-title-catalogue-netherlands-stcn>; <https://opacplus.bib-bvb.de/>; <http://www.vd17.de/>; <https://eebo.chadwyck.com/home>; <https://www.gale.com/intl/primary-sources/eighteenth-century-collections-online>; <https://gallica.bnf.fr>; www.europeana.eu; all accessed 20/03/2019.

¹⁵ Silvester Johannes Arenhold, *Conspectus bibliothecae universalis historico-literario-criticae epistolarum: Typis expressarum et m[anu]s[cript]arum, illustrium omnis aevi et eruditissimorum auctorum* (Hanover: Haeredes Foersteriani, 1746).

¹⁶ Monika Estermann, *Verzeichnis der gedruckten Briefe deutscher Autoren des 17. Jahrhunderts. Teil 1: Drucke zwischen 1600–1750*, 4 vols. (Wiesbaden: Harrassowitz, 1992–3).

¹⁷ Thomas Bürger, *Verzeichnis der gedruckten Briefe deutscher Autoren des 17. Jahrhunderts. Teil 2: Drucke zwischen 1751 und 1980*, 4 vols. (Wiesbaden: Harrassowitz, 2002). In addition to bibliographies of epistolaries, these works contain item-level records of c. 110,000 letters printed between 1600 and 1980.

important source is the unpublished, typewritten bibliography of the 492 epistolaries consulted in compiling the so-called ‘Apparatus Molhuysen’, an index card file of 39,000 item-level descriptions of letters written to or from early modern scholars residing in the Dutch Republic.¹⁸ A fourth major achievement is the three-volume bibliography of Italian correspondents, compiled by Corrado Viola, which lists printed letter collections of 3,827 letter-writers, including many modern editions, some including just a few letters.¹⁹

In order to capitalize on these advantages, a new resource known as EROL (*Epistolaries of the Republic of Letters*) was created in 2016–17 by a series of postgraduate students working under Dirk van Miert’s supervision in Utrecht who came to Oxford on COST-funded STSMs to begin work on a comprehensive bibliography of letter collections printed in the early modern period. In February 2016, Lara Bergers began work on this project by importing all the titles in the bibliographies of Arenhold, Estermann, and Molhuysen into a *Zotero* database.²⁰ In 2017, this database was expanded with the help of three more STSMs. Mandi Astola managed to import titles automatically from a PDF of the first two volumes of Viola’s bibliographies of Italian epistolographies: the first added 4,575 titles and the second another 2,840.²¹ Justine Walden had used an STSM to assemble a huge quantity of additional collection-level and item-level data on learned correspondence in Italy, thanks to yet another STSM.²² With Walden’s permission, Astola added another 4,712 titles from Walden’s bibliography to EROL. Another STSM allowed Celine Frohn to add another 200 titles of English epistolaries to EROL: because English materials were absent from the existing bibliographies, she extracted titles from the *English Short Title Catalogue* with the help of keyword searches.²³

Thanks to this collaborative effort, as of January 2019 EROL contains records of 14,160 printed works that include at least one letter, but which typically contain dozens or even hundreds. Nevertheless, EROL remains a work in progress, with much still to be done. The title descriptions in EROL are not standardized. Since they were automatically imported from various repositories with different standards, the titles in EROL are not uniformly structured and are sometimes incom-

¹⁸ ‘Lijst van geëxcerpeerde boeken voor hs. Ltk. 1643 (apparaat Molhuysen)’. The list, typewritten, with manual additions, is kept in a single copy in the Special Collections department of Leiden University (shelf-mark DOUSA 80 1604).

¹⁹ Corrado Viola, *Epistolari italiani del settecento. Repertorio bibliografico* (Verona: Fiorini, 2004); id., *Epistolari italiani del settecento. Primo supplemento* (Verona: Fiorini, 2008); and id., with Valentina Gallo, eds., *Epistolari italiani del settecento. Repertorio bibliografico. Secondo supplemento* (Verona: QuiEdit, 2015).

²⁰ Mojet’s STSM report, see <http://www.republicofletters.net/index.php/emma-mojet-a-database-of-early-modern-epistolaries-by-arenhold-estermann-and-molhuysen/>, accessed 20/03/2019.

²¹ Astola’s STSM report, see http://www.republicofletters.net/wp-content/uploads/2017/05/GP3_Astola_Scientific-Report-revised.pdf, accessed 20/03/2019. Viola’s *Secondo supplemento* (2015) is now ready for inclusion as well.

²² Walden’s STSM report, see <http://www.republicofletters.net/index.php/justine-walden-the-wealth-of-early-modern-italian-letters/>, accessed 20/03/2019.

²³ Frohn’s STSM report, see http://www.republicofletters.net/wp-content/uploads/2017/05/GP3_Frohn_STSM-Report-Frohn.pdf, accessed 20/03/2019.

plete: title-metadata is sometimes missing and sometimes appears in the wrong fields. This does not prevent the use of EROL as a finding aid for identifying epistolaries, but more data cleansing must take place before reliable analysis can be undertaken. In order to pilot such analysis, however, Riccardo Bellingacci used a fifth STSM, supplemented by the first design sprint in Como in the spring of 2016, to experiment with the visualization of EROL data (discussed further in chapter IV.3 below).

Cleaning up of EROL is on the agenda of a project funded through the European Research Council's (ERC) Consolidator programme: 'Sharing Knowledge in Learned and Literary Networks (SKILLNET): the Republic of Letters as a Pan-European Knowledge Society'. Part of SKILLNET's objective is to gain insight into the size, spread, and structure of the republic of letters. Before EROL can do so, however, it will have to include more countries and present a more representative list, geographically speaking. Major deficits are epistolaries printed in France, on the Iberian peninsula, in the Nordic and Baltic regions, and in eastern Europe. Yet, as soon as EROL in its current state has been cleaned up, it will be made available on <http://www.skillnet.nl>.

2.3 Extracting Item-level Descriptions: Towards a Union Catalogue of Early Modern Learned Correspondence in Print

Assembling collection-level descriptions of printed letters – i.e. of epistolaries – is not an end in itself: its ultimate purpose is to prepare for the extraction of large quantities of individual letter records. One ready-made source of abundant metadata of this kind is the *Corpus Epistolicum Recentioris Aevi* (CERA), which contains digital facsimiles of ninety epistolaries, totalling 55,000 pages of text, published between 1520 and 1770 in Germany and neighbouring countries. Each high-quality page image has been scanned with optical character recognition to provide a rough transcription which was then manually corrected to produce machine-readable XML or HTML files. A treasure trove with potential application for Natural Language Processing, CERA currently lacks item-level metadata, and the number of letters it comprises has not been established.²⁴

The most ambitious strategy for extracting item-level descriptions from printed epistolaries, however, is crowdsourcing. This strategy aims to exploit two of the principal advantages of printed over manuscript collections: the fact that huge quantities of them have already been scanned and published online, and the fact that printed texts are far more legible to non-specialists than handwritten ones. To pursue this strategy, a crowdsourcing project known as CEMROL (*Collecting Epistolary Metadata of the Republic of Letters*) was built by the Humanities Lab of Utrecht

²⁴ In this case, a core component of the necessary metadata could be harvested from Estermann's *Verzeichnis der gedruckten Briefe deutscher Autoren des 17. Jahrhunderts*, discussed in sect. 2.2. above.

University and launched in December 2018 by the SKILLNET project.²⁵ Drawing in many ways on the technical, logistic, and intellectual knowledge gathered during the COST Action, SKILLNET and CEMROL aim to develop mutually beneficial exchanges with EMLO and other projects that have sprung off the COST Action. The item-level descriptions produced by CEMROL will ultimately be integrated into EMLO as a major contribution towards assembling a catalogue increasingly capable of documenting the full geographical scope and chronological development of the republic of letters.

The challenges in CEMROL are both technical and social, and – as usual with exploratory ventures of this kind – the social challenges outweigh the technical ones. The tasks offered to the public are two-fold: first, to draw boxes around epistolary metadata on the page, and second, to transcribe the text in those boxes: for the time being, the interpretation of these transcriptions is left to experts. The workflow of CEMROL is improving as more people use it and provide feedback. Issues in transcriptions are tackled in brief tutorials, with videos explaining how to manage the system. One obvious but challenging area for development involves semi-automating aspects of the workflow. At present, CEMROL gives the crowd the opportunity to standardize proper names through a drop-down menu containing the names in the authority file of EMLO, but crowd members are likely to make mistakes. Another experiment is with the automated translation of Roman dates into modern dates (dd/mm/yyyy). One problem in this process is that non-experts cannot be expected to indicate whether they think dates are Julian or Gregorian if the style is not indicated. Perhaps semi-automated processes such as those described in chapter II.3 can be implemented instead. The same applies to the standardization of names. Deduplication is another challenge: the mechanisms described in chapter III.2 can be employed to identify likely duplicates and merge them automatically on command, speeding up the process of assembling metadata that reflect actual numbers of letters. Ultimately, the SKILLNET team members are responsible for cleaning up data, and the question of how labour-intensive this quality control is going to be will have to be answered in the course of 2019. A very different, social challenge for CEMROL is to build up a crowd: some projects have found that a gaming component helps to incentivize contributions, by awarding points for every letter marked or transcribed, and developing hierarchies of contributors on that basis; or by closely integrating the most productive members of the crowd with the project through continuous outreach and quick responses.

CEMROL has some obvious advantages over other crowdsourcing projects: apart from the relatively good legibility of type, people can opt for their source language of choice. Moreover, SKILLNET is prioritizing certain editions over others, but crowd members are invited to suggest sources of their own preference. Eventually, the CEMROL environment may also be used to harvest metadata from manuscript sources, although this would require a more extensive instruction and

²⁵ See <https://cemrol.hum.uu.nl/>, accessed 20/03/2019.

is expected to draw a much smaller crowd due to the difficulty of the handwriting. Perhaps if the crowd only mark information, that second task of transcription might be automated with the help of *Transkribus* or other software that can be trained to decipher handwritten texts. Another scenario would be to use manuscripts for controlled crowds, such as library cataloguing staff or students taking a course in palaeography. This brings us, finally, to the issue of handwritten letters

3 Letters in Manuscript

3.1 Manuscript Letter Collections: The History and Hazards of an Archival Category

Collecting correspondence metadata – whether at the item or collection level – is considerably more difficult for manuscript letters than for printed ones. The most obvious difficulty is that script is more difficult to read than print, especially when one considers the transnational and multilingual scope of the republic of letters. In addition, collections of printed correspondence come in well-catalogued units reproduced in multiple copies and often distributed throughout many different repositories. Manuscript letters, by contrast, are typically unique, are often uncatalogued, are scattered all across Europe by the very act of sending, and have very often subsequently been incorporated into many different types of holdings and preserved by means of often unpredictable and contingent processes.²⁶ A brief survey of the vicissitudes of archival collections of manuscript letters is therefore the necessary starting point of a discussion of how to assemble catalogue records of them.

Collections of handwritten letters may consist of autographs or holographs (letters handwritten by their authors), or of apographs (copies made by someone other than the author of the letter). Libraries typically do not assemble letters into a single epistolary category, but organize them instead according to their origins. These origins may be in the *Nachlass* or working papers of an individual, in the archive of a family or institution of which the individual was a part, or indeed in a corpus of correspondence assembled by a collector. As suggested by the recent ‘archival turn’, insight into the original context in which items were assembled

²⁶ The correspondence of the great Spanish orientalist Benito Arias Montano (1527–1598) provides a nice example of both of these problems. His surviving letters are preserved in large quantity in the Swedish Royal Library in Stockholm, the Museum Plantin-Moretus in Antwerp, and the Archivo General de Simancas, with smaller numbers scattered from Warsaw to Chicago; and even that subset preserved in Antwerp poses serious palaeographic challenges, on which see Antonio Dávila Pérez, ‘Crítica textual en los borradores latinos conservados en el Museo Plantin-Moretus de Amberes’, in María Teresa Muñoz García de Iturrospe and Leticia Carrasco Reija, eds., *Miscellanea Latina* (Madrid: Sociedad de Estudios Latinos, 2015), 509–20.

yields information about the status the item had for the collecting person or institute.²⁷

Working papers. Throughout their lives, citizens of the republic of letters typically assembled their incoming and outgoing correspondence within larger collections of working papers. As they reached the end of their working lives, many consciously reviewed, ordered, and in some cases purged their letters with a view to archival preservation or posthumous publication (on which see further chapter IV.3).

Family archives. Entirely private individual archives from the early modern period that are not part of a larger archival body only survive under special circumstances (for example, if hidden and forgotten, removed as a result of legal sequestration, or auctioned off). If we possess a scholar's *Nachlass*, it usually means that he has bequeathed it to an enduring group which could care for it after his death. In rare cases normally involving individuals of elevated social status, this might be a family archive. In England, for instance, the foundation of the State Papers Office in 1578 established a trend and many of the most important noble families followed suit.²⁸ Family archives of the great houses have therefore also survived, sometimes after dispersal in different collections.

Institutional archives. A more common route to survival lay with bequeathing one's letters to a learned institution with which the scholar had some kind of connection. Here the options are numerous. The letters of Christian Daum (1612–1687) are preserved primarily in the school in Zwickau in which he taught.²⁹ Those of mathematician and cryptographer John Wallis (1616–1703) are preserved in large numbers in the archives of the University of Oxford, over which he presided.³⁰ A large proportion of the surviving manuscript letters of the Polish astronomer Johannes Hevelius (1611–1687) was obtained after his death by the Observatoire in Paris.³¹ The letters sent to several former court librarians in Vienna, among them Sebastian Tenggengel (1563–1636), are kept in the manuscript collection of

²⁷ See most recently Liesbeth Corens, Kate Peters, and Alexandra Walsham, eds., *Archives & Information in the Early Modern World* (Oxford: Oxford University for the British Academy, 2018). See also Filippo de Vivo, Andrea Guidi, and Alessandro Silvestri, eds., *Archivi e archivisti in Italia tra Medioevo ed età moderna* (Rome: Viella, 2015), and, less recent but still topical, the volume by Michael Hunter, ed., *Archives of the Scientific Revolution: The Formation and Exchange of Ideas in Seventeenth-Century Europe* (Woodbridge: Boydell Press, 1998).

²⁸ James Daybell, *The Material Letter in Early Modern England. Manuscript Letters and the Culture and Practices of Letter-Writing, 1512–1635* (Basingstoke: Palgrave Macmillan, 2012), 223.

²⁹ Lutz Mahnke, *Epistolae ad Daumium: Katalog der Briefe an den Zwickauer Rektor Christian Daum (1612–1687)* (Wiesbaden: Harrassowitz, 2003).

³⁰ Philip Beeley and Christoph J. Scriba, 'The Correspondence of John Wallis' in *Early Modern Letters Online*, Cultures of Knowledge, see <http://emlo-portal.bodleian.ox.ac.uk/collections/?catalogue=john-wallis>, accessed 20/03/2019.

³¹ 'Inventaire détaillé de la correspondance de Johannes Hevelius', Bibliothèque de l'Observatoire, C1/1–16: see <https://alidade.obspm.fr>, accessed 20/03/2019.

the Austrian National Library.³² The correspondence of Bernard (1683–1735) and Hieronymus Pez (1685–1762) is preserved primarily in the Benedictine monastery at Melk in Lower Austria, in which they lived out their learned lives.³³ The enormous *Nachlass* of the great German philosopher and mathematician Gottfried Wilhelm Leibniz (1646–1716) was sealed on his death and preserved in the ducal library in Hanover which now bears his name.³⁴ No less important are the archives of correspondence assembled by learned institutions themselves, such as the over 4,300 early letters in the archive of the Royal Society of London, the catalogue of which is currently being prepared for publication on EMLO.³⁵ People have often fulfilled a specific role in the institution which preserves their papers – as a chancellor, a bishop, an ambassador, a professor, a secretary, or a host of other roles – and their archives may *also* contain records arising not just from private correspondence, but from the fulfilment of an official duty; yet the distinctive trait of citizens of the republic of letters is precisely that their papers reach *beyond* those official roles, addressing questions and reaching out to people beyond the remit of their official job description.

Collectors. Very different from all of the foregoing arrangements is the case of letters gathered by early modern collectors, often scholars themselves. When searching for the letters of scholars who left no intact *Nachlass*, these collections provide an obvious starting point. The largest letter collections of this kind are often named after their collectors. Prominent examples include Hamburg's Uffenbach-Wolf collection, a collection of thousands of autograph letters assembled by the Frankfurt book collector Zacharias Conrad von Uffenbach (1683–1734) on his many travels and expanded after his death by the polyhistor Johann Christoph Wolf (1683–1739); Erlangen's Trew collection, consisting of hundreds of letters brought together by the Nuremberg physician Christoph Jacob Trew (1695–1769); the Danish Royal Library's Thott collection, which formed part of the library of the Danish Count Otto Thott (1703–1785); the collection of 38,000 letters accumulated by and now named after the Swedish physician Erik Waller (1875–1955), now in the Uppsala University Library; the many thousands of letters gathered by Pierre (1582–1651) and Jacques (1591–1656) Dupuy, now in the Bibliothèque Nationale de France; the British Library's Burney collection, which formed part of the 13,000 items of the library of the classical scholar Charles Burney junior (1757–1817); and Leiden University Library's Papenbroeck collection, deriving from the

³² See <https://geschichtsforschung.univie.ac.at/forschung/oorpl/>, accessed 20/03/2019, as well as chapter III.3. Other correspondences kept at the Österreichische Nationalbibliothek include those by Hugo Blotius (1533–1608) and Peter Lambeck (1628–1680).

³³ See <http://www.oapen.org/search?identifier=445402>, accessed 20/03/2019 (vol. 1); <http://www.oapen.org/search?identifier=576952>, accessed 20/03/2019 (vol. 2); as well as <https://unidam.univie.ac.at/nachlass/195>, accessed 20/03/2019 (Pez papers).

³⁴ See, most recently, Howard Hotson, 'Leibniz's Network', in Maria Rosa Antognazza, ed., *The Oxford Handbook of Leibniz* (Oxford: Oxford University Press, 2018), 563–90.

³⁵ The Royal Society, GB 117: early letters from correspondents in natural philosophy sent to the Royal Society and its fellows (1613, 1642, 1651–1740).

collector Gerard van Papenbroek (1673–1743).³⁶ Fortunately, these collections all have printed catalogues. Some of these, such as the Waller collection, have turned digital as online databases.³⁷ The records of others were integrated into digital meta-catalogues (e.g. the letters in Erlangen’s Trew collection are recorded in *Kalliope* and those of the Thott collection are in the Royal Library’s *Brevbase* (see below, under ‘Denmark’ in 3.2). Another way of making these descriptions of collections available is by putting them on the Internet as searchable PDFs, such as the Bibliothèque Nationale de France did with Dorez’s inventory of the Dupuy collection.³⁸ Libraries also hold letters that are not part of particular collections: for instance, Leiden University Library shelves numerous letters under the class mark ‘BPL’, which stands for ‘Bibliotheca Publica Latina’.

In order to understand how best to use such collections, it is often vitally important to understand the objectives of their collectors. A small example of how the history of an archive is shaped by a collector’s agendas is provided by MS 983 in the Utrecht University Library. This manuscript, in the shape of a bound book holding copies of some 200 letters, was drawn up by the Utrecht antiquarian Arnoldus Buchelius (1565–1641) in the first half of the seventeenth century. A substantial number of these were originally written by or to Buchelius himself, but there are many others that were exchanged between other people. Buchelius often chose not to copy out the entire letter, but limited himself to providing metadata and a brief outline. What were Buchelius’s criteria of selection? Did he merely copy out everything that he could cast eyes on? Or is there a particular strategy involved, which has led to a particular set of letters that gives modern historians insight into the status of representativity of the information held in this collection? Inspired by the COST Action, Dirk van Miert and five research master students at Utrecht University (Jan Fongers, Anne Haak, Erell Smith, Tirreg Verburg, and Chantal van der Zanden), in January 2018 entered the metadata of all letters mentioned in this manuscript into a *NodeGoat* area.

Mapping these records (fig. 1) shows that almost all of these letters were written either to or from Utrecht and that three-quarters of the letters in the collection were addressed to people living in Utrecht. This suggests that Buchelius collected much material in Utrecht itself and that on his travels he copied out those letters that were written by or to his fellow citizens.

³⁶ Nilüfer Krüger, *Supellex epistolica Uffenbachii et Wolfiorum*, 2 vols. (Hamburg: Hauswedell, 1978); Eleonore Schmidt-Herrling, *Die Briefsammlung des Nürnberger Arztes Christoph Jacob Trew, 1695–1769, in der Universitätsbibliothek Erlangen* (Erlangen: Universitätsbibliothek, 1940); Leon Dorez [vol. 3: Suzanne Solente], *Bibliothèque nationale. Catalogue de la collection Dupuy*, 3 vols (Paris: Leroux, 1899–1928). The Thott collection is integrated into the Danish Royal Library’s online letter catalogue *Brevbase*: see under 3.2. In 3.2. the Waller collection is referenced under the heading of Sweden.

³⁷ See <http://www.ub.uu.se/finding-your-way-in-the-collections/selections-of-special-items-and-collections/waller-collections/waller-manuscript-collection/>, accessed 20/03/2019.

³⁸ Available online as a PDF: see <http://visualiseur.bnf.fr/Visualiseur?Destination=BnF&O=NUMM-209160>, accessed 20/03/2019.

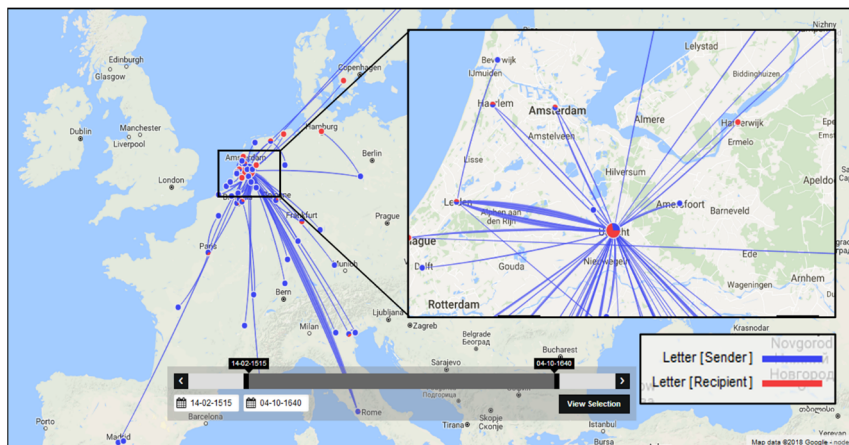


Figure 1: *NodeGoat* geographical visualization of the metadata in Utrecht University Library, MS 983

A social network visualization (fig. 2) shows that Buchelius himself was within three degrees of separation from the most prolific letter-writers in the collection: although there are numerous isolated interactions between other individuals, only a cluster of them – surrounding Theodorus and Lambertus Canterus – generated a significant number of letters. Looking at the wider context of Buchelius’s work, it can be no coincidence that Buchelius authored a *Traiecti Batavorum descriptio* and a notebook with annotations on Utrecht families. In short, this particular collection was part of a personal archive assembled to serve a particular interest in local history, and the preservation of these particular letters was meant to provide grounds for asserting Utrecht’s importance as a significant node within the republic of letters.

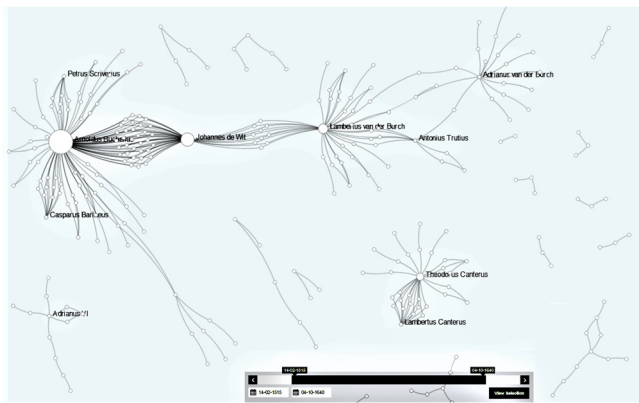


Figure 2: *NodeGoat* social network visualization of the metadata in Utrecht University Library, MS 983

Another good example is the catalogue of the collection of Bartolomeo Gamba (1766–1841), a sub-keeper at the Biblioteca Marciana in Venice who amassed some 4,000 manuscript letters to and from eminent early modern Italian scholars, many documenting relations between the University of Padua and Viennese court physicians. Material on this once coherent collection has now been dispersed between the Österreichische Nationalbibliothek in Vienna and the Biblioteca Museo Civico in Bassano del Grappa (which own the early modern correspondence) as well as the Marciana Library in Venice (which holds Gamba's own correspondence about his collection). In order to reassemble virtually Gamba's collection of early modern letters, Vittoria Feola has put together a team of collaborators in all of these institutions and funding from the University of Padua (DiSSGeA), the Medical University of Vienna, the Gerda Henkel Stiftung, with supplements from CofK and COST Action IS1310.³⁹

Archives and libraries. Through all these labyrinthine routes, many letters have found their way into omnibus public libraries and archives; and here further distinctions must be made. Archives, to simplify slightly, keep records arising from administrative activities, while libraries store printed books. Consequently, libraries and archives describe their holdings in different ways.

A library catalogue typically focuses on the bibliographical entity, usually the book and its bibliographical metadata: author, title, publisher, place, and year. Letters are bound together in volumes and catalogued in many different configurations: whole volumes can be described in a generic way (for example, by reference to the main recipient, perhaps a range of dates, or with additional references to places and principal correspondents), or individual letters can be itemized separately. Letters can also be part of manuscripts that are *not* letter collections. This often happens when letters become part of the daily working apparatus of scholars, and are thus organized together with other materials in thematic dossiers.

Archive inventories structure their directories hierarchically, proceeding from the general description of a holding (e.g. the papers of a given person, or the output of a given chancery over a period of time) to its individual parts (such as correspondence, working papers, and works in manuscript, or in the products of various bureaus within a chancery). In such an archival scenario, one should not be surprised to find inventory entries that point to 'correspondence', without providing information on quantity, people involved, content, or even the time-span. The notorious description category 'miscellanea' may point to the most interesting and unknown materials, but it also entails a lot of painful manual cataloguing work.

³⁹ More on this project can be found on EMLO (<http://emlo-portal.bodleian.ox.ac.uk/collections/?catalogue=bartolomeo-gamba>) and the CofK blog (<http://www.culturesofknowledge.org/?p=5810>) as well as the STSM report on the COST website (http://www.republicofletters.net/wp-content/uploads/2015/11/feola_stsm.pdf), all accessed 20/03/2019.

3.2 Sources of Epistolary Metadata on Manuscript Letters: Challenges and Opportunities

With contributions from Ivan Boserup, Clizia Carminati, Per Cullhed, Andreas Fingernagel, Antonio Dávila Pérez, Ad Leerintveld, Gerhard Müller, Alexa Renggli, Patryk Sapala, Justine Walden, and Axel E. Walter

Given the complexity of the archival history of early modern letter collections in Europe, it is not surprising that the modes of cataloguing these materials and of publishing those catalogues online also varies greatly from one institution and country to another. The amount of data available online is now enormous, but finding it is not easy and dealing with it once found is more difficult still, given the great variety of cataloguing styles and standards. In order to provide a preliminary overview of existing resources, Working Group IV organized a series of presentations at the first Action conference in Oxford in March 2015. These presentations, updated with reference to further discussions, provide the basis of this section. This brief guide to available resources does not aim to be comprehensive: it merely seeks to highlight some of the differing approaches taken to date and some of the challenges and opportunities facing scholars eager to track down manuscript letters. It begins with a survey of the high-level resources available: international resources, union catalogues at the national level, and catalogues of national institutions. It concludes with a survey of some printed inventories of early modern learned correspondence, to which might be added the constantly proliferating digital resources being created by individual institutions.

International resources

The senior project under this international heading is Paul Oskar Kristeller's magisterial *Iter Italicum*, published in six volumes between 1963 and 1997. The title of the work is misleading: from the third volume onwards this repertory expanded to include humanist manuscripts in Austria, Great Britain, Greece, Hungary, Israel, Japan, Liechtenstein, Luxembourg, Malta, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, South Africa, Spain, and Yugoslavia. As Kristeller noted in 1989, the difficulty of compiling the work was compounded by the ever-changing library landscape. By the time of publication, some private libraries had disappeared while others had newly appeared. In others repositories, the original shelf-mark system had been superseded by newer ones. Where institutions had already provided detailed catalogues, Kristeller was content to draw attention to these, rather than replicate their findings. Given the enormous scope of the enterprise he had to remain content with collection-level descriptions, rather than itemizing letters individually. Despite these inevitable limitations, Kristeller's *Iter Italicum* remains a vital printed resource for letter collections in Italy and elsewhere. The

use of these unwieldy volumes has recently been facilitated by the production of a digitized version available on CD and online via subscription.⁴⁰

More recently, several digital projects have begun creating union catalogues and archives of early modern learned correspondence which are international in scope. The oldest major resource of this kind is the *Electronic Enlightenment* (EE). Uniquely among major digital resources in this field, EE provides online access to a huge collection of early modern learned letters previously published by many different presses in hard-copy editions which are still under copyright, and for this reason the full data set is only available on subscription. As of the autumn of 2017, EE included 77,251 letters and other documents as well as over 10,000 biographical entries linking people across Europe, the Americas, and Asia from the early seventeenth to the mid-nineteenth centuries. The origins of the project in the Voltaire Foundation in Oxford help explain its particular focus on the French Enlightenment. Now transferred to the Bodleian Library, EE is joining forces with the *Oxford Text Archive*, and discussions are underway to expand collaboration with other Oxford resources in the field.⁴¹

Early Modern Letters Online (EMLO) is a decade-old experiment in the collaborative population of a union catalogue of the republic of letters, based in Oxford, funded by the Mellon Foundation via the *Cultures of Knowledge* (CofK) project directed by Howard Hotson.⁴² At the core of the project are individual user accounts which allow contributors to collaborate with the project's digital editor, Miranda Lewis, and her team of 'digital fellows' in the curation of catalogues to a high and uniform standard prior to publication. Each catalogue is published with a separate page describing the chief correspondent, the scope of the correspondence, and the collaborators, institutions, and funding bodies involved in its creation. Individual records are linked to authority files for people and places, and to further resources on and off EMLO, often including abstracts, letter texts, and digital images of manuscripts and early modern printed books. From the outset, the project has set out to serve the international community working on early modern learned epistolary exchange: in the first 100 catalogues published on EMLO, the thirty-nine Brit-

⁴⁰ *Iter Italicum: A Finding List of Uncatalogued or Incompletely Catalogued Humanistic Manuscripts of the Renaissance in Italian and Other Libraries*, compiled by Paul Oskar Kristeller (London: The Warburg Institute; Leiden: E. J. Brill, 1963–92). CD ROM: consultant ed. Luciano Floridi (Leiden: Brill, 1995). Online version accessible via the Iter: Gateway to the Middle Ages and Renaissance (<https://www.itergateway.org/resources/iter-italicum>) and Brill (<https://brill.com/view/serial/KRIS>), both accessed 20/03/2019.

⁴¹ *Electronic Enlightenment*: see <http://www.e-enlightenment.com/>, accessed 20/03/2019. On its origins, see Nicholas Cronk and Glenn Roe, 'Electronic Enlightenment', in Simon Burrows and Glenn Roe, eds., *Digitizing Enlightenment: Digital Humanities and the Transformation of Eighteenth-Century Studies*, Oxford University Studies in the Enlightenment (Liverpool: Liverpool University Press / Voltaire Foundation, forthcoming 2020).

⁴² EMLO: <http://emlo.bodleian.ox.ac.uk/home>. CofK: <http://www.culturesofknowledge.org/>, both accessed 20/03/2019. On its origins, see Howard Hotson, 'Cultures of Knowledge in Transition: Early Modern Letters Online as an Experiment in Collaboration, 2009–2018', in Burrows and Roe, eds., *Digitizing Enlightenment* (forthcoming).

ish correspondences were significantly outnumbered by sixty-one continental ones. In the course of the COST Action, EMLO was increasingly adopted by the international community as a shared resource and a natural home for metadata on early modern learned correspondence.

Another valuable international resource for the field is the online listing of *Sources for Early Modern Letters* first developed by the Warburg Institute during the project editing Scaliger's correspondence and now transferred to Utrecht University and maintained by the SKILLNET project.⁴³ While this naturally concentrates on individual projects, it also provides a brief listing of printed sources available elsewhere.

National resources

Austria. The Austrian National Library (in common with many other national libraries) contains not only individual manuscript letters bound with other material but also bundles of letters (*commercium litterarum*) bound together in volumes solely devoted to correspondence. These bundles contain a variety of materials, such as an individual scholar's attempt to construct a personal archive, an institution's gathering of correspondence to and from an individual scholar, or an institution's collection of letters to and from a variety of correspondents. Andreas Fingernagel drew attention to the fact that in the second half of the nineteenth century a project was started to collect the autographs and seal impressions in the Austrian national collection. This project, now online, includes c. 300,000 autographs, and enables scholars to search both for individual letters and letter collections.⁴⁴

Croatia. CroALA (*Croatiae Auctores Latini Collectio Electronica*) presently includes 449 documents with a date range between 976 and 1984.⁴⁵

Denmark. The Danish Royal Library's letter catalogue originated in an alphabetical card catalogue but is now available online under the title *Brevbase*. As Ivan Boserup demonstrated, it includes item-level descriptions of over 200,000 letters, dating from the seventeenth and eighteenth centuries, which are in the manuscript collection of the Royal Library. Such institutional catalogues now function in practice as a 'meta-catalogue' – an umbrella-search engine of the multiplicity of separate collections within which letters have been acquired and preserved by the library.

Estonia. Kristi Viiding is the principal investigator of a project on the correspondence of the well-known Livonian humanist David Hilchen (1561–1610). His correspondence of c. 800 letters is in the process of being edited and the metadata

⁴³ See <https://warburg.sas.ac.uk/research/completed-research-projects/scaliger/sources-early-modern-letters> and <https://skillnet.nl/sources/>, both accessed 20/03/2019.

⁴⁴ The search screen for the Austrian National Library can be found at https://search.onb.ac.at/primo-explore/search?sortby=rank&vid=ONB&lang=de_DE, accessed 20/03/2019.

⁴⁵ See <http://www.ffzg.unizg.hr/klafile/croala/>, accessed 20/03/2019.

has already been included in EMLO.⁴⁶ This type of initiative is representative of a multitude of individual editorial projects across Europe. Here the focus is less on the institutional holdings and more on the individual scholar.

Finland. An important resource based in Finland is *The Corpora of Early English Correspondence* (CEEC400). Created by a partnership between the Academy of Finland and the University of Helsinki, this project has amassed a large body of letters in English in order to test how methods created by sociolinguists studying present-day languages could be applied to historical data. The CEEC family of corpora currently covers 400 years from 1400 to 1800, and is being united into a structure whole consisting of over 5 million words.⁴⁷

France. The catalogue of the huge Collection Dupuy, which includes thousands of letters, was printed at the end of the nineteenth century by Leon Dorez in two volumes and is now online.⁴⁸ It represents just the tip of the iceberg of early modern correspondence available in the Bibliothèque Nationale de France. The online *Catalogue Collectif de France* (CCFr) allows the user to search simultaneously not only the general catalogue of the Bibliothèque Nationale but also the catalogues of digitized municipal library collections.⁴⁹ Despite these innovations, locating early modern correspondence at item level in French libraries remains a challenge, not least due to the disparate nature of the municipal collections.

Germany. An effort to integrate the manuscript catalogues of hundreds of libraries and archives online is the *Kalliope Verbundskatalog* (*Kalliope* Union Catalogue), which started from a collection of 1.2 million card files. As Gerhard Müller noted, *Kalliope* is a constantly growing entity which now holds almost 2,240,000 million records of correspondence (134,000 of which are from before 1800), from over 19,100 collections held in 950 institutions. It is, therefore, an invaluable point of departure for scholars interested in tracking correspondence in early modern Germany. Likewise, scholars interested in letter metadata from the German context can draw on *correspSearch*, a web application created by Stefan Dumont at the Berlin-Brandenburgische Akademie der Wissenschaften, which is closely connected with the creation and curation of the respective TEI elements (in particular, <correspDesc>; see I.3 and III.5). Currently *correspSearch* offers metadata for roughly 47,000 letters (between 1510 and 1991), including 10,390 before 1800, and either provides bibliographical information to retrieve the respective printed edition, or links to a potential digital edition.⁵⁰

⁴⁶ See <http://emlo-portal.bodleian.ox.ac.uk/collections/?catalogue=david-hilchen>, accessed 20/03/2019.

⁴⁷ Project home page: <http://www.helsinki.fi/varieng/domains/CEEC.html>. Further information: <http://www.helsinki.fi/varieng/CoRD/corpora/CEEC/index.html>; both accessed 20/03/2019.

⁴⁸ Solente, *Catalogue* [= Dorez, *Catalogue*, vol. 3], a PDF is available at <http://visualiseur.bnf.fr/Visualiseur?Destination=BnF&O=NUMM-209160>, accessed 20/03/2019.

⁴⁹ See <https://ccfr.bnf.fr>, accessed 20/03/2019.

⁵⁰ <https://correspsearch.net/index.xql?l=en>, accessed 20/03/2019.

Hungary. The Manuscripts Department of the National Széchényi Library (OSZK) includes a collection of some 30,000 letters, catalogued card-files, dating from the mid-sixteenth century to the present day (with the vast majority relating to the nineteenth and twentieth centuries). For the early modern period, Gábor Almási has counted some 870 letters (copies and autographs) in the holdings of the OSZK.⁵¹

Ireland. While there are numerous print publications of individual correspondences, few online resources are specifically devoted to early modern correspondence held in Irish repositories. One of the most up-to-date is emerging from the project *The Reception and Circulation of Early Modern Women's Writings, 1550–1700* (RECIRC); but, as the name suggests, this project does not limit itself to Irish writers alone or solely to correspondence.⁵² The online 'Sources: A National Library of Ireland Database for Irish Research' is the initial entry point for scholars interested in tracking material about Irish correspondents;⁵³ but given the colonial and religious history of Ireland, archives and libraries in Ireland, the United Kingdom, and continental Europe hold important material as well. As elsewhere, item-level description in catalogues of manuscripts is not always available and many letters may only be found by painstakingly trawling through manuscripts.

Italy. A pioneering survey of Italian materials is contained in Kristeller's *Iter Italicum*, which is treated above since it is actually international in both origin and scope. More recently, a variety of digital resources for Italian correspondences have begun to proliferate. As Justine Walden noted, the bulk of early modern Italian letters in manuscript are scattered throughout many different libraries, but others can be found in the Archivi di Stato (state archives). Researchers can search the holdings of all 103 state archives through a single interface;⁵⁴ but the difficulty of tracking down correspondence to or from a specific individual in this way is compounded by the tendency of these catalogues to identify holdings by the name of their principal collector, rather than by subject or the names of correspondents.

Some of these problems are now being overcome by a new generation of collaboratively populated online resources. A prime example is the online catalogue and archive of Italian literary correspondences in the early modern period, known as *Archilet*.⁵⁵ As Clizia Carminati explained, *Archilet* concentrates on letters by and to Italian writers, and letters that relate to Italian literature and culture. The database not only provides the names of the sender(s), recipient(s), date, place of the sender(s) and of the recipient(s), but also all names and books quoted in the letter, things of relevance, the incipit and the source (i.e. the place where the original manuscript letter is now kept or the reference edition, if published). As Carminati

⁵¹ These can be found in OSZK Quart. Lat. 783, Quart Lat 998. Fol. Lat. 1394, Fol. Lat. 1647. Fol. Lat. 1661, Fol. Lat. 1673. Quart. Lat. 1621. Fol. Germ 594 and 'Levelestár'.

⁵² See <http://recirc.nuigalway.ie/>, accessed 20/03/2019.

⁵³ See <http://sources.nli.ie/>, accessed 20/03/2019.

⁵⁴ See <http://siusa.archivi.beniculturali.it/cgi-bin/pagina.pl>, accessed 20/03/2019.

⁵⁵ See <http://www.archilet.it>, accessed 20/03/2019.

noted, each letter is not merely ‘filed’; it is studied, so that the content may be understood by anyone visiting the website. Moreover, catalogue records can be enhanced with JPG images of letter texts when available or can link out to images of letters on other open access websites, such as Google Books. The database is openly accessible and constantly increased in collaboration with a large community of contributors. The objective of the project is to place authors and texts into a context, and to document literary choices and cultural relationships, thereby revealing new perspectives on early modern history and the history of literature, ideas, religious thought, and art.

Lithuania. Axel E. Walter, in his presentation on the collection and cataloguing policies of different institutions in Lithuania, highlighted another cataloguing problem: in many cases more information is available about individual letters, whether in print or manuscript, than there is concerning whole letter collections. Searching is made more difficult as different cataloguers preferred different standards. A union catalogue comprehending different collections is therefore unavailable.

Netherlands. Another major resource is the Dutch online union catalogue known as the *Catalogus Epistularum Neerlandicarum* (CEN).⁵⁶ As Ad Leerintveld explained, CEN contains approximately 2 million records of letter (many post-1800) in the collections of the Royal Library at The Hague; four university libraries (Amsterdam, Leiden, Groningen, and Utrecht); and several other significant collections (including the Stadsarchief en Athenaeumbibliotheek in Deventer, the Tresoor Library in Leeuwarden, the Zeeuwse Bibliotheek in Middelburg, and the Letterkundig Museum and Museum Meermanno in The Hague). CEN thus provides an essential starting point for the study of early modern scholarship in the Netherlands. However, as Dirk van Miert subsequently observed, CEN also has significant drawbacks. First, this union catalogue is not comprehensive: although the holdings of several major university libraries are listed in CEN, many archives are not, including the Nationaal Archief in The Hague. Second, CEN is not yet freely available online: only a library that contributes to CEN can grant access to it, and most scholars working outside the Netherlands have no access to this valuable resource. A deeper problem is that a union catalogue of this kind is only as good as the records contributed to it by partner institutions, which vary in quality. For instance, if several letters are preserved written by the same sender to the same recipient and classified under the same shelf-mark, some of the catalogues assembled by CEN aggregate all of these letters into a single record. As a consequence, although an online search currently identifies slightly over 50,000 hits for the period up to 1800, the actual number of letters is probably two or even three times as large. It should also be noted that the CEN does not limit itself to Dutch letters but instead gives details of letters held in Dutch collections. CEN aims to overcome the first two of these problems in the future by including more partner li-

⁵⁶ The URL is: picarta.pica.nl/DB=3.23, accessed 20/03/2019.

braries and archives and by offering open access to this valuable catalogue worldwide.

Poland. As Patryk Sapala explained, the vicissitudes affecting the survival of letter collections in national and private libraries are nowhere more painfully visible than in the case of Poland. The large-scale dispersal of Polish collections began during the second partition of Poland (1795), when several large collections were taken to the Imperial Public Library in St Petersburg. During the latter part of the nineteenth century, private collectors sought to fill the gap by preserving correspondence at libraries such as the Ossolinski Library (Zakład Narodowy im. Osslińskich) in Lviv; but this effort was piecemeal and led to a proliferation of individual catalogues. To make matters worse, the material that had been repatriated by the Russians was later burnt by the Nazis during the Second World War and further dispersal and rearrangement took place during the Communist era. In 2003, a fundamental finding aid appeared in the survey of surviving manuscript collections in Poland, edited by Danuta Kamolowa and Teresa Sieniатеcka.⁵⁷

Portugal. ‘Post Scriptum’ is an online listing of private letters written in Portugal and Spain during the early modern period.⁵⁸ It is designed to enhance the linguistic study of a range of private communications in the Iberian peninsula. Although the scope of this digital archive is broader than learned correspondence, ‘Post Scriptum’ provides an interesting starting point for scholars interested in the republic of letters in early modern Portugal and merits further development.

Spain. While Kristeller’s *Iter Italicum* includes a survey of Renaissance material in Spanish libraries, in many respects it has been superseded by the proliferation of online resources. Antonio Dávila Pérez drew attention to a number of these that are particularly useful for tracking early modern learned correspondence in Spanish libraries and archives: these include *Hispana*, which lists 617 digital collections;⁵⁹ *Pares*, a portal containing digitized manuscripts from the most important Spanish archives;⁶⁰ and the *Catálogo colectivo del patrimonio bibliográfico español*, which covers books printed in Spain from the fifteenth century onwards.⁶¹ The latter catalogue is complemented by the *Biblioteca virtual del patrimonio bibliográfico español*, a digital library which includes manuscripts as well as printed books.⁶² These are important resources, but Dávila Pérez also stressed the continuing need for in-depth archival research, since the catalogues of manuscripts on which these online resources are based often include vague, imprecise, inaccurate or incomplete information. Out-

⁵⁷ Danuta Kamolowa and Teresa Sieniатеcka, eds., *Zbiory rękopisów w bibliotekach i muzeach w Polsce* [Manuscript collections in Poland] (Warsaw: Biblioteka Narodowa, 2003; reissued 2014); Tomasz Makowski and Patryk Sapala. *Rękopisy w zbiorach kościelnych* [Manuscripts in church collections] (Warsaw: Biblioteka Narodowa, 2014).

⁵⁸ See <http://www.clul.ulisboa.pt/en/10-research/662-p-s-post-scriptum>, accessed 20/03/2019.

⁵⁹ See <http://hispana.mcu.es>, accessed 20/03/2019.

⁶⁰ See <http://pares.mcu.es/ParesBusquedas20/catalogo/search>, accessed 20/03/2019.

⁶¹ See <http://catalogos.mecd.es/CCPB/ccpbopac/noserver.htm?dir=/CCPB/ccpbopac>, accessed 20/03/2019.

⁶² See <http://bvpb.mcu.es/es/inicio/inicio.do>, accessed 20/03/2019.

side Spain, the *Spanish Republic of Letters* (SRL) project is working to create correspondence catalogues needed to put early modern Spanish intellectuals on the emerging map of the European republic of letters.⁶³ Coordinated in the University of Windsor, Canada, by Guy Lazure, Cal Murgu, and Dave Johnston, SRL currently contains fifty correspondence catalogues containing 3,559 letters.

Sweden. Per Cullhed of the University Library of Uppsala highlighted two valuable union catalogues recently developed in Sweden. *Opac Libris* brings together records from several relevant initiatives, including the Waller collection (containing 38,000 manuscripts, mainly letters, on the history of science and medicine), the catalogue of c. 5,000 letters to and from the great Swedish botanists Carl Linnaeus (1707–1778), and an *Alba-Amicorum* project started in 2015.⁶⁴ The ALVIN portal is a digital repository for archives, images, books, manuscripts, maps, objects, sound, video, musical material, and software.⁶⁵ Though ALVIN's remit is much broader than early modern correspondence, it represents an interesting innovation in the provision of manuscript correspondence online. Rather than waiting until all its letters have been properly catalogued, ALVIN allows digital images of letters to be published online first, and metadata to be added later, potentially through scholarly crowdsourcing. This arrangement established an interesting precedent, which should be studied by other institutions with large collections of uncatalogued correspondence.

Switzerland. The platform *e-manuscripta* provides free access to digitized manuscript material from Swiss libraries and archives.⁶⁶ This impressive portal was developed and financed cooperatively by three major Swiss libraries: the Zentralbibliothek Zürich, the Universitätsbibliothek Basel, and the ETH-Bibliothek. Launched in 2013, it continues to be managed collaboratively by these three institutions in conjunction with the Swiss National Library. Many other institutions have also made their stock available, thereby expanding the range of material hosted on the portal. As Alexa Renggli noted, the range of manuscripts included is very broad, including music, maps, drawings, and photographs; yet correspondence of individuals and institutions is prominent: of the more than 75,800 items currently available, over 33,000 are letters and over 20,000 of these letters are dated before 1800. Best of all, each record is accompanied by a high-resolution image of the manuscript, provided with a permanent link ensuring long-term access; and these images can not only be studied online and embedded in other digital resources via the IIIF protocol but also downloaded for study as PDF files. A major innovation is the installation of a transcription tool, and future crowdsourcing projects are also envisaged.

⁶³ See <http://cdigs.uwindsor.ca/srl/>, accessed 20/03/2019.

⁶⁴ See <http://libris.kb.se/>, accessed 20/03/2019.

⁶⁵ See <http://www.alvin-portal.org/alvin/home.js?dswid=-4620>, accessed 20/03/2019.

⁶⁶ See <https://www.e-manuscripta.ch/>, accessed 20/03/2019.

United Kingdom. The richest single source of edited texts of early modern English correspondence is *Oxford Scholarly Editions Online* (OSEO), which provides online access to nearly thirty editions previously published in hard copy by the Oxford University Press (OUP).⁶⁷ Navigating these machine-readable edited texts is facilitated by pre-structured metadata, which the OUP have begun passing to *Cultures of Knowledge* for extraction, curation, enhancement, and publication on EMLO. Published catalogues arising from this material include Philip Sidney, Lady Anne Conway, Thomas Hobbes, Elisabeth Stuart, and Elias Ashmole. Future acquisitions include John Locke, Samuel Pepys, Joseph Addison, James Boswell, Samuel Johnson, Adam Smith, Jonathan Swift, and Lady Mary Wortley Montagu.

Early Modern Letters Online (discussed above under international resources) provides open access data on over 100 early modern correspondences, British and continental. In addition, it is also generating catalogues on some of the richest deposits of learned letters in the UK. Its founding catalogue was a digitized and curated version of the 'Index of Literary Correspondence', an index-card file of 48,668 letters found within 487 volumes of early modern manuscript correspondence in the Bodleian Library.⁶⁸ Currently in preparation is a curated catalogue of c. 4,300 early letters (before 1740) in the archive of Britain's premier scientific society, the Royal Society of London.⁶⁹ Work has also begun on preparing a catalogue of over 300,000 letters in the English State Papers for the Tudor and Stuart periods: the catalogue of Tudor letters has already benefited from extensive work by Ruth and Sebastian Ahnert in the context of the AHRC-funded project *Tudor Networks of Power*, while the remaining work will be conducted under a second AHRC grant for a project entitled *Networking Archives*.⁷⁰

The Helsinki-based *Corpora of Early English Correspondence* is discussed above under Finland.

United States of America. The most relevant union resource for the republic of letters from this quarter is Founders Online undertaken by the US National Archives, which provides access to full-text versions of the correspondence and other writings of six major shapers of the United States: George Washington (1732–1799), Benjamin Franklin (1706–1790), John Adams (1735–1826), Thomas Jefferson (1743–1826), Alexander Hamilton (1757–1804), and James Madison (1751–1836).⁷¹ Over 181,000 fully annotated and searchable documents are included from the authoritative *Founding Fathers Papers* projects, ranging from 1706 to 1836.

Another American initiative with a long-term impact on the field is the *Mapping the Republic of Letters* project at Stanford University. Working with Stanford's Hu-

⁶⁷ See <http://www.oxfordscholarlyeditions.com/>, accessed 20/03/2019.

⁶⁸ See <http://emlo-portal.bodleian.ox.ac.uk/collections/?catalogue=bodleian-card-catalogue>, accessed 20/03/2019.

⁶⁹ The Royal Society, GB 117: early letters from correspondents in natural philosophy sent to the Royal Society and its fellows (1613, 1642, 1651–1740).

⁷⁰ See <https://networkingarchives.org/>, accessed 20/03/2019.

⁷¹ See <https://founders.archives.gov/>, accessed 20/03/2019.

manities + Design Lab, this project has innovated above all in the development of new tools for analysing and visualizing digital data (most famously in the case of *Palladio*); but a range of research projects on the long eighteenth century is also generating significant quantities of high-quality data, some of which has already been published on EMLO.⁷²

Published inventories of individual scholars

In preparation for modern editions of ego-correspondences, several inventories have been compiled and published in print which could yield coherent collections of high-quality digital metadata. In 1968 appeared the ground-breaking *Inventaire* of the correspondence of Lipsius, compiled by Gerlo and Vervliet. This catalogue is still a vade mecum for the editors of Lipsius's correspondence, although the inventory has been corrected and supplemented extensively, to the point of being superseded by the volumes of Lipsius's correspondence that are now in print.⁷³ Meanwhile, the school of Paul Dibon, Hans Bots, and Eugénie Bots-Estourgie, carried forward by the Amsterdam Institute for Neo-Latin and Neo-Philology, published extensive inventories of such letter-writers as André Rivet (1971),⁷⁴ Johannes Fredericus Gronovius (1974),⁷⁵ Caspar Barlaeus (1978),⁷⁶ and later on Gerard Vossius (1993),⁷⁷ Theodorus Janssonius van Almeloveen (1997),⁷⁸ and Hadrianus Junius (2010),⁷⁹ listing all the different manifestations of each single letter. The latest offspring was the long-awaited inventory of the correspondence of Petrus Scriverius, started in the early 1980s by the institute's director, Pierre Tuynman, and published in 2018.⁸⁰ Similar projects include the inventories of the correspondenc-

⁷² See <http://republicofletters.stanford.edu/>; <http://hdlab.stanford.edu/>; and <http://emlo-portal.bodleian.ox.ac.uk/collections/?catalogue=athanasius-kircher>, all accessed 20/03/2019.

⁷³ Aloïs Gerlo and Hendrik D.L. Vervliet, *Inventaire de la correspondance de Juste Lipse 1564–1606* (Antwerp: Éditions scientifiques Erasme, 1968). A digital catalogue based on these resources is well under way in EMLO.

⁷⁴ Paul Dibon, *Inventaire de la correspondance d'André Rivet (1595–1650)* (The Hague: Nijhoff, 1971).

⁷⁵ Paul Dibon, Hans Bots, and Eugénie Bots-Estourgie, *Inventaire de la correspondance de Johannes Fredericus Gronovius (1631–1671)* (The Hague: Martinus Nijhoff, 1974).

⁷⁶ Koert van der Horst, *Inventaire de la correspondance de Caspar Barlaeus (1602–1648)* (Assen: Van Gorcum, 1978).

⁷⁷ G. Anton C. van der Lem and Cornelis S. M. Rademaker, *Inventory of the Correspondence of Gerardus Joannes Vossius (1577–1649)* (Assen: Van Gorcum, 1993); online version at <http://emlo-portal.bodleian.ox.ac.uk/collections/?catalogue=gerardus-joannes-vossius>, accessed 20/03/2019.

⁷⁸ Saskia Stegeman, 'Patronage en Dienstverlening: het netwerk van Theodorus Janssonius van Almeloveen (1657–1712) in de republiek der letteren', Doctoral Dissertation, Radboud Universiteit, Nijmegen, 1997; ead., *Patronage and Services: The Network of Theodorus Janssonius van Almeloveen (1657–1712)* (Amsterdam: APA-Holland University Press, 2005), 538–72.

⁷⁹ Chris Heesakkers and Dirk van Miert, 'An Inventory of the Correspondence of Hadrianus Junius (1511–1575)', *Lias. Journal of Early Modern Intellectual Culture and Its Sources* 37:2 (2010): 109–268, see <https://doi.org/10.2143/LIAS.37.2.2115446>.

⁸⁰ Michiel Roscam Abbing and Pierre Tuynman, *Petrus Scriverius Harlemensis (1576–1660). A Key to the Correspondence, Contacts and Works of an Independent Humanist* (Leiden: Folio Publishers, 2018).

es of Jean Bouhier (1975),⁸¹ Pasquier Quesnel (1989),⁸² Jean Henri Samuel Formey (2003),⁸³ d'Alembert (2009),⁸⁴ and the gigantic inventory in six volumes of the correspondence of Jean-Alphonse Turretini (2009).⁸⁵ For Germany, a recent inventory is the one of Johann Valentin Andreae's correspondence (2018).⁸⁶ Italy also has many such inventories, such as the ones listing the correspondence of the Manutius family (1957),⁸⁷ of Paolo Ruffini (1997),⁸⁸ and of Cassiano dal Pozzo (1991).⁸⁹ In Spain, there was a tendency during the last decades to skip the process of publishing inventories and proceed directly to editing letters, although a provisional catalogue has been printed for the large project of Benito Arias Montano's letters (2002).⁹⁰ The adjective 'provisional' anticipates that such inventories become outdated once critical editions are underway or finished. Thus, the editors of the correspondence of Joseph Scaliger compiled and updated their inventory during their work and published it only on EMLO once the edition had been completed and printed.⁹¹

Smaller inventories appeared in the meantime in journals and in the appendixes of dissertations and monographs all across Europe: noteworthy examples include Charles B. Schmitt's inventory of Jacques Daléchamps's correspondence,⁹² Axel E. Walter's inventory of Georg Michael Lingelsheim's correspondence (2004),⁹³ Peter Korteweg's census of the letters to and from Johannes Drusius

⁸¹ Françoise Weil, *Jean Bouhier et sa correspondance*, [vol.] 1: *Inventaire* (Paris: Université Paris-Sorbonne, 1975).

⁸² Joseph A. G. Tans and Henri Schmitz Du Moulin, with Hans Bots, H. Buycks, and Cornelius P. Voorvelt, *La Correspondance de Pasquier Quesnel: inventaire et index analytique*. [vol. 1], *Inventaire* (Brussels and Louvain: Nauwelaerts and Bureau de la R.H.E., Bibliothèque de l'Université, 1989).

⁸³ Jens Häsel and Rolf Geissler, *La Correspondance de Jean Henri Samuel Formey (1711–1797): inventaire alphabétique [...] avec la bibliographie des écrits de Jean Henri Samuel Formey* (Paris: Honoré Champion, 2003).

⁸⁴ Irène Passeron et al., *Jean le Rond d'Alembert – Oeuvres complètes; Série V: Correspondance générale. Vol. 1: Inventaire analytique de la correspondance, 1741–1783* (Paris: CNRS, 2009).

⁸⁵ Maria-Cristina Pitassi, with Laurence Vial-Bergon, Pierre-Olivier Lehot, and Eric-Olivier Lochard, *Inventaire critique de la correspondance de Jean-Alphonse Turretini*, 6 vols. (Paris: Honoré Champion, 2009).

⁸⁶ Stefania Salvadori, *Inventar des Briefwechsels von Johann Valentin Andreae (1586–1654)* (Wiesbaden: Harrassowitz, 2018).

⁸⁷ Ester Pastorello, *L'epistolario manuziano: inventario cronologico-analitico, 1483–1596* (Florence: Leo S. Olschki, 1957).

⁸⁸ Francesco Barbieri and Franca Cattelani Degani, *Catalogo della corrispondenza di Paolo Ruffini* (Pisa: ETS, 1997).

⁸⁹ Anna Nicolò, *Il carteggio di Cassiano dal Pozzo: Catalogo* (Florence: Leo S. Olschki, 1991).

⁹⁰ Antonio Dávila Perez, 'El epistolario de Benito Arias Montano, catálogo provisional', *De Gulden Passer* 80 (2002): 63–129.

⁹¹ See <http://emlo-portal.bodleian.ox.ac.uk/collections/?catalogue=joseph-justus-scaliger>, accessed 20/03/2019.

⁹² Charles B. Schmitt, 'The Correspondence of Jacques Daléchamps (1513–1588)' *Viator* 8 (1977): 399–434, and 409–34, see <https://doi.org/10.1484/J.VIATOR.2.301574>.

⁹³ Appendix to Axel E. Walter, *Späthumanismus und Konfessionspolitik: Die europäische Gelehrtenrepublik um 1600 im Spiegel der Korrespondenzen Georg Michael Lingelsheims* (Tübingen: Max Niemeyer Verlag, 2004), 478–545.

(2006),⁹⁴ Leo van Santen's listing of Ludwig Crocius's letters (2014),⁹⁵ and Martin Mulsow's overview of Christoph August Heumann's correspondence (2017).⁹⁶ Modern editions are typically accompanied by appendixes listing the metadata of the letters published; such appendixes are structured inventories of correspondences and may be found in such works as Kemke's edition of the correspondence of Patrick Young (1898),⁹⁷ or Sophie van Romburgh's edition of Franciscus Junius the Younger (2004).⁹⁸ Digitizing such lists is a relatively simple task, although a laborious one. Such tables can be OCR'd and automatically turned into electronic tables, but they require much manual correction and curation.

3.3 A Framework for Assembling Catalogue-level Descriptions

The resources itemized in the previous section represent only the principal points of departure for exploring and assembling a comprehensive union catalogue of learned correspondence in early modern Europe; yet the quantity of data potentially available even within these resources is dauntingly large. The following chapter (III.2) describes the development of semi-automated tools and systems to facilitate and accelerate the transformation of this often rough-and-ready data into high-quality normalized catalogue metadata. Yet even with the assistance of such tools, alternative approaches will be needed if we wish to assemble a comprehensive pool of relevant data in an efficient and properly prioritized fashion.

One obvious approach is to develop means of collecting collection-level descriptions of correspondence archives as a first step towards providing item-level descriptions. Providing collection-level descriptions is obviously a more difficult challenge for manuscript letters than for printed ones. The early modern printed letter collections discussed in section 2 can easily be described by well-established bibliographical standards; huge quantities of data of this kind have already been assembled in existing bibliographies; and the project of assembling a comprehensive set of such collection-level descriptions is now well under way in the EROL project described in section 2.2.

Analogous attempts to assemble collection-level descriptions of manuscript correspondence do not enjoy these advantages, but neither must they begin *de novo*.

⁹⁴ Peter Korteweg, *De Nieuwtestamentische commentaren van Johannes Drusius (1550–1616)* (Melissant: s.n., 2006).

⁹⁵ Leo van Santen, *Bremen als Brennpunkt reformierter Irenik. Eine soziologische Darstellung anhand der Biographie des Theologen Ludwig Crocius* (Leiden and Boston: Brill, 2014).

⁹⁶ Martin Mulsow, 'Der Verbesserer. Heumanns Poecile im Kontext seiner Korrespondenz mit der Gelehrtenrepublik. Mit einem Inventar von Heumanns Briefwechsel,' in Martin Mulsow, Kasper Risbjerg Eskildsen, and Helmut Zedelmaier, eds., *Christoph August Heumann (1681–1764). Gelehrte Praxis zwischen christlichem Humanismus und Aufklärung* (Stuttgart: Franz Steiner Verlag, 2017), 39–70.

⁹⁷ Johannes Kemke, *Patricius Junius (Patrick Young), Bibliothekar der Könige Jacob I. und Carl I. von England: Mittheilungen aus seinem Briefwechsel* (Leipzig: M. Spirgatis, 1898).

⁹⁸ Sophie van Romburgh, *For my worthy friend Mr Franciscus Junius: An Edition of the Correspondence of Francis Junius F.F. (1591–1677)* (Leiden and Boston: Brill, 2004).

At a COST Action meeting held in The Hague in 2016, members of Working Group 4 addressed these issues and advocated the use of existing international standards for describing correspondence collections as far as possible. Two leading international standards, ISAD (G) and DACs, were singled out for special consideration.⁹⁹ ISAD (G) is the acronym for the ‘General International Standard Archival Description’, a comprehensive document adopted by the International Council on Archives in 1999. DACs refers to ‘Describing Archives: A Content Standard’, which was published by the Society of American Archivists in 2013. In addition, EAD (Encoded Archival Description) was advocated for the ‘Reference Code’ since EAD is the standard recognized by the Library of Congress for encoding archival collections in a manner that both reflects the hierarchical nature of archival description and which is compatible with SGML (Standard Generalized Markup Language) and XML (Extensible Markup Language).¹⁰⁰ After studying these models, the following key elements were agreed upon for any future online union catalogue capable of accommodating collection-level descriptions of correspondence:

1. Reference Code: EAD (Encoded Archival Description) to be used.
2. Name and Location of Depository.
3. Title: the name of the collection in existing finding aids.
4. Dates of Creation (of record).
5. Name of Creator (of record): author of file to be named.
6. Extent: including number of letters, whenever possible.
7. Level of Description: the only practicable course would be to ask the archive/library to use their own original system, since this would normally conform to ISAD (G) norms.
8. Scope and Content: to be included as far as possible.
9. Access: this field should include the URL of institutions (vital for small repositories) and note any access restrictions.
10. Languages and Scripts: ISO standards 639–2 and 639–3 to be used.
11. Administrative and Biographical History: provenance and collection description history to be noted, and existing finding aids listed.

⁹⁹ For ISAD(G), see the *General International Standard Archival Description*. 2nd edn. Adopted by the Committee on Descriptive Standards, Stockholm, Sweden, 19–22 September 1999 (Ottawa, 2000), see <https://web.archive.org/web/20111027061153/http://www.icacds.org.uk/eng/ISAD%28G%29.pdf>. For DACS: ‘Describing Archives: A Content Standard’, 2nd edn., see <https://www2.archivists.org/standards/DACS>; both accessed 20/03/2019.

¹⁰⁰ See <https://www.loc.gov/ead/>, accessed 20/03/2019.

12. Access points: including URLs of institution's access points if available and links to cognate institutions.

In addition to these standard fields, a number of additional fields would increase the utility of such a resource:

13. EULO unique identifier for collections.
14. Reference note: to include both printed and manuscript collections (e.g. link to printed edition of Grotius; links to articles on collections; URL links to same).

As in the analogous case of crowdsourcing item-level records (see the discussion of CEMROL in section 2.3 above), the chief difficulty in rolling out a programme of assembling collection-level descriptions of this kind would be that of recruiting participants in a huge range of libraries and archives across and beyond Europe. The technical precondition for such a campaign would be an online interface prompting archivists, librarians, and other scholars to enter properly formatted material under all of these headings. The best means of recruiting contributors would presumably be to act via international organizations such as the Consortium of European Research Libraries (CERL) and the International Council on Archives. Again, such a campaign would be most likely to succeed if coordinated with a broader campaign to assemble item-level metadata on a large scale, either as an end in itself or as a precondition for a systematic campaign of digitization. But how exactly can this be done and what are the necessary prerequisites? For answers to these questions see the infrastructure outlined in chapter III.5.