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"Much Material of 1821 Not Listed": Troubling Christina Colvin's Calendar of Maria Edgeworth's Correspondence with Digital Analysis

Anna Louise Senkiw, Keble College, Oxford, United Kingdom, anna.senkiw@keble.ox.ac.uk

The Edgeworth family have been the subject of much scholarly research in terms of literature, science, and education over the past thirty years. As an Anglo-Irish family, their reception in both British and Irish history has been complicated by their liminal nationhood (Manly and Wharton 2020). Critical attention has focused on the patriarch, Richard Lovell Edgeworth (1744–1817), politician, member of the Lunar Society, and a scientist, and his daughter Maria (1768–1849), a writer and educationalist. They both participated in cultural, political, and scientific networks across Ireland, Britain, and Europe during the late eighteenth and early nineteenth centuries and corresponded with several notable writers, thinkers, scientists, and politicians, which has resulted in a large manuscript archive housed in institutions across the world. Focus on Richard Lovell and Maria is neither unexpected nor unfounded, but it nevertheless obscures the roles played by others in their large, well-connected "blended family": after all, Maria was one of twenty-two children that Richard Lovell fathered by four wives, and their familial network extended to a considerable number of aunts, uncles, in-laws, and cousins too. Digital tools are being used to create a global "virtual" collection and online, searchable catalogues of their extant correspondence, while digital research is making newly visible, and visible in new ways, the nature of their network and the collaborative nature of the ways it made and circulated knowledge. What follows offers a new perspective on the extant Edgeworth correspondence, and the way it has been understood for the past half-century, made possible by reassessing the network data (including correspondents, dates, and location of letters) as presented in library catalogues.

La famille Edgeworth a fait l'objet de nombreuses recherches scientifiques en termes de littérature, de science et d'éducation au cours des trente dernières années. Cette famille nombreuse—le patriarche, Richard Lovell, a eu vingt-deux enfants—a participé à des réseaux culturels, politiques et scientifiques en Irlande, en Grande-Bretagne et en Europe à la fin du XVIIIe siècle et au début du XIXe siècle et a correspondu avec plusieurs écrivains, penseurs, scientifiques et hommes politiques de renom, ce qui a donné lieu à d'importantes archives manuscrites conservées dans des institutions à travers le monde. Bien que des sélections de correspondances aient été rendues disponibles sous

Digital Studies/Le champ numérique is a peer-reviewed open access journal published by the Open Library of Humanities. © 2024 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See http://creativecommons.org/licenses/by/4.0/. @OPEN ACCESS forme imprimée au cours du XXe siècle, les outils numériques sont aujourd'hui utilisés pour créer une collection "virtuelle" mondiale et des catalogues consultables en ligne de leur correspondance existante, tandis que la recherche numérique rend nouvellement visible, et de manière inédite, la nature de leur réseau et la nature collaborative de ses modes d'élaboration et de circulation des connaissances. Cet article offre une nouvelle perspective sur la correspondance Edgeworth existante et sur la manière dont elle a été comprise au cours des cinquante dernières années, rendue possible par la réévaluation des données du réseau (y compris les correspondants, les dates et l'emplacement des lettres) telles qu'elles sont présentées dans les catalogues des bibliothèques.

The Edgeworths lived during a period in which the letter was "the dominant form of writing" (Goodman 1994, 137; see also Brant 2006; Whyman 2009; O'Neill 2015). Even so, the surviving volume of their correspondence is remarkable; though Maria's contemporary, Jane Austen, probably wrote thousands of letters during her lifetime, the number of known extant letters written by her is only 161 (Austen 2014). The largest collection of Edgeworth family correspondence (consisting of some 4,319 items, known as the Edgeworth Papers) is housed in the Bodleian Libraries (Bodleian) and the National Library of Ireland (NLI), though there are also several smaller collections in libraries and archives worldwide. The split between the libraries is uneven; the NLI contains around 1,409 items (c. 1724-1817), whilst the Bodleian holds around 2,910 items dating between c. 1818 and 1852. The larger manuscript archives split between the two libraries contain approximately 40,000 items (the majority at the Bodleian), including manuscript drafts, drawings, and family correspondence, of which only a tiny percentage is available in print, and even less is subject to scholarly editing. And the collections continue to grow; in 2019 the Bodleian acquired the Holland Papers, which include a number of letters to and from Maria Edgeworth. For the most part, therefore, access to these materials relies upon physically going to the libraries and, of course, knowing where they are in the first place. The only large-scale digital resource drawing on the archive that currently exists is a converted microfilm-to-digital collection of images of the manuscripts produced by Adam Matthew Digital (Edgeworth 1994). These images are of low quality, since they were derived from microfilm, and the text is not searchable nor open access, and neither the images nor the catalogue have been transcribed or encoded.

Despite the fact, however, that Maria "disapproved strongly of the publication of letters" (Colvin 1971, xxix), a number of print editions of selections of the correspondence have been published since the late nineteenth century: Augustus J. C. Hare's *Life and Letters of Maria Edgeworth* (1894), Christina Colvin's *Letters from England*, 1813–1844 (1971), *Maria Edgeworth in France and Switzerland: Selections from the Edgeworth Family Letters* (1979), and more recently, Valerie Pakenham's *Maria Edgeworth's Letters from Ireland* (2018). These by no means represent comprehensive coverage of the correspondence, not least because they mainly consist of the work of a single correspondent, Maria; scholarly work on the letters tends to focus on her letters too.

Alongside such publications, there has been rich scholarly discussion of the correspondence. The last decade has seen renewed interest in the role Maria's correspondence networks played in her literary and philosophical development. Jane Rendall, for example, uses the Holland papers to investigate the links between Maria and the Scottish Enlightenment (Rendall 2020), whilst Amy Prendergast examines Maria's

"literary sociability" within her Irish correspondence network (Prendergast 2016), and Catherine Craft-Fairchild explores the influence of American Rachel Mordecai Lazarus's letters to Maria on her novel writing, which culminated in *Harrington* (1817) (Craft-Fairchild 2014). But there remains considerably less work on the family correspondence, though, as Colvin acknowledges,

her surviving letters to people in the outside world are numerous enough. They are, however, mostly very different from those she wrote to her family—careful, punctuated, over-polite and rather sedate. The letters to her family, on the other hand, are spontaneous, informal, and often ungrammatical and incorrect over facts ("As to accuracy, I can compare myself only to the sailor who 'would never quarrel for a handful of degrees'"). Though her essays and novels are composed in an elegant and well controlled style, the letters she wrote in the later part of her life are so conversational and parenthetical that no one could turn them into correct English without substantial re-writing. (Colvin 1971, xxviii)

There is, therefore, much to explore about Maria's use of different registers depending on her addressees, as well as more work to be done on the role of other family members in shaping Maria's life and work. The inadequate access to the materials has until now made this difficult, but digital technologies offer hope for more holistic approaches to Edgeworth scholarship.

Two recent projects use digital tools to reimagine the ways in which students and scholars can engage with the Edgeworth correspondence. The first, the Maria Edgeworth Letters Project (Richard et al. 2024), led by Jessica Richard, aspires to identify the letters written by Maria housed in collections beyond the NLI and Bodleian and to produce TEI-approved transcriptions of them. The second, the Digital Edgeworth Network (DEN), which has led to this article, explores the manuscript letters held by the NLI and the Bodleian and seeks digital solutions to reunify this important social, cultural, political, literary, and family archive. DEN grew out of an earlier pilot project, "Opening the Edgeworth Papers" (OEP, 2019–2021), which focused on a year's worth of material held in the Bodleian (letters dated 1819–1820) and began the process of bringing current Edgeworth scholars together. What follows examines our work in the DEN, scoping this correspondence further across both the NLI and the Bodleian using social network analysis, drawing out the implications not only for our current understanding of the collection, but also the ways in which the collection has been conceived and understood previously.

The Calendar

The Edgeworth Papers were largely donated to the two libraries by Christina Colvin, née Butler (1919-2003), a descendent of the Edgeworth family through Richard Lovell's daughter Harriet (1801–1889), who married Richard Butler in 1826. Marilyn Butler, Colvin's sister-in-law and author of Maria Edgeworth: A Literary Biography (1972), a work that drew extensively on the Bodleian donations, acknowledged her as having "unrivalled familiarity with the Edgeworths and their correspondence" (Butler 1972). As well as publishing two volumes of the correspondence, Colvin bequeathed to future scholars an impressive 300-page typescript "Calendar," which details the family correspondence from the eighteenth and nineteenth centuries. (The Calendar is available at the Bodleian under shelfmark MS. Facs. c. 99 and in the NLI [Colvin 1982-1987]. The NLI section is also available as a PDF as a handlist to Collection List 40 via their website [NLI 2024]. It does not name Colvin.) Navigating the correspondence like the family tree—is an enormous task, and Colvin's work has helped generations of scholars to make sense of the archive of letters across the two libraries. Until recent online catalogues became available, the Calendar was the primary means for archivists, librarians, and researchers to have an overview of this correspondence.

It is not a catalogue, however, of the entire collection in either library, which also comprises literary drafts and drawings; it represents about one-tenth of the total items held across the two libraries. As well as elucidating the collection's content, it also draws attention to the divisions between the material in the archives. Most obviously, the collection is split geographically across the Irish Sea, but there are further differences. Each library adopted a different method to cataloguing the letters listed in the Calendar; the NLI (which has, for the most part, the pre-1817 material) orders chronologically, whilst the Bodleian papers are archived by correspondent. Both systems have their merits and shortcomings, but neither enables a reader to follow a particular conversation between two correspondents in the archive. Only a digital archive, in which the user can search and organize the material they wish to view, will enable this.

The Calendar, therefore, is a useful tool for navigating the collection, albeit one that—as I will discuss—introduces flaws of its own. It at once reflects the organizing principles underpinning the Bodleian and NLI's cataloguing and archiving systems and resists them. Both methods have drawbacks; at first encounter, the chronology of the NLI makes sense, but tracing one particular correspondent becomes difficult, whilst the Bodleian's system is complicated by the multiple authorship and senders of large numbers of the correspondence; to get a sense of the to-and-fro of all correspondence at a particular time, you need to call up several boxes and piece together the narrative.

Colvin's fidelity to the NLI method means that her record of the NLI holdings runs straight through; however, her approach to the Bodleian appears at first to be less consistent, as the contents page suggests:

Letters of Maria Edgeworth, 1818–49 Edgeworth family correspondence, 1818–52 Letters of Maria Edgeworth and her sisters on their tour of Scotland, 1823 Letters of Maria Edgeworth and her sisters on their French tour, 1820 Letters of Honora, Fanny and Harriet Edgeworth in England, 1818–22

These categories do not reflect the general cataloguing principles of the Bodleian library material. For example, the first three letters in the "Letters of Maria Edgeworth, 1818–49" direct you to folders c. 712, c. 720 and c. 696 because they are ordered by letters to correspondent (Harriet Edgeworth, Mrs. O'Beirne, and Mrs. Frances Edgeworth, respectively). Colvin explains her decision to keep the travel letters together, however, in the introduction to *Maria Edgeworth in France and Switzerland* as adhering to the wishes of the Edgeworths themselves, who "placed special value on the letters written away from Ireland" and desired them to be kept together to record their travels, distinct from the rest of the correspondence (Colvin 1979, xxvi). Colvin's explanation reminds us of the competing (or even conflicting) motivations and purposes underpinning archival and cataloguing practices; preserving the archive in this way might frustrate attempts to catalogue the material uniformly, but it offers a valuable record of the Edgeworths' own sense of their writing.

It remains, however, that neither the Bodleian nor the NLI's cataloguing makes it easy to see how much correspondence there is between individuals—and nor does the Calendar's. Digital tools offer potential solutions to resolve this. The work undertaken by DEN—first compiling a spreadsheet of the data, and second using the dataset for social network analysis—has produced new insights about the Calendar and, by extension, the correspondence itself. The work undertaken to extract, clean, and analyze the data, makes it possible to view the correspondence in ways difficult within the library setting itself. In correspondence with the DEN, the two libraries have been working on new resources to rework the Calendar for the digital age; at Oxford, the Calendar has been encoded and ingested into an online open access resource, Digital Bodleian (Bodleian Libraries 2024), along with 2,000 images (about 10% of the holdings), and the NLI is working on a project to catalogue and digitize the Edgeworth papers in its collection.

Colvin listed around 4,000 items, recording (where known) the information on senders, recipients, dates, and locations. None of these categories is simple: many of the letters are multi-authored and intended to be read by more than one person.

Often, much to her chagrin, Maria's letters were shared beyond her wishes (Colvin 1971, xxviii–xxix). Where there is uncertainty, Colvin offers some assumptions, and although no key exists to explain her use of the symbols "[]" and "/", both appear to imply conjecture. Many of the entries are accompanied by brief descriptions of the letter content; some have lengthy descriptions, whilst others have scant remarks, and others nothing at all. Shelf-marks were added by hand to the completed typescript by Mary Clapinson, former Keeper of Western Manuscripts at the Bodleian.

Colvin's list is extensive, but not exhaustive. A handwritten note scrawled at the top of page 139, which reads, "much material of 1821 not listed," betrays the inconsistencies, omissions, and difficulties that underlie what is, at first glance, a comprehensive document. Not incidentally, 1821 is the year from which most correspondence had already been published in volumes edited by Colvin. The purpose of the "Calendar" ought not to be forgotten. Until scans made it possible to read the Calendar as a PDF, there were only hard copies available at the Bodleian and the NLI. It was designed as a finding aid to the collection, a guide or tool for those already in situ researching the materials: it makes no claims to be a substitute for reading the correspondence, nor a document for the general public. It is the case, however, that Colvin's Calendar helped to shape the kinds of research questions asked about the material because it seemingly offered the most complete overview of the collection's contents. After all, non-digital handlists like Colvin's Calendar serve as sources for understanding (as well as ordering) materials that are not easily searchable and require transcription (incurring labour, time, and financial costs) in order to become so. As such, it remains a valuable resource and starting point for digital analysis, while that same analysis may help us better understand its errors and omissions.

"Virtually all"

My task as a researcher with DEN was to extrapolate the data from the Calendar about the correspondence. I recorded the senders, recipients, dates, locations of senders, and locations of recipients, as well as listing the people, places, and books mentioned in the descriptions under different fields in an MS Excel spreadsheet. Almost immediately inconsistencies arose. The process of dividing the constituent references in the Calendar into different categories for the spreadsheet made clear the very incompleteness of what appears at first to be a comprehensive document. There is some missing information, such as dates or the names of a sender or recipient due to the inadequate information on the letter itself, such that Colvin could not identify them. She lists one cluster of six letters, for instance, as "children's letters," with no further details about senders or recipients, even though names are visible on the letters themselves. Further investigation by the project team revealed these letters to be written by some of the Edgeworth daughters when in their teens; why Colvin did not list these letters individually, as she did most other times, is not clear. Colvin uses a variety of signs and symbols to indicate guesses, but there is no key. Still, this does not explain all the omissions; some of the letters, for example, are clearly marked as written from or to Edgeworthstown, where the Edgeworths lived in County Longford, Ireland, but Colvin did not consistently record this information—perhaps because it was only worthwhile noting a place if it were unexpected, and so much of the correspondence does emanate from or arrive at the family home that it becomes the default "address." Then there is the description of the contents of the letters themselves, although some entries provide no information at all.

Even those entries with extensive descriptions cannot be relied on to be comprehensive. Close reading a sample of the letters alongside their Calendar entry reveals numerous omissions. For example, the entry for a letter from Maria Edgeworth to her Aunt Ruxton (c. 718, fols. 91-92) lists the following people as mentioned in the letter: William Edgeworth, Harriet Butler, Mr. Carr, and Charles Sneyd Edgeworth (CSE). Reading the letter itself reveals a number of people omitted from the Calendar description who were either mentioned or discussed at length: Mr. Peacock, Dr. Brown, Mr. Grimshaw, Miss Ellison, Mr. Butler, Sophy, Fanny, Mrs. Edgeworth, Mrs. Carr and her four daughters, and "some great body's cook" (Edgeworth 1828). This is a considerable number of people, though there is no clear explanation for why some people are recorded and others not. The same issue applies to places. In this instance, only "CSE's house" is listed in the Calendar, but the letter also discusses "Scarrifbridge [Scariff Bridge]," Cloonagh, Mullingar, Kilkenny, London, and Sevenoaks (Barstead), and Baggott Street (Dublin). Whilst letters listed with no descriptions clearly require the researcher to read the letter to know the contents, these omissions are less obvious: the entries are presented as comprehensive, with no indication that they might not have recorded all information. Moreover, the contents' descriptions are not the only place omissions that can be found. The next letter in the sequence from Maria to her Aunt Ruxton (c. 718, fols. 93–94) does not list the recipient location, but it is clearly marked on the letter itself as Bloomfield, Dublin, where her aunt was living at the time the letter was written. Colvin does list sender and recipient locations occasionally, but not consistently, with no explanation provided as to her reasons for so doing. We might speculate, however, that she only gives the information if it is to mark a change in location (for example, returning home from travels) or if the place is not likely to be known by Edgeworth specialists. This is, of course, unhelpful for the less-informed researcher. The implication from consultation of the Calendar entry, however, is that there is no such information in the letter when there is.

Only halfway through the Calendar do we get an insight into Colvin's methodologies: a handwritten note (see **Figure 1**). It appears at the end of a list of abbreviations used in the Calendar from 1788 to 1817 (so the NLI section), on page 207, and it helps to clarify Colvin's idea of the scope of the Calendar:

This calendar/index includes virtually all literary references in the letters, both to works by the Edgeworths and those by other authors, although book titles of works by other authors are mostly written noted as written in the letters; the titles have not been checked. Virtually all political references are [listed (?)] and also estate affairs and any references of substance to persons or to architecture, art, science & technology. No attempt has been made to list references to family history, unless very important, and the social history references proved too numerous to list. (Colvin 1982–1987)

Colvin's repeated claim that "virtually all" references to literary and political events are included offers up not only the intriguing possibilities of omissions, but also what possibilities there are for restoring or reorganizing the data in the "virtual" landscape of the digital age. We are not only able to present the data in new ways, but these tools enable us to expose the data gaps too. Only by systematically preparing the dataset did the extent of the omissions in the Calendar become clear and make manifest the issues that need to be considered when applying metadata tags to online catalogues.

This calendar / index includes rintually all literary references in the letters, both to works by the Edgeworthe and these by other anthors, although book titles of works by other authors other anthors, although book titles of works by other authors are mostly office as written in The letters; the hotes have not been chicked. Virtually all political references autisin unit-also estate affairs and any refuences & substance n pursous a to-architecture, out, saince stechnology No-astempt has been made to hist references to family history, anders very important, and the social hestory references provertoe numerous to hist.

Figure 1: Christina Colvin's handwritten note

Given these omissions, inaccuracies, and the occasional misrepresentation, we might ask why we should bother to extrapolate data from Colvin's Calendar at all. To us, the answers are simple. First, the Calendar is a substantial piece of research in and of itself, which enables scholars to navigate a large, mainly untranscribed corpus of correspondence. Second, its contents also tell us much about the biases, methods, and thinking that drove research into this collection in the late twentieth-century analogue age. New digital catalogues at the Bodleian and NLI and the availability of digital images of letters and transcriptions will provide new access to content alongside updated information for scholars. But for those of us interested in mining the archive, understanding how it has been organized and understood (indeed how the organization shapes how it is understood) is an important first step.

Whether our project should aim to include the missing information in a digital form of the Calendar was a central question to our early project planning. Time, funding, and a pandemic gave us the answer: within the scope of the project, there would be no possibility of reading all the correspondence and effectively writing a new Calendar. The project team decided it would be best to enter the information Colvin provides without supplementing, though we did correct obvious errors (for example, a clearly mistyped year or name) and our investigation shifted to produce social network analysis based on her information. For example, the six "children's letters" were entered into the spreadsheet as such, even though we obtained facsimile images and had ascertained who the individual writers and recipients were. By preserving Colvin's Calendar in the dataset, we replicate the same omissions but are better placed to understand the implications of her decisions. In one sense, this means it is not a study of the correspondence itself (which would require far more time, resources, and labour), but rather a use of digital technologies to better understand how the archive has been understood in and of itself. And yet the visualizations produced from the network analysis nevertheless offer new information about and insights into the correspondence, particularly in terms of the gender of correspondents and the most common individuals (writers or recipients) in the network. Whilst the investigation of cultures of collecting examines what, why, and how a collection has been formed, this focus on the culture of cataloguing might help us understand how cataloguing processes and data capture (both analogue and digital) shape the kinds of research that might be undertaken, the questions we might ask, and the answers we might find. To list everything would be an unwieldy task, and some decisions about exclusion are necessary; what must be clear and explicit is the methodology used to avoid misrepresenting the collection. As Kate Davison warns, "If used uncritically, the reconstruction of a network can be superficial or, worse, misleading" (Davison 2019, 480).

4,000 rows: What next?

The dataset represented in the Excel spreadsheet derived from the Calendar offers new ways of ordering and exploring the correspondence—by gender, number of senders or recipients, age, location, or family cluster. Data cleaning took place to simplify the entries: how to account, for example, for women's surnames changing after marriage? Colvin simply uses the new name, which could not work for social network analysis because each person required a unique identifier. Rationalizing names so that each person is represented by one unique identifier was crucial to producing accurate social network analysis, even if the identifier chosen did not reflect their name at the time they wrote the particular item. A related problem was the fact that there are shared family names that refer to different people and the need to disambiguate them through naming practices. There are, for example, three Honoras, a mother and daughter both named Frances (with a brother called Francis), and, of course, four Mrs. Edgeworths. For the most part, Colvin diligently represents these individuals in her Calendar, though there are occasional mistakes, but she finds no need to give a separate name for William Edgeworth (1788–1790), William Edgeworth (1794–1829), William Edgeworth (1832– 1833), and William Edgeworth (1834–1863), as none were alive at the same time. (Of these four William Edgeworths, only two contributed to the correspondence as writers or recipients, but all were named in letters and therefore needed a unique identifier.) Where individuals had the same name, we used middle names and married names to help distinguish them. For the visualizations, we used shorthands for each name in order to improve the legibility of the image (see Appendix A).

Further questions complicated the data entry: how to account for Colvin's speculations of people, dates, places to varying degrees of certainty? And, how to present secondary or tertiary senders or recipients? The solution was to complete a full inventory of the information based on Colvin's Calendar and then to make various copies in which we rationalized the dataset. For the social network analysis discussed below, we did not include letters with an unknown or uncertain sender or recipient and, though it was common practice for letters to be multi-authored and received, we only included the primary author and recipient. These decisions shaped the kind of visualizations we could produce, and by acknowledging them, we make manifest their limitations. If the contributions of all family members to each letter are not visible in the visualizations, the resulting images are more meaningful in our task to help us see those whom Colvin described as the central figures in the epistolary network. Though, as discussed above, the people, places, and books mentioned by Colvin for each letter were recorded, we did not undertake full analysis of this information at this stage, although all items were captured and recorded in the spreadsheet, leaving avenues for further investigation open.

Simple number crunching enables new understanding of the correspondence. Reworking the Calendar into a spreadsheet produced 4,940 rows and columns running from A to AC (29). Each row represents a different letter, and of these, there are 390 unique correspondents (listed as either writer, recipient, or both), in addition to a number of unknowns and some groups (such as "3 schoolgirls"). An initial attempt at social networking from this data created an unhelpful image, with too many results. As Laura C. Mandell observes, "too much information is as bad as too little if you cannot tell what counts as meaningful, or how to account for significance in a way that isn't about numbers" (Mandell 2016, 517). The oversaturated graph first produced supports Mandell's



Figure 2: Whole network graph of correspondents with more than one entry in the collection. The image serves to illustrate the size and scale of the network, rather than what the individual nodes represent or to what they are connected. Indeed the image is difficult to read, which reinforces the need to be more selective with data parameters in order to produce more legible and meaningful network graphs.

view; no meaningful qualitative research could be done from this dataset or the image produced. Limiting entries in NodeXL to those with more than one item in the archive improved the visualization (see Figure 2), but still not enough to provide meaningful data beyond verifying the assumption that Maria and Richard Lovell-represented here as the largest and most central nodes—were the biggest correspondents in the network. The visualizations establish the numerical prevalence of these two writers in the correspondence as a whole. This affirmation might disappoint those who want digital tools to enable them to "discover" something new, but it cannot discover something the material archive does not contain. Instead, we should consider that the expected visualization "thus validates the reliability of the analysis" (McShane 2018, 9). (McShane is writing here about the largest node in her visualization of sixteenthcentury Benedictines in Brussels being the Abbess Mary Percy—an expected result, which tells us that her methods are working.) But this graph alone seems to replicate the attention paid to Maria and Richard Lovell that distorts the role of the family in their life and work. Their prevalence in this archive might have more to do with whose letters were collected and preserved than reflect the most prolific letter writers amongst the Edgeworths. As Davison reminds us, "The underlying concern of studies of social networks is to capture how people connect to one another, to what ends and with what results" (Davison 2019, 460). Using almost the entire dataset was not conducive to successfully achieving this. To put it another way, to create meaningful visualizations and begin to address the priorities Davison outlines, we took inspiration from the forerunner to DEN, "Opening the Edgeworth Papers" (OEP), and saw the benefit of focusing on the family as an entity and examining their correspondence.

OEP, a project co-run by the University of Oxford's English Faculty and the Bodleian Libraries, showcased material from the Bodleian's Edgeworth Collection in a series of monthly blogs from March 2019 to February 2020, aimed at a general, public audience. One objective was to set Maria and Richard better within their wider family context, and so, each monthly blog tracked the movements and attitudes of various family members between March 1819 and February 1820 punctually over the year. A further outcome was an exhibition in the Bodleian Library Proscholium called "Meet the Edgeworths" (November 2019–January 2020), which was designed to introduce visitors to the Edgeworth family, their lives, and their correspondence. Inspired by the family tree that appears in Marilyn Butler's biography (Butler 1972, 489), the backdrop to the exhibition case was a dynamic family tree featuring more of the collection's highlights (sketches, watercolours, and silhouettes of the family members created by family members) used as visual shorthand to enable visitors to understand the family relationships (see Figure 3). One outcome of this project is that the family tree is now housed at the Maria Edgeworth Centre, County Longford, as a visual aid for visitors to help understand the family connections.



Figure 3: "Meet the Edgeworths" exhibition display case family tree backdrop. With thanks to Sallyanne Gilchrist and the Bodleian exhibitions team (the author, Ros Ballaster, and Ben Wilkinson-Turnbull co-curated the exhibition and worked on the project).

The exhibition family tree, however, only shows the genealogical relationships, a top-down structure that flattens the roles between the children and gives equal weight to each wife. Our dataset, coupled with social network analysis, made it possible for us to reimagine the family not through genealogical connections but through correspondence. Therefore, for the third attempt at using the dataset for social network analysis, we restricted the "degree" of relationship further, limiting it to Richard Lovell Edgeworth, his wives, and children (the "nuclear" family). We did not include any letters where the recipient or sender was uncertain. The total number of letters included is 2,514. By using images of the family members (where possible) instead of the circular dots to represent the different nodes, we could visualize the biological, genealogical family as an epistolary network (see Figure 4 and Figure 5). Not all of the family members who appear in the family tree feature in the network graph: there are no surviving letters in these collections from Richard Lovell's parents nor his first wife, Anna Maria Elers, and several children did not live long enough to participate in the family's correspondence as writers or direct recipients. Richard Lovell's sister, Margaret Ruxton, and her family do not appear in the first network graph (Figure 4) in order to best showcase the epistolary connections between Richard Lovell, his wives, and their progeny. Despite their prominence, Richard Lovell and Maria are only nodes in this image, which



Figure 4: "Profile picture" Edgeworth family correspondence network



Figure 5: The same network as above, but presented in a more traditional social networking format; the thicker lines indicate a greater volume of letters

allows us to nest them with other family members. Thicker lines between nodes indicate a greater volume of letters between correspondents. As Lindsay O'Neill reminds us, "The static image of the network as a web needs to be picked apart, analyzed, and set in motion" (O'Neill 2015, 7). After all this is almost a multi-generational network; although most of the participants here are siblings, there is a gap of forty-seven years between the eldest Edgeworth child and the youngest. Some of the children died too young to be members of the correspondence network, whilst others are conspicuous precisely by the very few letters they seem to have authored or received (indicated by the thinner lines on the graph). The image "in motion," as O'Neill puts it, can also help us to understand family dynamics; by flattening the temporal network and showing everyone at once irrespective of when they lived, we can identify the most significant correspondents, regardless of their lifespan. For example, as the underlying data reveals, the third most connected node is Maria's stepmother and Richard's fourth and final wife, Frances Anne, née Beaufort (1769–1865), who became an accomplished botany artist in her own right. Together they had six children, all of whom survived into adulthood. She was the longest-lived of all his wives (she died in her mid-nineties) and was married to him the longest (19 years) until his death in 1817. (Richard Lovell Edgeworth's first and second wives, Anna Maria and Honora, died within seven years of marriage, whilst his third wife, Elizabeth, died after 17 years. He remarried within a year following their deaths.) At the time of their marriage on 31 May 1798 (Richard's 54th birthday), Frances Anne was 29—a year younger than Maria. Despite the near parity in their ages, following their marriage, Maria refers to Frances Ann as her stepmother in her letters, and their correspondence reveals their closeness, especially following the death of Richard Lovell. Widowed whilst still in her forties, Frances Anne shared the head of household role with Maria and was the centre of family life for several decades. Her first letters in the collection date from before her marriage when she was Miss Frances Anne Beaufort, the daughter of Richard Lovell's friend, Daniel Augustus Beaufort, and the final ones show her to be the matriarch of a large and geographically sprawling blended family. The expected prevalence of Richard Lovell and Maria notwithstanding, our analysis shows Frances Anne to be a central contributor to the family correspondence, which provides a fuller understanding of her role within family life (see Figure 6). Her centrality also reflects this family's trend to have preserved the correspondence of more female than male contributors. The graphs show that this kind of data-driven approach to understanding correspondence archives can highlight individuals who might otherwise receive little critical attention. Amongst the talented Edgeworth family, it is easy to overlook Frances Anne's significance, and this work reinforces the need to revisit the lesser-known family members in order to fully assess their contribution to the family network.



Figure 6: The red line shows the correspondence between Frances Anne Edgeworth née Beaufort and other family members

Davison claims that "network studies tend to emphasize the presence of contact between people rather than its absence," but this tendency is not the case with a family network (Davison 2019, 476). Absence of letters, for example, does not indicate lack of closeness or communication—indeed, it may confirm the opposite: that two people were especially intimate or continued to live and travel together and therefore had no need to write letters to each other. With this in mind, however, we expanded our analysis beyond Richard Lovell and his children (the immediate family) to encompass a wider kinship network including aunts, uncles, cousins, and in-laws, whilst retaining the sense of a family correspondence. The visualization (Figure 7) shows the Edgeworths' (blue) correspondence with their relations (3,646 letters in total) the Ruxtons (orange), Sneyds (red), and Beauforts (green). The light blue figure— Kitty Billamore—is the housekeeper at Edgeworthstown, who was close to the family. This new network includes the three main figures—Richard Lovell, Maria, Frances Anne—and reveals their contributions to the wider family network. For Frances Anne, of course, an Edgeworth by marriage, the letters to and from the figures (in green) are correspondence between herself and her immediate family (father, mother, and

siblings). Though this trio remain central, other Edgeworth siblings appear more centrally too, including Charles Sneyd Edgeworth, Harriet Edgeworth Butler, Honora Edgeworth Beaufort, and Frances Maria Edgeworth Wilson, which tells us that several family members played a part in communicating with the wider network, and it was not the responsibility of a few key correspondents.



Figure 7: The Edgeworth (blue), Ruxton (orange), Sneyd (red), and Beaufort (green) network

The same dataset offers different means to investigate the same network. Other graphs produced showcase the balance of gender (**Figure 8**), and another (**Figure 9**) highlights all those (in blue) who feature as a child at least once in the archive. **Figure 8** shows the predominance of women's voices in the Edgeworth archive, with over double the number of women to men (26:12). This is especially significant given, as Susan Whyman points out, that in general, "fewer female letters survive" (Whyman 2009, 225). Moreover, though there was a slight majority of female daughters born (12:10) to Richard Lovell (something repeated within each nuclear family), more sons died (3) than daughters (1) before becoming part of the family correspondence network. Frances Anne too accounts for much of this; our analysis shows that from 1817, at least, the epistolary network of this female-led family was orchestrated by the matriarch.

Across the whole family network, as recorded in the Calendar, she authored 243 letters to 23 unique correspondents and received 625 letters from 26 correspondents. The results therefore reflect more women within the family; nevertheless, the graphs show significantly more engagement in letter writing, and perhaps letter preservation, by those women. Figure 9 is drawn from a slightly smaller set of letters (3,576) because we removed those letters where the year of composition is listed as unknown or uncertain. The graph tells us that of the 38 unique correspondents in the network, 50% (19) of the network began participating in this letter-writing community as children. Of those that did not, including Daniel Augustus Beaufort, John Ruxton, and Frances Anne Beaufort Edgeworth, they tended to enter into the family through marriage (of themselves or a relation). Of the 19 correspondents who first appear in the collection as either a child writer or recipient, 15 are Richard Lovell's children, evidence perhaps of the family's focus on education. These visualizations demonstrate that there is much more than letter content to explore within this family's correspondence; the graphs offer new insights into the connections between family members, as well as a re-evaluation of their roles within the family epistolary network and wider family role.



Figure 8: Gender view: women (purple) and men (green)



Figure 9: Adults (red) and children (blue) in the archive

Conclusion

Our project coincided with the outbreak of the COVID-19 global pandemic and was completed while many pandemic-related restrictions were in place. During this time, we all became acutely aware of the ways in which correspondence and communication can bridge distance and maintain connection. The context of the pandemic also made us especially alert to the simple fact that the correspondence network is a partial network; it represents people separated but able to communicate; lack of a letter does not indicate a lack of closeness, but it might be one unseen by an epistolary measure because the people in question were together. The dataset and graphs do not pretend to explain the content of the letters, but they do shine a light upon the ways in which we might catalogue and understand the collection as a whole. If it were to be re-catalogued from scratch, what details need to be recorded, what methods need to be accounted for? The classification of the letters and their descriptions are not neutral but shape the kinds of research that might be undertaken on the basis of that information. Recognizing that our networks are produced based on a selection of correspondents within a particular archive as documented by one scholar reminds us of the limitations of the visualizations and the meaning inferred.

That is not to say that the visualizations are flawed; indeed, one benefit of the visualizations is that they start to demystify the Edgeworth "family" and enable research into the possible interactions between individuals under the umbrella of kinship. A further outcome is that they might tell us more about the ways in which the collection has been recorded—and, for that matter, the material saved—than they can do about the nature of those actual familial relationships. Whilst this might not reveal more about the Edgeworths per se, it is, I argue, the kind of work that we should be undertaking: not endlessly recovering the archive, but exposing its silences. Women's and children's and non-canonical writing are stuck in cycles of recovery projects, which—despite early optimism—digital platforms have not solved. As Laura C. Mandell observes, "Early modern women writers have not been edited in the way that men have, many only ever having been printed once, during their lifetimes. There simply are not printed editions that can be compared in an apparatus. In contrast, works by men have been published and republished" (Mandell 2016, 517). By reconsidering the Calendar using digital analysis, we have gained a more accurate awareness of its limitations and weaknesses, whilst also showing that it does largely reflect what we might expect that Maria and Richard Lovell are at the centre with some important contributions from others—and is therefore generally reflective of the archive contents. DEN's social network analysis has highlighted the dominance of women (as revealed in Figure 8) and the role of children (Figure 9) in the network. These findings challenge the dominance of Maria and Richard Lovell-centric approaches to examining the Edgeworth archive. In addition, our study offers the kind of assessment and reappraisal of our scholarly apparatus (that is, the categories and descriptions we use to catalogue the archive) that is needed for feminist projects to move beyond simple recovery of women's contributions. Critical work centring on Maria and Richard Lovell's relationship, for example, ought now to be placed in dialogue with our understanding that Maria participated in a family correspondence network dominated by women's voices.

As well as rethinking Maria's epistolary relationships, our current work encourages further thought about the kinds of data we extrapolate for either digital or analogue records. Colvin's Calendar reflects the preoccupations, research questions, and interests she shared and also functions as a kind of bridging document, which provides a sense of unity to a divided collection. One measurable outcome from the project is that her analogue entries have now been remediated for the digital age as searchable online records through the Bodleian's web-based catalogue, making the collection more accessible than it was before. But in another sense, Colvin's presence in her Calendar is lost to this digital plane; her data was not created for the digital age or the remote reader. We cannot view a digital version of the whole typescript, and there is nothing to distinguish her data from other digital tags. Separated from the typescript document as individual entries (only sometimes attached to a digital image of the letter), we lose an understanding that the descriptions of the contents are hers, and with it an acknowledgement of their limitations or partiality. The remediation of Colvin's Calendar for this project goes beyond the searchable online records to identify the gaps in the original listing and mine data that can be analyzed to produce new knowledge about the correspondence, the family network, and the Calendar itself. As well as using current digital technologies to remediate and reconsider earlier critical focus of the correspondence, as defined by the Calendar, a further outcome of our project has been the fostering of new real-world relationships between institutions and archives in the present that will engender future reciprocity between the archives. Whilst the manuscripts remain divided by the Irish Sea, the Digital Edgeworth Network has laid foundations for virtual reunification and offered renewed understanding of the Edgeworth family as an epistolary network.

Name	Shorthand	Birth-Death	Relationship to RLE
Charles Sneyd Edgeworth	CSE	(1786-1864)	Child 12
Daniel Augustus Beaufort	DAB	(1739-1821)	Father-in-Law
Francis Beaufort Edgeworth	FBE	(1809–1846)	Child 21
Francis Beaufort, Rear Adm. Sir	FB	(1774-1857)	Brother-in-Law 2
Henry Edgeworth	Henry E	(1782-1813)	Child 9
John Ruxton	JR	(1743-1825)	Brother-in-Law
Michael Pakenham Edgeworth	MPE	(1812-1881)	Child 22
Richard Edgeworth	RE	(1765–1796)	Child 1
Richard Lovell Edgeworth	RLE	(1744-1817)	Father
Richard Ruxton Fitzherbert	RRF	(1775-1840)	Nephew 1
William Edgeworth	WE	(1794-1829)	Child 16
William Louis Beaufort	WLB	(1771-1849)	Brother-in-Law 3
Honora Edgeworth	HE	(1774-1790)	Child 6
Lovell Edgeworth	N/A	(1766–1766)	Child 2
Sophia Edgeworth	N/A	(1784-1784)	Child 11
Thomas Day Edgeworth	N/A	(1789–1792)	Child 14
William Edgeworth	N/A	(1788-1790)	Child 13
Anna Maria Edgeworth Beddoes	AMEB	(1773-1824)	Child 5
Anna Maria Elers Edgeworth	AMEE	(1743-1773)	Wife 1
Bessie Edgeworth	BE	(1781-1805)	Child 8
Charlotte Edgeworth	CE	(1783-1807)	Child 10
Charlotte Sneyd	CS	(1754-1822)	Sister-in-Law 2
Elizabeth Sneyd Edgeworth	ESE	(1753-1797)	Wife 3
Emmeline Edgeworth King	EEK	(1770-1817)	Child 4
Frances Anne Beaufort Edgeworth	FABE	(1769–1865)	Wife 4
Frances Maria Edgeworth Wilson	FMEW	(1799-1848)	Child 17
Harriet Beaufort	НВ	(1778-1865)	Sister-in-Law 3
Harriet Edgeworth Butler	HEBu	(1801-1889)	Child 18
Honora Edgeworth Beaufort	HEBe	(1792-1858)	Child 15
Honora Sneyd Edgeworth	HSE	(1751-1780)	Wife 2
Kitty Billamore	КВ	dates unknown	Housekeeper
Laetitia (Letty) Ruxton	LR	(1770-1800)	Niece 1
Louisa Catherine Beaufort	LCB	(1781-1867)	Sister-in-Law 4
Lovell Edgeworth	LE	(1775-1842)	Child 7
Lucy Jane Edgeworth Robinson	LJER	(1805–1897)	Child 20

Appendix A: Key to the shorthands used for network member names

Name	Shorthand	Birth-Death	Relationship to RLE
Margaret Edgeworth Ruxton	MER	(1746–1830)	Sister
Margaret Ruxton	MR	(1779–1854)	Niece 3
Maria Edgeworth	ME	(1768–1849)	Child 3
Mary Sneyd	MS	(1750–1841)	Sister-in-Law 1
Mary Waller Beaufort	MWB	(d.1821)	Mother-in-Law
Sophia Edgeworth Fox	SEF	(1803–1836)	Child 19
Sophy Ruxton	SR	(1776–1837)	Niece 2

Note: Struck-through names indicate children of Richard Lovell Edgeworth who did not live long enough to be correspondents.

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Competing interests

The author has no competing interests to declare.

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