Maps versus Networks*

Ruth Ahnert

The discourse surrounding early modern news communication is suffused with the language of networks. In this volume, and in other studies of European news, it is used to describe the infrastructure by which correspondence travelled: the postal network broadly defined; its roads and routes; the network of couriers that carried the letters. The more specialised language of nodes and hubs is used in relation to the centres where news was gathered, or entrepôts, trading posts where information could be exchanged alongside the import and export of merchandise. Similarly, the people that recorded, reported and circulated news—political officials and diplomats, informants and spies, merchants and churchmen—constituted social networks. The word ‘network’ has its origins, as one might expect, in net making, describing the weaving of materials such as threads or wires.¹ Now, more often, it is used metaphorically to denote various kinds of complex systems of interrelated things, from telecommunications routes and computer networks, to neural pathways and biological regulatory networks, ecological systems and social networks. More specifically, ‘complex networks’ describes a burgeoning field of study: despite the hugely divergent nature of different networks listed above—and, indeed the differing scholarly fields within which they are normally studied—a series of key publications in the 1990s and early 2000s showed that complex systems like these share an underlying order and follow simple laws, and therefore can be analyzed using the same mathematical tools and models.² However, despite the obvious promise that quantitative

* This chapter derives from ongoing research with my collaborator Sebastian E. Ahnert, who undertook the computational analysis of the data used in this chapter, and produced the network visualisations and graphs appearing in the following pages. I am extremely grateful to him for this contribution and for his collaboration more generally.

1 *OED*, network, *n.* and *adj.* 1.

2 See Duncan Watts and Steven Strogatz, ‘Collective Dynamics of “Small-world” Networks’, *Nature*, 393 (1998), pp. 440–2; Albert-László Barabási and Reka Albert, ‘Emergence of Scaling in Random Networks’, *Science*, 286 (1999), pp. 509–12; Reka Albert and Albert-László Barabási, ‘Statistical Mechanics of Complex Networks’, *Review of Modern Physics*, 74 (2002), 47–97; and Mark Newman, *Networks: An Introduction* (Oxford: Oxford University Press, 2010). For a general overview, see Albert-László Barabási, *Linked: The New Science of Networks* (Cambridge, MA: Perseus, 2002).

network analysis holds, these methods have not, as yet, been applied systematically to the study of news communication.

This statement might cause some readers to protest that they have seen various geographical visualisations that chart the spatial flow of news. Maps have been the dominant mode of representing the postal networks, which—as Nikolaus Schobesberger, Paul Arblaster, Mario Infelise, André Belo, Noah Moxham, Carmen Espejo and Joad Raymond show in their chapter ‘European Postal networks’—underlie the transmission of news in early modern Europe. The work done by these scholars and various others has enabled the reconstruction of the precise routes by road and sea and timings of the journeys undertaken by letter couriers riding between major cities like London, Rome and Vienna. On the more local scale, it has provided an understanding of the ‘remoteness’ of certain locations in the relaying of news: Mark Brayshay, Philip Harrison and Brian Chalkley have calculated from postmaster’s endorsements the “effective distance in travel time” of places located off the Treasury-funded post route from London towards south-west England.³ By depicting these routes and times on maps, we are able to gain a clear sense of what Brendan Dooley describes as the “geographical vector” of news flows.⁴ This is extremely valuable work that has important ramifications for our understanding of early modern epistolary culture, diplomacy, and trade, as well as news transmission.

A map, however, is not a network. A network, simply put, is a set of relationships between objects or entities. We normally refer to the objects or entities as ‘nodes’ in the network and their relationships as ‘edges’ or ‘ties’. In the worldwide web, the web pages would be nodes and the hyperlinks edges; in a social network, the people are the nodes, and the relationships between them edges. One way to understand the difference between maps and networks is through the lens of network visualisation. Networks are most commonly visualised as force-directed graphs (for an example, see Figure 5.1). Such visualisations employ an algorithm to determine the layout, which models the network edges as physical springs so that the most connected nodes (for example, those with the greatest number of edges or links) appear closer to the centre, and those that have the least connections appear at the network’s periphery. While this might seem like a logical enough layout for an ecological network, for example, such a model could seem counter-intuitive where geographical data is involved. The:

3 Mark Brayshay, Philip Harrison and Brian Chalkley, ‘Knowledge, nationhood and governance: the speed of the Royal post in early-modern England’, *Journal of Historical Geography*, 24 (1998), pp. 265–88, at 283.

4 See Ch. 6.

spatial dimensions (vertical and horizontal) that are so often meaningful in visualizations have no meaning here. There is no x or y axis, and spatial distance from one node to another is not inherently meaningful[.]⁵

In other words, a network of places in a news network might bear no resemblance to their locations on a map. But while this spatial distinction is helpful, it obscures the more fundamental difference between maps and networks: while the former is always visual, the latter need not be visualised. A network can be constructed and measured using computer programmes without it ever needing to be rendered graphically.

So, if network analysis ignores geography, why would it be useful to the study of news communication, and specifically, news communications in early modern Europe? The construction and measurement of communication networks provide an alternative way of understanding the connectivity of places and people in ways that may help us to redefine what we think of as centres and peripheries. The following chapter provides an introduction to the methods and measures employed in network analysis, highlighting algorithms particularly useful for social network analysis, using two separate bodies of early modern letters as a means of illustration. As such, then, this is a chapter about methods rather than findings, and its ultimate aim is to show that network analysis provides a realistic way of overcoming the obstacles that Raymond has identified to moving from multiple national narratives of news communication, to one integrated network of European news flow.⁶

The examples that I will be using derive from previous research on a Protestant letter network dating from the reign of Mary I, and ongoing research on the State papers archive; in the case of the latter I will be focusing on a subset, the State Papers Foreign, also from Mary's reign, to provide a comparable dataset.⁷ As demonstrated throughout this volume, the transmission of news across Europe was largely reliant on correspondence. Although dating from the same five years, these bodies of correspondence provide a useful comparison in terms of the kind of communication infrastructure they relied on. The

5 Shawn Graham, Ian Milligan, and Scott Weingart, *Exploring Big Historical Data: The Historian's Macroscopic* (London: Imperial College Press, 2015), p. 250.

6 Joad Raymond, 'Newspapers: A National or International Phenomenon?', *Media History*, 18 (2012), pp. 249–57.

7 Ruth Ahnert and Sebastian E. Ahnert, 'Protestant Letter Networks in the Reign of Mary I: A Quantitative Approach', *English Literary History*, 82:1 (2015), 1–33; and Ruth Ahnert and Sebastian E. Ahnert, 'A Community Under Attack: Protestant Letter Networks in the Reign of Mary I', *Leonardo*, 47:3 (2014), p. 275.

Protestant letters were secret communications by which information and ideas were exchanged and communities maintained during a period of intense persecution. They relied on trusted co-religionists to act as couriers, meaning that this communication network can be described as a self-organising system. The letters contained in the State Papers Foreign, by contrast, are a manifestation of institutional structure: these are the papers produced or received by the secretaries of state conducting British diplomacy abroad, including correspondence with English diplomats abroad and foreign diplomats in England, original and draft treaties, letters between heads of state, intercepted despatches and other intelligence, working papers of the secretaries, material relating to military, naval and colonial policy. The following chapter shows how network analysis can help to highlight the individuals within correspondence networks who are crucial to the infrastructure of the network, and to the transmission of news over long distances and across geographical borders. It also, however, seeks to draw attention to the problems of focusing on these long-range links to the detriment of local (often oral) networks, and discusses the methods by which we can seek to reconstruct extra-textual communications. Taken together, these steps allow us, on the one hand, to understand the big picture of news communication—amassing large amounts of data and evaluating overarching structures and patterns—and, on the other, to find out what this means for the transmission of individual news items. This model of macro-history, then, is not opposed to the use of case studies; however, this chapter's contention is that they can only be used to speak for larger trends when analysed within the broader context of the network.

Constructing and Measuring Letter Networks

To analyse a letter network the original documents must first be turned into meta-data. Letters offer themselves very naturally to network analysis because they are relational; by nature they trace an edge between two people or nodes. There are two ways of extracting the data needed to make a letter network. The first is manual, and this was the approach used for the creation of the Protestant letter network because the correspondence in question has not been systematically digitised. In this case I read through the 289 unique letters sent between English Protestants, and recorded the identities of sender and recipient, their location and date (where known, or ascertainable).⁸ A manual approach,

8 These letters are found in Emmanuel College Library MSS 260–2; British Library, Harley MSS 416–17, 425, and Lansdowne MS 389; John Foxe, *Actes and Monuments* (London: John Day,

however, is only really feasible with smaller letter collections. By contrast, the State Papers Archive 1509–1714 comprises almost 3 million separate documents. However, thanks to the digital resource State Papers Online, which links high quality reproductions of the original manuscript documents to their fully text-searchable Calendars (the chronologically arranged catalogues for these documents, which provide a detailed summary of the document's contents), the manual approach is rendered unnecessary. The company behind State Papers Online, Gale, kindly provided my collaborator Sebastian Ahnert and I with access to the XML files for all the Calendars and images for the project we are working on, which allowed us to crawl the records looking for all documents containing both an 'author' and 'recipient' category. In the case of the State Papers Foreign dating from Mary I's reign this search resulted in 754 unique documents. From these we extracted the following information: name of sender, name of recipient, date, place of writing, unique document identifier (Gale Document Number), Calendar reference, and manuscript reference.

This basic information is all that is needed for the first level of network analysis. The senders and recipients provide us with a series of nodes (which may require disambiguation to eradicate variant spellings and to separate out entries such as the Bishop of Ely, and other titles that might have been held by a number of different people); and edges are created for every letter that passes between two nodes. Edges give us paths in a network. These are not physical paths like the routes on which couriers might have journeyed; rather they are non-spatial routes between two nodes in a network. Nevertheless, measuring these paths can tell us some important things about the way that news travels, and the importance of particular individuals within the network's infrastructure. When studying a social group scholars are often interested in finding out who the most active people are in that community, who are the most well-connected, the most influential or esteemed. There are two particular metrics that provide answers to these questions: 'betweenness centrality', and 'eigenvector centrality'. In this section I am going to focus on the correspondence from the State Papers to show how we might use these statistics to derive findings about news flows.

For any two nodes in a network, there is a shortest path between them, and betweenness tells us how many of these shortest paths go through a given

1563 and following editions); Henry Bull, ed., *Certain Most Godly, Fruitful, and Comfortable Letters of Such True Saintes and Holy Martyrs of God* (London, 1564); and Hastings Robinson, ed. *Original Letters Relative to the English Reformation: Written During the Reigns of King Henry VIII, King Edward VI, and Queen Mary: Chiefly from the Archives of Zurich*, 2 vols. (Cambridge, 1846–7).

node. In other words, it shows us how central a particular node is to the network's organisation, and how important it is in connecting other people. If you imagine a network that is made up of two sub-communities (A and B) that only share one member, that individual will have a very high betweenness ranking because they are the only person via which news can travel between those two sub-communities. The State Papers Foreign network comprises 200 nodes (people) and 284 edges (the non-spatial routes along which letters can travel). In this network the people with the highest betweenness are:

(1) Mary I, (2) Privy Council, (3) Nicholas Wotton, (4) Thomas Gresham, (5) Peter Vannes, (6) John Mason, (7) Philip II of Spain, (8) Emperor Charles V, (9) William Petre, (10) Henry Fitzalan, Earl of Arundel, (11) Thomas Thirlby, (12) Pope Paul IV, (13) William Pickering, (14) Edward Carne, (15) William Grey, Baron Grey of Wilton, (16) Thomas Lord Wentworth, (17) Lazarus Tucker, (18) Lord William Howard, (19) Bernardo de Fresneda, Confessor Arnheim to Philip II (20) William Lord Paget.

The people who appear on this list fall into two categories: they are either leaders (1, 7, 8, 12); or in the official employment of such leaders as diplomats and royal agents (3, 4, 5, 6, 8, 12, 14), secretaries of state, members of the royal household or privy council (2, 9, 10, 20), military leaders (15, 16, 18), and confessors and religious leaders (11, 19). The two interesting exceptions to this are Tucker of Antwerp, from whom Gresham secured a high-interest loan on behalf of Mary I, and Pickering, who was a diplomat at the very beginning of Mary's reign, but was then implicated in the Wyatt rebellion, before escaping with Peter Carew to Normandy, and then, later, turning informant against various English conspirators. The significance of Pickering, both as a subject of news, and a communicator of intelligence, will be discussed further below. With these exceptions, however, the general trend is striking for its obviousness. The fact that we find leaders and government officials to be the people with this highest betweenness can be easily explained even before we look at the contents of their letters, simply by considering the nature of their jobs. Leaders and their secretaries would obviously be important hubs in the network, receiving intelligence from foreign officials in a whole host of locations, and sending instructions, questions and news in return. In network analysis the word 'hub' denotes a node with an anomalously large number of edges. They are one of the network features that is easy to detect visually, tending to look like the centre of a dandelion. If we look at the force-directed network visualisation in Figure 5.1, we can see Mary as the biggest hub, just off centre; above and to the right is her husband, Philip, and below him, and further still to the right is Secretary Petre (all marked as dark grey filled squares).

FIGURE 5.1 *A force-directed network visualisation of the correspondence found in the State Papers Foreign dating from the reign of Mary I. The nodes numbered 1–6 are: (1) Mary I, (2) William Petre, (3) Philip II of Spain, (4) John Mason, (5) Edward Carne, and (6) Nicholas Wotton*

Because of the very large number of edges coming off these nodes, it makes it very likely that a shortest path will travel through them. Similarly, if we think about the roles of diplomats, royal agents and military agents posted abroad, the reason for their network profile is once again very obvious. The commission of a royal agent, in its most basic form, is to act for, or in the place of, the monarch by authority from that monarch. As representatives of Mary I abroad—fighting, negotiating political allegiances and financial partnerships

on behalf of her person—they must, necessarily, be in regular communication with Mary and her advisors to relay information and take instruction; similarly their roles require them to interact with a range of contacts abroad to succeed in their tasks. What this means is that they form bridges within the network. If we look at the diplomats Carne, Wotton and Mason (marked with light grey filled circles in Figure 5.1) they do not have nearly as many edges coming off them as the hubs of Mary, Philip and Petre, but they are positioned at a point of intersection between Mary's hub, Petre's, and other communities.

Betweenness, then, is a crucial measure for understanding news flow. Figures with high betweenness tend to act either as news hubs or bridges within the network. We can see from the statistics above—as well as deducing by common sense—that this archive of letters suggests that the best way to get foreign intelligence back to the monarch is to send it via one of these bridge figures, who would then send it to Mary, her Council or secretary, Petre. It is important to remember, though, that these figures are special; they are statistical anomalies within a network. In this network, for example, there are only 28 people within a network of 200 that have a non-zero betweenness. What this means is that the other 172 people have no shortest paths going through them. This, then, bestows these 28 figures with a certain level of importance or status. However, betweenness is not the measure usually employed to ascertain prestige or influence; the measure more typically used for this task is eigenvector centrality. A node that has a high eigenvector score is one that is adjacent to nodes that are themselves high scorers. As Stephen Borgatti puts it:

the idea is that even if a node influences just one other node, who subsequently influences many other nodes (who themselves influence still more others), then the first node in that chain is highly influential[.]⁹

It is important to remember, however, that this prestige is not an absolute measure of the individual's status, but rather a measure of their epistolary status in this archive. The top twenty nodes by this measure are:

- (1) Mary I, (2) Vannes, (3) Mason, (4) Wotton, (5) Philip II, (6) Thirlby,
- (7) Carne, (8) Paget, (9) Pope Paul IV, (10) Christian III of Denmark,
- (11) Francesco de Vargas, (12) Gresham, (13) Fernando Alvarez de Toledo,
- Duke of Alba, (14) Grey, (15) Wentworth, (16) Howard, (17) Conrad Pfennig,
- (18) Emmanuel Philibert, Duke of Savoy, (19) Albert, Marquis of Brandenburg,
- (20) Christiana, Duchess of Lorraine.

9 Stephen P. Borgatti, 'Centrality and Network Flow', *Social Networks*, 27 (2005), p. 61.

The list is perhaps unsurprising: thirteen of these appeared in the betweenness top twenty; and the remainder are similar in profile, including European royals and nobility (10, 19, 20, plus two who are also key Spanish advisors and government officials: 13, and 18), and ambassadors (11). As with the betweenness ranking, however, there is an exception: one Pfennig of Hamburg, who, in a letter dated 13 September 1553, writes to Mary offering to continue in his service to her as he had served under her father and brother, subject to the continuation of his pension. Precisely what this service consisted of is unclear, but we may suppose some form of foreign intelligence.¹⁰

The notable crossover between the people ranked highest for their betweenness and eigenvector centrality rankings, however, disguises an interesting distinction. If we plot the betweenness metrics of those who appear in both rankings against their eigenvector centrality (Figure 5.2), we can see a broad trend.

FIGURE 5.2
A graph plotting individuals' betweenness rankings against their eigenvector centrality rankings (for the individuals with top 20 betweenness)

10 TNA, SP 69/1, fos. 74r–75r.

Those situated on the diagonal line are ranked the same for their betweenness and eigenvector ranking; those above the line rank higher for betweenness than eigenvector centrality; those below it rank higher for eigenvector centrality. It is important to note that the rankings are counterintuitive, the lower the number (i.e. the nearer they are to where the x and y axis intersect at 0), the more important they are. So what does this graph tell us? First, we should notice that similar figures tend to appear close to one another. For example, Mason, Wotton, Vannes and Carne all cluster together on or below the diagonal line, very close to the top-ranking positions in the bottom-left corner. This suggests that diplomats like these have a particular network property. As we already know, these diplomats hold the special status of being one of the 28 out of 200 to hold a non-zero betweenness ranking (in other words, to have a shortest path going through them). But they all have an even higher eigenvector centrality, with the exception of Mason who stays static at number 3. These figures then appear more important than we might expect, ranking alongside Mary and Philip (see list above). This is because their bridging function within this letter network alone does not make them influential; rather it is the kinds of people and communities that they bridge. Vannes, the ambassador in Italy during Mary's reign, and second only in this prestige-ranking to the queen, is a clear example of this: he is important because he corresponds with other people with a high eigenvector ranking such as Mary (rank 1), Mason (6), Petre (9), Thirlby (10), Pope Paul IV (12). By contrast we might look at Petre, who ranks much higher for betweenness than eigenvector centrality. This again can be explained by looking at the network profiles of the people he corresponds with. While Petre ranks ninth for betweenness, he comes in at rank 113 for eigenvector centrality. The very nature of Petre's role as Mary's secretary makes him a small hub in this network, giving him a high betweenness. He corresponds with 16 different people in this network, which means he ranks fourth for degree (the total number of separate people he shares edges with); but while some of them have high eigenvector centrality rankings (Mason, Wotton, Vannes, Carne), others rank very low, such as Richard Blount, Master of the Ordnance at Calais (rank 111), Christopher Dawntesey, Gresham's predecessor as royal agent in the Netherlands (111), the dissident figure John Cheke (136), and Gregory Raylton, Clerk of the Signet (136).

Taken together then, by reconstructing, measuring and visualising the network of correspondence found in the State Papers Foreign archive for Mary I's reign, it is possible to see that some basic measures can provide a useful overview of how institutional structures shaped news flow. Given the nature of the archive it is unsurprising that Mary is at its centre; similarly, any knowledge of early modern diplomacy would lead us to expect that her ambassadors and

other royal agents would act as bridging figures, channelling news back and forth between the monarch and influential persons located on the continent. However, by using only the data of sender and recipient, we get the false impression that these institutional links were the prevalent means by which news travelled. If we read even a few of the letters by prominent ambassadors such as Wotton, we realise that his intelligence derives from a whole range of oral sources. The incomplete nature of the news communications that we can reconstruct simply from meta-data also illustrates one of the problems that Scott Weingart has written about encountering early modern intellectual networks:

because we're only looking on one axis (letters), we get an inflated sense of the importance of spatial distance in early modern intellectual networks. Best friends never wrote to each other; they lived in the same city and drank in the same pubs; they could just meet on a sunny afternoon if they had anything important to say. Distant letters were important, but our networks obscure the equally important local scholarly communities.¹¹

As he suggests, we need to apply caution when collecting and analysing network data, understanding what is not there as much as what is. We cannot assume that letter data unproblematically records early modern social networks: it tells us primarily about long-range links between literate people. This is valuable for understanding how news might have travelled long distances, but it is less good at telling us how information got into the hands of a royal agent, or military leader, in the first place. This distinction—between the news communications mapped by the letter meta-data and the merely reported oral communications—alerts us to one of the key shortfalls of traditional geographical models of mapping news flow. Often on such maps, where news flows are represented as edges between places, the nodes will cover the location of the city, thus collapsing the complex local communications by which news was transferred from one person or community to another into a single entity. So, how can we fill in these undocumented edges?

Local Networks

Unsurprisingly, reconstructing oral, local networks is a tricky business. There are a range of approaches one might take, some manual (which I will illustrate

11 Scott Weingart, 'Networks Demystified 8: When Networks are Inappropriate', blog-post dated 5/11/13, available at <www.scottbot.net/HIAL/?p=39600> [14/04/14].

FIGURE 5.3 A network using the State Papers data in which edges are created between people if they have shared a location. The nodes numbered 1–4 are: (1) Peter Vannes, (2) Thomas Gresham, (3) William Grey, and (4) Nicholas Wotton

through an examination of the Protestant letter network that I have neglected until now), and others using more automated methods of data extraction. Each has its own benefits and drawbacks.

Beginning with an automated method, one way is to extrapolate communities from the place-data in letters. For example, in Figure 5.3 we can see a network created using the State Papers data in which edges are created between people if they have shared a location, such as Calais, during the reign. It is therefore a hypothetical network of local communities: the assumption is that if two people were in the same place they may well have spoken or exchanged intelligence. In this particular visualisation a link is drawn if they were there at any point in Mary I's five-year reign, which means that there are edges drawn between people who might have been in a location at different times; but it would be possible, for instance, to narrow the temporal window and only draw an edge if the dates of letters sent from these locations are within three months

of each other, thus making the margin for error much smaller (I have not done so here because the dataset is rather sparse compared to, for example, Elizabeth I's reign, and I merely wished to illustrate what is possible). What the image is useful for showing very quickly is who was where. From this we can see that Brussels—the home of the Imperial Court—was a very significant place for the exchange of news, especially about the Italian War raging between the Holy Roman Empire and the French throughout Mary's reign. We also can see a clustering of people around Calais, with connections radiating off to locations such as Guînes (a commune in the Pas-de-Calais department in northern France), Paris, and Canterbury. On the right-hand side we have some isolated groups of nodes around Italian locations: a pentangle-like cluster around Rome, and a bow-shaped one around Venice and Padua, with the two latter locations tied together by Vannes. However, this visualisation not only helps to show the people that may have been talking to one another within a given location, it also highlights people associated with multiple locations. For example, sitting between Calais, Antwerp and Brussels is Gresham; Grey and Wotton are at the top-right hand side of the tapering lines leading off from the Calais cluster and connecting to locations like Dunkirk, Paris, Blois, Arras, Compiègne, and Malta. What is interesting is that these are also some of the figures with the highest betweenness; and through this visualisation we can understand why—they were moving, and taking their intelligence, between various different communities.

But while it may be useful to identify potential centres for information exchange, what we really want to know is which of these potential associations (enabled by shared place) were actualised; or, in other words, who was talking to whom. For this we must turn to the letter contents. While people did not generally write to those associates who were in the same locality—unless, perhaps, they were seeking through formal channels to arrange a meeting—they did write about them. Letters provide glimpses of communities sharing letters, news and other material information, turning them into what Gary Schneider has described as 'socio-texts'.¹² Senders would write about conversations or other interactions they had held with their neighbours, family members or other associates; they would repeat news they had heard about third parties; and they would direct the recipient to pass their letters on to other people, by enclosing commendations, additional messages, tokens, and even letters for other recipients, or by entrusting additional oral messages to the letters' carriers. To reconstruct local communities, then, we must turn to the letter contents

12 Gary Schneider, *The Culture of Epistolarity: Vernacular Letters and Letter Writing in Early Modern England, 1500–1700* (Newark: University of Delaware Press, 2005), p. 22.

to extract an additional layer of relational data. There are two options. With smaller collections, it is possible to read all the letters and record all the social links described therein, providing a detailed and accurate sense of local communities. The other option is to employ automated extraction methods, which are necessary with very large collections of letters, but which provide challenges in terms of completeness and accuracy. In the case of the 289 Protestant letters dating from the reign of Mary I (mentioned in the opening pages of this chapter) it was possible to take the former approach.

The bias we are tackling in the Protestant letter collection—in addition to the common emphasis on long-range links—is the effect of martyrdom on the shape of the corpus. Within the body of surviving letters, found in Emmanuel College Library, the British Library and two contemporary print publications edited by John Foxe and Henry Bull, almost all the correspondence involves a martyr as either sender or recipient. We must suppose that the martyrological association made these letters more valuable to posterity than those sent between Protestants who were not celebrated by Foxe's famous 'Book of Martyrs'. Despite this bias, however, it is possible to begin reconstructing the local communities around those who corresponded with the martyrs by reading the letters and extracting commendations or reported contacts. In this research, undertaken with my collaborator Sebastian Ahnert, we categorised the links that arose between the members of this community as follows: letter links (between sender and recipient); requested links (through a commendation, between sender and commendeo); implied links (through a commendation, between recipient and commendeo); reported links (where a conversation or other exchange was relayed); messenger links (where a messenger is named, making them an intermediary node between sender and recipient); spousal links; and sibling links. What emerges from this data is a surprisingly large community, with 377 members and 795 edges or social interactions (as opposed to the 281 members and 306 edges with only sender/recipient data).¹³

By visualising this as a force-directed network (Figure 5.4), we see some expected patterns. At its centre are several hubs, here marked by dark grey filled squares; all of them are well-known Protestant martyrs who wrote numerous letters during their imprisonments, and whose letters were of particular interest for the purposes of collection. This, as we can see, is very similar to the organisation of communications in the State Papers Foreign dataset, with Mary, her Secretary, Petre, and husband, Philip, occupying central positions. But when we examine the topological properties of the network in more detail,

13 For a more thorough discussion of this dataset, see the references in n. 7, above.

FIGURE 5.4 *A network visualisation of Protestant correspondence, 1553–1558. Martyrs are marked with dark grey squares and so-called sustainers with light grey circles*

using the measures of betweenness and eigenvector centrality, our findings are more surprising: we discover an important category of people who were vital to the infrastructure of this community, but whose role goes far beyond the writing of letters. If we look at the top twenty nodes for their betweenness, we see that fourteen are martyrs, and another is a leader of the separatist group known as the Freewillers (English protestants who rejected the doctrine of predestination). But it also highlights Anne Smith, Barthram Calthorpe, one Bowyer (either William Bowyer or his brother Robert), Augustine Bernher, and Margery Cooke, five figures almost entirely absent from historical accounts of the Reformation. In particular, Smith, Calthorpe and Bowyer wrote no letters. Significantly, all these figures occupy similar roles in their relationship to the celebrated martyrs of the Marian reign, funnelling letters, goods, and oral

messages between prisoners and communities elsewhere in England. Bernher was a valuable letter courier, and Cooke was one of a group of (mostly female) financial sustainers, who sent Protestant prisoners money, clothes, food, and other means of physical and emotional support.¹⁴ Calthorpe and Bowyer were both members of the Middle Temple, and recipients of letters from the martyr Bartlett Green, including one addressed to a group of men including “Mr Goring, Mr Farneham, Mr Fletewode, Mr Rosewel, Mr Bell, and Mr Hussey”. In this letter he makes a long list of requests of each of the letters’ recipients, both individually and as a body, to pass on news and do his work outside the prison, seeking the ‘deliveraunce’ of various co-religionists from incarceration, and the financial support of others.¹⁵ Therefore, even though Calthorpe and Bowyer sent no letters, they are implicated in a significant web of requested and implied links through Green’s use of his contacts outside prison, making them important connecting figures within the social network.

The significance of these infrastructural figures—oral communicators, sustainers and carriers—is emphasised further when we measure the eigenvector centrality of each node. The top twenty nodes by this measure include twelve martyrs, two letter couriers and six financial sustainers (five of whom were women). Which prompts the question: what makes these female sustainers so important in this religious community? One reason is that their acts of charity put them in direct contact with the hubs in the network, the martyrs. But this is not the only reason they were well connected. Taking Margery Cooke as an example, we can see that these women were important nodes because of their particular social position. Cooke, who lived in Hadleigh, Suffolk, sent only one of the letters in our dataset (to John Philpot), and received seven (six from John Careless and one from John Bradford), which is not a large amount of correspondence—although it is all with future martyrs. But the commendations in these letters, as well as commendations to her in other letters, reveal that she not only had active connections with the Protestant community in Hadleigh, but also with co-religionists elsewhere in England. Cooke shares edges with a total of 26 other nodes in the network, three of which are due to the communications listed above; the remaining 23 come through commendations. These show how she is associated with a number of overlapping communities: including her family, known carriers, co-religionists associated with the underground London congregation, and people who were associated at

14 On female sustainers, see Thomas S. Freeman, “‘The Good Ministrye of Godlye and Vertuose Women’: The Elizabethan Martyrologists and the Female Supporters of the Marian Martyrs”, *The Journal of British Studies*, 39 (2000), pp. 8–33.

15 See ECL MS 260, fo. 64v.

some point with the Freewiller communities and the Kentish conventicles. Crucially, these were communities that stretched across the south-east of England. From the perspective of an imprisoned Protestant leader who might want to get news out of prison and disseminated within various communities, people like Cooke would have been extremely valuable. In fact, if we look at the broad trends across the network as a whole, we can see that the most prolific leaders or martyrs (in dark grey filled squares in Figure 5.4) frequently and repeatedly wrote to people with a network profile like Cooke: infrastructural figures like couriers and sustainers (light grey filled circles in Figure 5.4). In other words, the quickest paths across the network were also the ones most frequently traversed by letters and, by implication, carriers.

What this pattern demonstrates is that these martyrs seem to have recognised instinctively a common feature of networks observed by Mark Granovetter in his landmark study, 'The Strength of Weak Ties'. This much-cited article showed that people's social worlds tend to be made up largely of strong and weak ties, but that weak ties are much more important for the transmission of news. Because our close friends tend to move in the same circles that we do, the information they receive overlaps largely with what we already know. Acquaintances, by contrast, know people that we do not and thus receive more novel information. This outcome arises in part because our acquaintances are typically less similar to us than close friends, and in part because they spend less time with us.¹⁶ In short: to receive or spread news effectively, people must activate their weak ties. What we see from the preceding analysis of Protestant letters is that the largest volume of correspondence travels along the weak ties in this network, from martyrs to sustainers and other infrastructural figures. By designating these as weak ties we do not imply anything about the depth of the emotional connections between the martyrs and certain sustainers; in many cases these relationships seem to have been intense.¹⁷ Rather, they are weak because they are long-range and not maintained by regular physical contact.

This structure has clear parallels with the correspondence between Mary I, her Secretary and Council in England, and figures like Carne, Gresham, Mason, Vannes, and Wotton, men who were posted abroad as ambassadors and on other forms of royal service, military and financial. We might see these as institutionalised weak ties: a structure set up specifically for the effective gathering and dissemination of news and the implementation of English business abroad. The status that we know these men to have illustrates the beneficial

16 Mark Granovetter, 'The Strength of Weak Ties', *American Journal of Sociology*, 78 (1973), pp. 1360–80.

17 See Freeman, 'Elizabethan Martyrologists', p. 23.

effect of spanning communities, both for the node and the network. Ronald Burt's research has sought to reformulate Granovetter's thesis of weak ties by arguing that what is of central importance is not so much the ties, but the rather the gaps that they bridge: what Burt describes as structural holes. When these structural holes are bridged there are benefits for the network, which translates to a benefit (which we might think of as a form of social capital) for the node. Insofar as they constitute the only route through which information or other resources may flow from one network sector to another, these nodes achieve a strategic advantage. People who fill structural holes in corporations or other organisations have empirically been shown to find more career success.¹⁸ This analogy has relevance to the role of early modern ambassadors resident abroad: only the most trusted subjects of the monarch were appointed to such posts, requiring as they did speaking and negotiating on behalf of the government. Given how high the stakes were in this profession, those who performed well stood to become highly valued and influential figures.¹⁹ Similarly, as we shall see further below, informants would seek to show their value by providing accurate and useful intelligence with the hope of having their role formalised.

So how might we go about reconstructing some of the intelligence networks royal agents were embedded within during their foreign postings? It is theoretically possible, given the corpus is only 754 letters, to read all the letters and manually record the reported communications in each of them, as with the Protestant letters. However, these letters are part of a much larger archive, and a much more ambitious project that seeks to analyse the correspondence within the Tudor State Papers, comprising over 130,000 letters. Reading all the letters individually is just not feasible. In these circumstances, there are three options. Firstly, one might just rely on the letter meta-data (of sender, recipient, date, etc.) and undertake to read and manually record reported links within sub-collections of the letters by identifying interesting individuals or groups of people. The downside of this is that it is piecemeal and unsystematic, and therefore may overlook important figures, like the examples of the sustainers within our Protestant example. The second option is that we use natural language processing to mine the descriptions of the contents of the letters contained in the Calendars for names that are preceded (within a

18 Ronald S. Burt, *Structural Holes: The Social Structure of Competition* (Cambridge, MA: Harvard University Press, 1992).

19 On early modern embassy, see *Diplomacy and Early Modern Culture*, ed. Robyn Adams and Rosanna Cox (Basingstoke: Palgrave Macmillan, 2011); and the classic study by Garrett Mattingly, *Renaissance Diplomacy* (London: Penguin, 1955).

certain number of words) by prepositions such as 'to', 'from', 'by', 'with', 'of'. This would be considerable work, and would still be likely to produce false links while omitting others that are genuine, due to the complexity of the language in the Victorian synopses of the letter contents. The third option is the optimal choice, balancing time-commitment with output, and therefore the method that I will demonstrate here. The method involves using the list of 200 nodes extracted from the sender/recipient meta-data and searching the descriptions of the letters found in the Calendars of the State Papers for occurrences of those names. While it cannot extract informants that are not also senders or recipients of letters, it does allow us to see, for instance, whether people who appear to be minor figures within the letter network are more actively implicated through oral links. By extracting names from letters it is possible to create a list of nodes (senders) who mention other people in the network, and a list of nodes who were mentioned; edges are drawn between the letter sender and the figure mentioned. A mention might constitute a reference to a person *providing* intelligence or intelligence *about* a given person; in other words, it detects persons both as news carriers and as news-items, but does not distinguish between these different kinds of edges unlike the manual method described above. Nevertheless, it allows us to understand both whom members of the network were talking to and what they were talking about.²⁰

By extracting this additional data the connectivity of the 200-person network is significantly increased from one that comprised 284 separate (letter) edges, to one with 445 (letter and mention) edges. This more densely connected network is able to show a range of interactions that were invisible before, and therefore to understand the different communities or clusters functioning within this network. Unsurprisingly, we can quickly see that the figures that mention the most people in their letters correspond with the people with the highest betweenness, or people who might be said to harness the power of their weak links. People to mention more than ten contacts in their letters are: Mason (39 separate people), Wotton (32), Mary I (29), Vannes (17), Carne (14), and Gresham (13). The reason that Mary I is high in this ranking is unsurprising, given that she would be receiving and deploying intelligence from various sources; all the other figures are ambassadors except Gresham, who was royal agent in the Netherlands. Just as an ambassador's success

20 The fact that we use the names extracted (and disambiguated) from the sender/recipient data to search for mentions of a given individual means that we currently do not find instances in which that person is referred to by any other name or title. In time we plan to add records of these alternatives into the analysis, but this would require a separate, dedicated effort and represent considerable time commitment.

depended upon their forging local intelligence networks in their foreign postings, Gresham's value to the government relied on his ability negotiate deals and broker loans in various mercantile hubs on behalf of the Marian government, and thus repair the serious damage done to the English crown's credit by his (brief) predecessor, Christopher Dawntesey.

Mason is a good example of how the inclusion of mentions in the analysis changes our picture of his social network. His diplomatic career began in 1533, and despite being related by marriage to two men executed for their part in the Wyatt rebellion, and reports of his own hostility to Catholicism, he became a member of Mary's parliament, was posted on diplomatic service in the Netherlands, and appointed treasurer of the queen's chamber. During this period the Netherlands region was part of the Seventeen Provinces of the Low Countries, which also included most of present-day Belgium, Luxembourg, and some land in France and Germany; most of Mason's correspondence was sent from either Brussels or Antwerp. Looking only at letter exchanges, he shares edges with only 8 people: he sends letters to Petre (37 letters), Council (31), Mary (29), Philip (1), the Secretary of State, John Bourne (1), and Vannes (1); and he receives letters from Mary (3), one John Sheres, a gentleman (1), and to the (mistrusted) resident ambassador to the regent in the Low Countries, Philip Hoby (1).²¹ However, once we take into consideration all the people he mentions in his letters, and all the people he is mentioned by, he shares edges with 45 nodes. By looking at the people he mentions, we get a rough approximation of his local intelligence—both the networks of people bringing him this news, and the people about whom information is supplied. For Mason these people are:

The Duke of Savoy (in 16 letters), Petre (in 11), Otho, Duke of Brunswick and Lunenburg (9), Philip II (6), Cardinal Pole (6), Vannes (5), Otto Truchsess von Waldburg (4), Count Egmont (3), Lalaing (3), William, Duke of Cleves (3), Paget (3), Edward Courtenay, Earl of Devon (3), Gresham (3), Cardinal Caraffa (2), Lord Chancellor Gardiner (2), Hoby (2), Howard (2), John Cheke (2), Pickering (2), Ruy Gomez (2), Christiana, Duchess of Lorraine (2), Cardinal Farnese (2), Sigismund II Augustus of Poland (2), William Herbert, Earl of Pembroke (1), Pacheco de Ceralbo, Don Francisco, Cardinal Archbishop of Burgos, Governor of Naples for Charles V (1),

21 This is possibly the John Sheres who was tutor to William Brooke in Padua 1543–5, and encountered Thomas Hoby at Padua in 1548. See Jonathan Woolfson, *Padua and the Tudors: English Students in Italy, 1485–1603* (Cambridge: Cambridge University Press, 1998), 270.

Bartolomé Carranza, Archbishop of Toledo (1), Philip Francis, Count Palatine (1), Philip Nigri (1), M. de Courrieres (1), Cardinal Morone (1), Count of Montorio (1), Nicholas Wotton (1), John III of Portugal (1), Otho Henry, Duke of Bavaria (1), Christian III of Denmark (1), Thomas Thirlby (1), Francesco Ferdinando d'Ávalos d'Aquino, VII marquis of Pescara (1), Albert, Marquis of Brandenburg (1), William, Duke of Mantua (1).

From this we can see that Mason is at the centre of a dense social network, which is undoubtedly aided by his location in Brussels, where the Imperial Court was located. The activities of this court were of keen interest to the English court because of the relationship forged by Mary's marriage to Philip, who was son to the Holy Roman Emperor; and Mason reports on all of the court's events from political meetings to informal alliances, dinners, and diplomatic appointments. Most pressingly, during the Italian wars against France waged first by Charles v, and latterly by his brother Ferdinand and son Philip, Brussels was necessarily the key hub for news travelling from Italy and France (see again Figure 5.3). Within Mason's local network the Duke of Savoy emerges as perhaps the most significant figure—both as a topic of news and an important source of intelligence. As a relation of Charles v (his mother was the emperor's sister-in-law), the duke was a member of Charles's army during the war against the French, and later Governor of the Netherlands, 1555–9. In this capacity he personally led the Spanish invasion of northern France and was victorious at Saint-Quentin on 10 August 1557. Mason's letters therefore report on the duke's progress in the war (reporting his location in Cambrai, Hesdin and elsewhere), on his journey to visit England, and the departure of the duke's ambassador 'in post' to Mary and Philip.²² All of Mason's reports are careful to stipulate the origin of the news, and the location of the subject of this news, as in the postscript of letter from Mason to Council dated 29 May 1555, which reports that a post, just arrived from Italy, gives news of the arrival of the Duke of Alva at Augsburg on the 25th, and that of the Duke of Savoy at Vercelli on the 15th.²³ This information is crucial to demonstrate to the recipients the freshness of the news, and to allow them (and, indeed, us) to chart the progression of individuals and whole troops across space and time.

The network derived from letter data plus mentions, then, more accurately reflects the complex diplomatic work in which Mason was involved than that drawn simply from information about senders and recipients alone. Not only do we achieve a more fine-grained picture of his social world than by focusing on the long-range or weak ties marked by letters, it also invites us to re-evaluate

22 TNA, SP 69/4, fo. 153r–v; and SP 69/5, fos. 133r–v, 141r, and 24r–25r.

23 TNA, SP 69/6, fo. 107r.

his quantifiable significance in light of this picture. From the letter network, we already knew that Mason was significant: he ranked number 6 for betweenness and 3 for eigenvector centrality. But once we include all the mentions, he moves up the rankings for both measures: to 4 for betweenness and 2 for eigenvector centrality. In absolute terms, Mason does not move up that many spots (compared to some other people who will be examined below), but that is because there is not far for him to go; in terms of eigenvector centrality, only the queen outranks him. As eigenvector centrality is a measure of network prestige, the addition of letter mentions to our data suggests that Mason was the second most influential person in the transfer of news within the Marian government's foreign correspondence network, and that his local intelligence in Brussels played a crucial part in establish that value.

Because the changes are happening at that local level (defined here through mentions), however, we see a striking tendency in the way that peoples' rankings are affected. Overall, the betweenness rankings are not significantly affected by the additional data as there were only 28 people ranked by this measure using the letter meta-data: all the people with non-zero betweenness ranked at 29, so there are 28 places by which they can move up. With the addition of the mentions there are 84 people with a non-zero betweenness, but only 8 manage to move above their previous ranking of 29th (Francis Yaxley, Cardinal Pole, Fernando Alvarez de Toledo, Duke of Alba, Gonzalo Pérez, Secretary of Philip II of Spain, John Bourne, Antonio Pecchi, Cornelio della Croce, and Thomas Stukeley). By contrast, there is huge movement in the eigenvector centrality rankings. These are the figures who moved up by over 50 places in the rankings:

Cardinal Pole (142→15), Lord Clinton (136→25), Petre (113→8), Lalaing (142→40), Colonel William Wallerthum (132→31), Count Egmont (142→42), John Boxall (113→22), Fitzalan (104→18), Stephen Gardiner (113→28), Thomas Chaloner (142→59), Cornelio della Croce (142→60), Ivan IV (142→64), Joanna of Austria, Princess Dowager of Portugal/Regent of Spain (142→64), Dawntesey (111→36), Tucker (120→49), Herman Peper (132→61), Bourne (142→71), M. de Courrieres (142→72), Courtenay (142→55), Nigri (142→84), Sheres (105→52).

It is striking that in a network of only 200 people somebody (Pole) could move up by 127 places. We can understand this through the topography of networks, specifically the difference between strong ties (i.e. with immediate neighbours) and weak ties (which correspond to long-range links). Eigenvector ranking is much more affected by the extra data because extra edges do not necessarily change shortest paths in a network, but eigenvector centrality is more dependent on immediate neighbourhoods; and these change more radically if you

add edges. This is because eigenvector centrality is a recursive measure: a node will rank highly if its neighbouring nodes are themselves high scorers. As if to confirm this, we can see that 8 of the people to move up most in the eigenvector rankings are mentioned by the very high-scoring Mason (Pole, Petre, Lalaing, Count Egmont, Bourne, Courtenay, Nigri and Sheres). The people in this list are also some of the nodes to gain the most edges through the addition of mention-data, thereby increasing their chance of connecting to an influential figure. Pole goes from having just 1 to 10 unique edges, Sheres goes from 1 to 8, Lord Clinton 1 to 6, della Croce 1 to 5, Pérez 1 to 4, and Stukeley 2 to 7.

Macro-History versus Micro-History

By compiling these layers of data, then, we are able not only to understand the general trends of how information moved over long distances, but also how local intelligence networks give us a very different perception of who is important to the efficient transfer of intelligence. In the concluding section of this chapter I will demonstrate how we can use this combined data to trace the progress of individual pieces of news, or the changing significance of one figure, over time within a news network. The use of network analysis can often seem as if ‘distant reading’—looking at the big picture—is prized above the exploration of case studies.²⁴ However, the contention of this chapter is that the big picture is the only way to understand case studies in their full context. In the concluding pages, then, I will reflect on the feasibility of and possibilities posed by amalgamating news data from the many different and valuable repositories of European news communications currently available into one unified network of news flows.

The example I am using is the case of one Pickering, who appears in the State Papers Foreign both as correspondent and news item. If we were to look solely at his appearance in this network as a correspondent, his significance would be hard to understand. He sends 8 letters and receives 6, but what is most interesting is that after receiving an initial letter on 31 July 1553 from Mary I, he is involved in no further correspondence within this archive until 1558, when he is commissioned by the queen to go into Germany. For reasons that can be easily gleaned from his biography, and which will be explained below, he seems to have been politically isolated for much of the reign. However, by

24 On the move towards distant reading, or macro-analysis, in literature and history, see Franco Moretti, *Graphs, Maps, Trees: Abstract Models for a Literary History* (London: Verso, 2007), and *Distant Reading* (London: Verso, 2013); and Matthew L. Jockers, *Macroanalysis: Digital Methods and Literary History* (Champaign, IL: University of Illinois Press, 2013).

tracing the mentions of Pickering that appear across the archive, we can understand how he was monitored and ultimately rehabilitated. Taken together, the letters and mentions make 43 links between 18 nodes. It is possible to trace these over time, making a ‘movie’ in which each frame adds the newest link made through a letter or mention. Figures 5.5a–d chart four of these 43 frames, encapsulating the stages in the process of Pickering’s isolation and subsequent rehabilitation within the news network.

FIGURES 5.5A–D

These figures chart the network of correspondence involving or mentioning William Pickering over time: (5a) July–August 1553, (5b) March 1554–March 1555, (5c) March 1555–March 1558, and (5d) 10 March 1558–November 1558. Dark grey arrows signify letters exchanged within that period; pale grey arrows show previous correspondence

The first of these (5a) represents letters sent to and about Pickering in July and August 1553. A letter sent by Mary I to Pickering, Wotton and Thomas Chaloner on 31 July 1553 directs them to continue to act as her ambassadors at the French Court. Pickering at this time had been an ambassador in France since February 1551; this letter, however appears to be in response to his ongoing requests (which began as early as May 1552) to be recalled to England, due to the financial burden that the post was putting on him. Despite being relieved of his post soon after, as reported in the letter from Henri II to Mary on 17 August, he was unable to leave Paris immediately due to debts—a fact that is relayed in the letter from Anthony St Leger to Mary on 16 August. At this point, then, relieved of his official post, Pickering shifts from being a news carrier to being a news item; this would remain the case until 1558 because of Pickering's actions on finally returning to England, when he became implicated in the conspiracy against Mary's Spanish marriage. Following Wyatt's rebellion the government believed that Pickering was plotting to capture the Tower; and in March 1554 he fled with Sir Peter Carew and other associates to Caen in Normandy.

In the period directly following his arrival on the continent, Pickering is mentioned in a series of correspondence between royal agents in France and Mary's government: in the 12 months from March 1554 (Figure 5.5b) he is mentioned in 10 letters. These chart a rapidly shifting attitude to the rebel. The first mentions occur in the mini-chain between Captain Thomas Crayer, Lord Grey and the Council in the bottom right hand corner. The first, a letter from Crayer to Grey on 24 March 1554 gives news of Pickering, Carew, Edward Courtenay, John Courtenay, Bryan Fitzwilliam, and other English gentlemen arriving at Caen, and reports that Pickering is going to the French Court, where he believes he will conspire with Henri II to intercept the Spanish fleet transporting Prince Philip to England. With this news he encloses a letter from Carew and Pickering that had been sent to Crayer recommending the bearer, John Adams, to be placed in his company.²⁵ Six days later Grey in turn sends two letters from Crayer regarding Carew, Pickering, and their confederates on to the Council.²⁶ David Loades has commented that Crayer's association with the rebels makes it difficult to discern his political allegiances; however, we see from this chain of correspondence that his ambiguous position put him in an ideal position to funnel intelligence from these confederates back to Mary's government via Grey.²⁷ On the same date, 31 March, Wotton also sends a letter

25 TNA, SP 69/3, fos. 123r–v.

26 TNA, SP 69/3, fo. 206r.

27 David Loades, *Two Tudor Conspiracies* (Cambridge: Cambridge University Press, 1965), p. 154.

to Mary promising the apprehension of Carew, Pickering, and others; following this are 8 more letters from Wotton, mostly to Mary (6), Petre (1), and Philip (1) about Pickering. These letters recognise both the danger and possibilities posed by the intelligence Pickering has. As Wotton points out to Petre in a letter dated 17 April 1554, Pickering is in possession of the cipher used by Wotton (indeed, in this very letter) and therefore poses a security risk as he is in a position to decode secret correspondence and pass it to their enemies. This seems all the more possible when he relays the information, gleaned from his servant who has spoken directly with Pickering, that a letter Wotton had written to the queen was sent shortly after to the French King.²⁸ Based on this, Wotton is in favour of preventing further damage by offering the rebels the hope of pardon, which he thinks will lure them back to England, where they will be less able to betray valuable intelligence to their enemies. In the letters following this we see him take this idea further, suggesting that Pickering may be rehabilitated and used to their advantage. This becomes a possibility after he receives word that Pickering has become alienated from the rebels, who mistrust him, and has sought to escape them fleeing to Lyon, and thereafter to Italy and Germany. Wotton therefore recommends that the queen show Pickering mercy, as he is both willing and able to do her service.²⁹ This shows how Pickering had already proved himself by providing intelligence, such as the French king's rumoured plans to land the rebels and others at Lee in Essex and the Isle of Wight towards the end of the summer and to march on London. Some agreement was clearly reached with Mary because on 3 March 1555 Mason writes to Petre informing him of Pickering's imminent departure for England, where he would not have been able safely to travel had he not been pardoned.³⁰

In the third stage of correspondence, March 1555 to March 1558, references to Pickering are few: only 2 letters are sent (Figure 5.5c). The first is from Mason to Petre on 3 July 1557, which suggests that Pickering had been employed to carry a letter but had been embarrassed by its loss along with a 'capcase' (a small traveling bag) on the way. Perhaps fearing Pickering, due to his history, would be suspected regarding this loss, Mason defends him, writing that:

He is nott a man too be lost if he may be wonne unfaynedly, as by my growth I think he means none otherwise. This fall may be too him felix

28 TNA, SP 69/4, fos. 13r–14v (partly in cipher).

29 TNA, SP 69/4, fos. 63r–67r (partly in cipher).

30 TNA, SP 69/6, fo. 42r–v.

culpa and the Queen hath thereby occasion to wyne such a servent as for sundry qualities there be not many in the realm of England[.]³¹

The other letter, from Wotton to Petre on 13 July 1556, seems largely inconsequential in its reference to Pickering, except that it describes him as Wotton's ambassadorial predecessor rather than as a rebel, thereby suggesting his reputation had finally been recovered.³²

The final stage occurs after a gap of almost 20 months, and here we see Pickering finally rehabilitated and reincorporated as a valuable royal agent abroad (Figure 5.5d). This stage comprises 23 letters: the first, from Mary to Gresham on 10 March 1558 informs him of Pickering's commission to recruit 3000 foot soldiers in Germany for the queen's service in defence of Calais, and asking him to oversee the necessary financial provision.³³ This was followed by a letter on 15 March to Pickering from Mary, directing him to go to Brussels, where he was to receive funds from Gresham.³⁴ Pickering's rehabilitation, therefore, is marked by his reintegration within the network, the edge drawn between him and Mary on 31 July 1553 being renewed. This is followed by correspondence with secretary Boxall, Colonel Wallerthum, Herman Peper and the Duke of Savoy, touching his difficulty securing the soldiers, the countermand of the original order from Mary, the transportation of Dutch regiments by sea, and his financial troubles resulting from his service to the crown.

Taken together, this information gives us a nuanced picture of Pickering's role in the transmission of news, both through long-range links marked by letters, and local oral intelligence networks. Pickering was an important diplomatic figure at either end of Mary's reign, and in that position he exhibits the kinds of network attributes that we have already observed as being characteristic of royal agents. He has a betweenness ranking of 13, making him part of the elite group of 28 nodes with a non-zero betweenness, and an eigenvector centrality ranking of 23, which is a relatively high prestige ranking, although unlike figures such as Carne, Mason and Vannes he does not have a higher eigenvector centrality ranking than betweenness (this may, in some way, reflect his damaged status as a former rebel). Like these other diplomatic figures, though, his betweenness ranking means that he could be described as filling structural holes. But what is particularly interesting is the way that Pickering rehabilitates himself after his act of rebellion by doing the same thing: that is,

31 TNA, SP 69/7, fo. 3v.

32 TNA, SP 69/9, fos. 17r–22v (partly in cipher).

33 TNA, SP 69/12, fo. 55r–v.

34 TNA, SP 69/12, fos. 64r–65r.

by filling structural holes, bridging different communities in the exchange of news. As rebel turned informant he uses his local intelligence amongst the rebels in Caen to inform Wotton of plots against the English, which he knew would be transmitted to England. After being pardoned by Mary he is used as a letter carrier, before, finally, being commissioned in 1558 to recruit foot soldiers for the war efforts against the French king. We therefore see that he not only proves his trustworthiness, he also exhibits the right network profile for such a role before it is institutionalised through a formal commission.

Pickering's narrative, then, provides an example of how scholars can extract single news flows from a given archive, tracing both news items and news carriers over time and across space. However, in order to extend this kind of work, we need to contextualise these kinds of individual case studies within a broader picture of European news. It is important to understand how single news items were not only crossing geographical borders, but also multiple archival jurisdictions. By focusing on single archives it is only ever possible to gain a partial picture; therefore it is vital, if we are to attain a genuine perspective of European news communication, that scholars draw on the manifold archives in which early modern European news communications have been collected. Fortunately, in recent years there has been a concerted effort to digitise many of these collections.³⁵ However, just as (until recently) the history of news in Europe has progressed as series of separate, albeit parallel, national narratives, these digital projects have been designed and executed to meet a series of separate agendas. This manifests itself as an accumulation of many different databases, using a whole range of different protocols, and accessed through a variety of different interfaces. But the barriers to the construction of pan-European news network are by no means insurmountable. With the right technological support (and some time) it should be possible to extract the meta-data from each repository and store it one standardised format. Thereafter it will be simple enough to undertake the kinds of analysis described above: to measure this news network, map its evolution over time, and to extract individual news strands for close analysis. This is a task that, necessarily, must be accomplished through collaboration and co-operation, but the result has the potential to fundamentally change how we go about writing histories.

35 See for example Europeana Newspapers <www.europeana-newspapers.eu/>; Delpher <<http://kranten.kb.nl/>>; Sociedad Internacional para el Estudio de las Relaciones de Sucesos and <www.bidiso.es/SIERS/index.html>; the digitisation of the Paris *Gazette* <gallica.bnf.fr/ark:/12148/cb32780022t/date>; Le gazetier universel <gazetier-universel.gazettes18e.fr/>; Die Fuggerzeitungen <www.univie.ac.at/fuggerzeitungen/de/>; and relevant sections of the Universal Short Title Catalogue <www.ustc.ac.uk/> [all accessed 23/06/14].