News Networks: Putting the ‘News’ and ‘Networks’ Back in

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Around 1790 the Scottish antiquarian George Chalmers discovered in the British Museum a newspaper entitled *The English Mercurie*, dated 1588. This was the earliest printed news serial not only in England but in Europe. Chalmers proceeded to publish (in 1794) the first attempt to sketch a history of the newspaper in Britain—and in many respects his was an imaginative exercise, and one that sensitively located innovation in its commercial and cultural circumstances.¹ Importantly his discovery meant that neither the French nor the Germans were first to invent the newspaper: at last the British had done something first. His claims went unchallenged for some decades, but in 1839 *The English Mercurie* was proved to be a forgery made half a century before Chalmers’ discovery by Philip Yorke, second Earl of Hardwicke (his intentions are not known). The proof was offered in a pamphlet by Thomas Watts, a librarian at the British Museum, based on clear bibliographical evidence: Chalmers had been carried away by British patriotism.² What could be more fitting than that the modern history of the newspaper—the form itself characterised by accusations of deliberate or inadvertent lies, and with imputations of credulity to early readers—should itself begin with a falsehood?

The history of the newspaper (and therefore, at that time, of news) was established between about 1850 and about 1880: stories developed in parallel in Britain, France, Spain and Portugal and no doubt elsewhere.³ In Britain this

1 George Chalmers, *The Life of Thomas Ruddiman* (London and Edinburgh, 1794), pp. 102–25.

2 Thomas Watts, *A letter to Antonio Panizzi ... on the reputed earliest printed newspaper: the English Mercurie 1588* (London, 1839).

3 For Britain, see Joad Raymond, ‘Review Article: The History of Newspapers and the History of Journalism: two disciplines or one?’ *Media History* 5 (1999), pp. 223–32; ‘Introduction: Networks, Communication, Practice’, in *News Networks in Seventeenth-Century Britain and Europe*, ed. Raymond (London: Routledge, 2006) and in *Media History* 11.1/2 (2005), pp. 1–17; ‘Newspapers: a national or international phenomenon?’ *Media History*, 18.3–4 (2012), pp. 1–9. For the useful comparison with Portugal see André Belo, ‘Nouvelles d’Ancien Régime: la *Gazeta de Lisboa* et l’information manuscrite au Portugal (1715–1760)’, PhD thesis (Ecole des Hautes Etudes en Sciences Sociales, Paris, 2005); Jorge Pedro Sousa, ‘Para

was partly in response to Chalmers' error, as a number of historians—some of them journalists—sought to establish a more secure narrative of events. The ideological framework for this narrative can be found in *The Periodical Press of Great Britain and Ireland: Or An Inquiry into the State of the Public Journals, Chiefly as Regards their Moral and Political Influence*, published anonymously in 1824, which articulates the Whig view of the newspaper as both an engine for moral reform and a means of holding government accountable, and identifies the English press as internationally pre-eminent. The anonymous author is more concerned with present-day matters than history, though he does offer a brief account of the early modern origins of the newspaper in a long footnote that refers to *The English Mercurie*.⁴ Then the great Whig histories of the English press began, following Watts's pamphlet, with Frederick Knight Hunt's magnificent two-volume *The Fourth Estate: Contributions Towards a History of Newspapers and of the Liberty of the Press*, published in 1850. Hunt explicitly acknowledged the impact of Watts's work by reproducing a good part of it. He was followed, improbably given the ideological complexion of the emerging narrative, by Cucheval Clarigny's *Histoire de la presse en Angleterre et aux états unis* (three volumes in 1857), and then Alexander Andrews's *The History of British Journalism, from the Foundation of the Newspaper Press in England, to the Repeal of the Stamp Act in 1855, with Sketches of Press Celebrities* (two volumes in 1859); Joseph Hatton's *Journalistic London. Being a Series of Sketches of Famous Pens and Papers of the Day* (1882); and Henry Richard Fox Bourne's *English Newspapers: Chapters in the History of Journalism* (two volumes in 1887). By this time a clear narrative was in place, one that would hold until the end of the next century.

The narrative has several central characters: first, it is a national story, and the histories of the emergence of periodical news are written from parallel

uma historiografia da historiografia portuguesa do jornalismo: livros pioneiros sobre história do jornalismo publicados por autores portugueses em Portugal até à Revolução de Abril de 1974', <www.bocc.ubi.pt/pag/sousa-jorge-para-uma-historiografia-da-historiografia-portuguesa-do-jornalismo.pdf> [22/10/14], and the works discussed therein especially José Tengarrinha, *Nova História da Imprensa Portuguesa das origens a 1965* (1965; revised edition, Lisbon: Circule e Leitores, 2013), and Alfredo da Cunha, *Elementos para a História da Imprensa Periódica Portuguesa (1641–1821)* (Lisbon: Academia das Ciências de Lisboa, 1941). For Spain, see Pedro Gómez Aparicio, *Historia del periodismo español* (Madrid: Editora Nacional, 1967); Paul Guinard, *La presse espagnole de 1737 à 1791, formation et signification d'un genre* (Paris: Centre de Recherches Hispaniques, Institut d'Études Hispaniques, 1973).

4 *The Periodical Press of Great Britain and Ireland* (London: Hurst, Robinson & Co, 1824), pp. 89–92n.

national perspectives. Secondly, it describes the triumph of print over manuscript. Thirdly, it stresses the importance of war as a trigger for the creation and development of the press. Fourthly, it is focussed on the development of various key bibliographical features, including seriality, periodicity, issue numbering, and a consistent title. Fifthly, it dramatises the struggle against censorship and government control of content. Sixthly, the increasing frequency of publication over time, from biannual through weekly to daily: this matters because some historians have insisted that a certain frequency is necessary for a serial publication to be counted as a newspaper. This focus also supports the proposition that news media are associated with history speeding up. Seventhly, the dispersal of the news press from a metropolitan centre to the provinces. Eighthly, the struggle for journalistic independence, so that the press develops the power effectively to critique the government, becomes, in the phrase perhaps devised in 1828 by that eminent Victorian and grand Whig Thomas Babington Macaulay, 'the Fourth Estate'.⁵ And perhaps a ninth character lurks in the wings: a posited relationship between a national spirit, the spirit of the people, and the press that it creates. These last three suggest the ideological input that the revolutions of 1848 might have had on the formation of this enduring narrative.

The narrative that remained in place through the mid-twentieth century essentially challenged none of this. Matthias A. Shaaber's *Some Forerunners of the Newspaper in England, 1476–1622* (1929) is a wonderful book that brings in a good deal of new contextual material for consideration, suggesting that we might think of newspaper history within a richer textual canvas; and Henry Ettinghausen's chapter in the present volume argues that there are still things to be learned from it. But it offers a useful repository of sources rather than a penetrating analysis of them, and the analysis is teleological, as the term 'forerunner' warns. Joseph Frank's seminal *The Beginnings of the English Newspaper* from 1961—with its chapter titles that anthropomorphise newspaper history—adds a good deal of detail to this story for the years 1620–60 in Britain. But it was written not from archives: the research was conducted using photostats of the microfilms of the Thomason Tracts. It could only ever have described printed news from within. The cost of Frank's attention to detail is, moreover, a narrowing of focus. Frank's book then became an important source for seventeenth-century Britain in Jürgen Habermas' *Structural Transformation of the Public Sphere*, perhaps the work most influential on news historiography in the late twentieth century, and one that attributes the first genesis of a sphere of rational critical debate to England.

5 Mick Temple, *The British Press* (1996; Maidenhead: Open Univeresity Press, 2008), p. 19.

However, over the past three decades this story has been significantly challenged. The contents of this volume reveal how historians of news media are living in changing times. There has been a shift towards a more empirically rich and more questioning approach to news, and this constitutes not only a periodic change in fashion but a deepening understanding of how news was produced, distributed and consumed, and a stronger sense of the complex roles of news in society and culture. However, these advances have brought the area of research—it is not a discipline, but a meeting point between disciplines—to a place beset by both opportunities and difficulties. In the next section I will sketch, in broad brushstrokes, the nature of these advances, before proceeding to suggest where they have placed us.

The Changing Historiography of News

The pressure on the nineteenth-century narrative of the emergence of periodical news has become considerable. There is above all the geographical thinking discussed in the introduction to this volume, and the challenge it represents to a nationally centred narrative. And there are perhaps five other methodological developments that have enriched the history of news communication, and in conjunction have rendered the national, sentimental and teleological model untenable. The first of these is the development of bibliographies, in which scholars in Britain have an advantage with the STCs and then especially Carolyn Nelson and Matthew Seccombe's *British newspapers and periodicals, 1641–1700: a short-title catalogue* (1987).⁶ These English STCs have been combined with the Eighteenth Century Short Title Catalogue into the online *English Short-Title Catalogue* or ESTC. For the Iberian world there are much richer projects in progress, including images and other resources, but they are not consolidated or unified. They are discussed by Javier Díaz Noci in the present volume; while Carmen Espejo's research on Rodrigo de Cabrera

6 A.W. Pollard and G.R. Redgrave, *A Short-Title Catalogue of Books Printed in England, Scotland and Ireland and English Books Printed Abroad 1473–1640* (1926; revised edition, London: Bibliographical Society, 1976–91); Donald Wing, *Short-Title Catalogue of Books Printed in England, Scotland, Ireland, Wales and British America and of English Books Printed in Other Countries, 1641–1700* (1945–51; revised edition, New York: Modern Language Association of America, 1972–98). We lack a resource for pre-1641 materials equivalent to the Nelson and Seccombe STC: for this the best resource remains Folke Dahl's catalogue. In the Bodleian there is a unique, printed catalogue, interleaved and annotated; in the BL the slightly haphazard online catalogue.

indicates the complexity of distinguishing between serial and occasional news pamphlets, which makes those bibliographical projects focussed on particular forms and narrow definitions seem problematic.⁷ For the Dutch world the collection-specific catalogues are now gathered in the still-developing Short Title Catalogue Netherlands (STCN), covering 1540–1800; plus Knuttel's substantial catalogue covering the *Koninklijke Bibliotheek*.⁸ The St Andrews French vernacular book project extended knowledge of early modern French bibliography, before being folded into the ongoing online Universal Short Title Catalogue project (which terminates in 1600, soon to be extended to 1650). The examples could be multiplied: while British book output, and British libraries, have been exceptionally well served, across Europe access to materials has been made easier, and information regarding total press output has become more reliable.

Developing alongside these cataloguing efforts, and sometimes pulling in a quite different direction, was the new bibliography, or the sociology of texts. This development in bibliography has been extensively discussed, and its transformative impact upon the field noted. For historians of news it offered particular opportunities. The printing of news was, in its earlier years, long before news printing became a specialist activity, peripheral to the activities of the book trade.⁹ It was also an area of considerable innovation, as stationers explored ways first of benefitting from the commercial trade in *avvisi*, and then of extending the form they had devised to accommodate new kinds of content. The attention paid by Don McKenzie and Roger Chartier to the marginal activities and to the borderline economics of stationers, the focus on the book trade as a whole, as opposed to a handful of high-end publishers or printers with distinguished or extended careers, shed new light on the commercial complexity of the business of news. The focus on the material book and the normative practices of the trade brought into the historians' view the broader cultural background to the bibliographical innovations—issue numbering, trade partnerships—of the printers and publishers of

7 See their chapters in the present volume; and <www.siers.es/siers/principal.htm>. Online resources can be found at <www.chemn.net/resources/web-resources/> [22/10/14].

8 STCN: <<http://picarta.pica.nl/>> [18/8/15]. W.P.C. Knuttel, *Catalogus van de pamfletten-versameling berustende in de Koninklijke Bibliotheek*, 9 vols. (The Hague: Koninklijke Bibliotheek, 1882–1920); Paul Valkema Blouw, *Typographia Batava, 1541–1600: A repertorium of books printed in the Northern Netherlands between 1541 and 1600* (Nieuwkoop: Hes & De Graaf, 1998); J. Machiels, *Catalogus van de boeken gedrukt voor 1600 aanwezig op de Centrale bibliotheek van de Rijksuniversiteit Gent*, 2 vols. (Ghent: Centrale Bibliotheek, 1979).

9 Most recently and broadly demonstrated by Andrew Pettegree, *The Invention of News: How the World Came to Know Itself* (London: Yale University Press, 2014).

news.¹⁰ The emphasis on the processes of transmission of texts, the material traces of those processes, the transformative effects of transmission: this made the content of newspapers more complex and more interesting, and it demanded a greater sensitivity to the complex arrangements of the printed page. The material page, even the page of a cheap and poorly printed newspaper, was a semantic performance. The new bibliographers raised new questions of microeconomics, in particular the way the conventional procedures in the trade shaped the material products. McKenzie in particular warned about confusing the normal with the exceptional and vice versa: how significant was the decision to print translations of Amsterdam folios in London in a quarto format, when the quarto format was typically used in Britain for brief, topical content? Is the quarto no longer a newspaper? Or does the significance lie in binding possibilities after reading? This engagement with minute detail complemented the broader, statistical questions that were increasingly answerable with improved bibliographical data. The new bibliography also helped scholars to focus on the relationship between script and print, and thus to challenge the exclusive focus on *print* as a medium for communicating news.

Associated with this new history of books was a body of work that sought to show that reading too had a history, to challenge venerable assumptions about the passivity of readers in the face of a privileged text, to uncover what readers actually did, and how the reading practices changed over time. Once again, there is a broad literature on this, but it has a particular relevance to the history of news. First, because from the very earliest news publications non-expert readers were described as credulous, gullible, driven by an appetite that was exploited by greedy vendors peddling untested nonsense. Modern historians have frequently quoted these statements, often seeming to agree with their sentiments about the 'vulgar'. Just as a closer attention to the texts of newspapers showed that in fact news was commonly reliable, and editors devised means of articulating the reliability of news, indicating where reports were uncertain, and cross-referring between stories of sources to verify uncertain news, so research on actual readers has shown that they were sceptical, active and complicated.¹¹ This has shown what should perhaps have been obvious all along: that those making those dismissive claims were articulating their own prejudices, or were commenting on the perceived impropriety of a particular

10 On this last point, see Michael Treadwell, 'London Trade Publishers 1675–1750', *The Library*, 6th ser., 4 (1982), pp. 99–134.

11 Widely discussed, but see especially David Randall, *Credibility in Elizabethan and Early Stuart Military News* (London: Pickering & Chatto, 2008).

class of readers having access to news. Secondly, a model of a sophisticated yet common (or popular) reader is an essential element in recent analyses of political culture that seek to identify the influence of public opinion.¹² While the history of reading and of readers has been well served in French, Italian and Anglophone contexts, there is little as yet in the way of comparative history of reading, which will surely be rewarding in the context of international news networks.

A fourth trend in research involves the promoting of interdisciplinary approaches towards the humanities. This is to risk a platitude: the praise of interdisciplinarity is almost as widespread as excellent examples of the practice are hard to identify. But the history of news communication has particularly benefited from this, as it is a peculiarly rich field for nature's poachers. It stands at a point of convergence between several disciplines: history, bibliography, politics, literary criticism, sociology, and stands to further benefit from anthropology, and art history. I shall suggest later in this chapter that it would benefit further from moving outside the humanities and social sciences, and exploring the interdisciplinary value of maths. Two of the most influential and invigorating studies within the history of news are from outside the field: Jürgen Habermas' *Structural Transformation of the Public Sphere*, of course, but also Benedict Anderson's *Imagined Communities*—which proposes that newspapers are fundamental to the development of national consciousness, nationalism and even incipient capitalism.¹³ Because news communication is a theme that touches upon so many concerns much of its energy and intellectual significance is exogamous or originates outside the system; early modern media historians are natural poachers. So a period in which interdisciplinarity has been endorsed and pursued has been advantageous to its practitioners.

A fifth development that is beginning to lend a new dimension to the history of news is the advent of web resources beyond bibliographies (the first development). Burgeoning online databases are making—are on the verge of making—the analysis of large datasets possible. Among these is the impressive *Die Fuggerzeitungen* project, based at the Austrian National Library in Vienna. The database includes a detailed index of over sixteen thousand newsletters in

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- 12 Mark Knights, *Representation and Misrepresentation in Later Stuart Britain: Partisanship and Political Culture* (Oxford: Oxford University Press, 2005); Jason Peacey, *Print and Politics in the English Revolution* (Cambridge: Cambridge University Press, 2013).
 - 13 Jürgen Habermas, *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society*, trans. T. Burger (Cambridge, MA: Harvard University Press, 1989); Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (1983; London: Verso, 1991).

the collection, dated between 1568–1605, searchable by name, place and date, together with digitised images of the same. The *Medici Archive Project* is developing a similar scholarly resource for an even larger collection. There are a number of smaller, text-searchable projects, including the *Lancaster Newsbooks Corpus*, the Sheffield 'Participatory Design' project,¹⁴ the *Florence Early English Newspaper Corpus* (1620–1649) and the *Zurich English Newspaper Corpus* (the latter three are not yet public). Spain offers a large number of projects.¹⁵ Unfortunately these projects store different data in different ways, and so there is as yet no means of searching across the databases. However, it may in future be possible to develop from them quantitative conclusions and network analyses that were not previously possible. The interface between newspaper research and computer science is one of the most exciting areas of modern research—and not only exciting but also necessary, I will argue.

Further, lesser factors could be identified, among them the linguistic turn in the history of political thought associated with J.G.A. Pocock and Quentin Skinner; a social history interested in oral culture; and a revival of interest in manuscript studies for its own sake. But these five main developments are sufficient to suggest that newspaper history has profoundly departed from the progressive, positivist models of the nineteenth century. This is not just a change in emphasis, but a paradigm shift. The old narrative no longer obtains.

News Networks

A growing number of localised studies show that news was fundamentally international, that between 1450 and 1650 a European news network developed which was not the product of any single country or set of institutions. This network developed around diplomatic channels, though postal networks guided its communicative geography. These ensured a constant flow of news shaped by commerce, entrepôts, and the physical landscape more than by political boundaries. However, I say 'localised studies' with some reservations. Having thrown out the old picture, how can we reliably build a new one?

A series of local conclusions suggests fragments of this new picture.¹⁶ I propose seven principles as the basis for this new picture:

- 14 <www.lancaster.ac.uk/fass/projects/newsbooks/reuse.htm> [29/9/14]; <<http://hridigital.shef.ac.uk/newsbooks-project>> [29/9/14].
- 15 For a growing list, <www.cemmn.net/resources/web-resources/> [29/9/14].
- 16 Some of these materials are further outlined in the introduction to this volume; others are proposed by chapters in this volume; others derive from my own ongoing research.

1. particular news publications exist at the end of a network; we need to study the processes that generate the products, and not the products alone. That network extends across Europe through a series of major cities; and it spreads news in malleable units of news by routes that are predominantly postal, but also mercantile, diplomatic, scholarly, though in markedly different quantities. We risk mistaking epiphenomena for the thing itself.
2. early modern Europe's news communication has an endoskeleton, the most robust bones of which consist of postal and carrier routes, which then extend into the finer and less regular local extensions.
3. news is recombined into various aggregates in entrepôts, the cities that are the hubs of the network. These transformations are according to local rules and conventions. News is translated between vernaculars. It moves between forms: most commonly word of mouth, manuscript and print. But also between the various manuscript forms (commercial, personal, semi-formalised), and into libel, and between forms of print (gazette, ballad, pamphlet).
4. news of a particular event—to consider the same network from a different perspective—spreads in various forms and at surprisingly calculable speeds along particular routes. It exists in a modified Euclidean landscape, and so follows certain apparently indirect routes in preference to others because transmission is more efficient along those routes. It observes the timetables of post and carrier. But it is pretty unstoppable.
5. some news is more plentiful. News from Turkey is rarer than news from Antwerp, and something like the laws of the market, of demand and supply, affects the perceived value of the news. This is particularly marked when there is a blackout in a normally dense network, such as during the siege of Antwerp.
6. news can be surprisingly indifferent to confessional and linguistic boundaries: which is to say that when it crosses them the news remains strikingly intact.¹⁷ One implication of this is that the movement of a particular news report can sometimes be followed through its translations and transformations.
7. with the romance languages, and partly through diplomatic networks, there was a shared semantic field for news—mercurius, *avvisi*, diurnal, intelligence, gazette, coranto, libel etc. Though we also know that these

17 Joad Raymond, 'Exporting Impartiality', *The Emergence of Impartiality: Towards a Prehistory of Objectivity*, ed. Anita Traninger and Kathryn Murphy (Leiden: Brill, 2014), pp. 141–67.

words can be false friends, and that in each of the countries they were used, their meaning was closely attuned to local conditions.¹⁸

A history of news following these principles would look very different. But has the research area, or meeting point between disciplines, begun to develop a new picture of the whole based on the case studies that are appearing? Is it even possible to develop a new big picture on the basis of case studies? I would suggest that a traditional narrative has proved tenacious, that it exists alongside transnational case studies of news, sometimes framing them. The difficulty of reconciling the national or regional concerns of history with the fundamentally international nature of news is not to be underestimated. And this remains only *reconciling*, not a more ambitious agenda. We accommodate our new research, undertaking what Renaissance natural philosophers called 'saving knowledge'. We risk resembling those renaissance philosophers who looked to save knowledge by incorporating puzzling astronomical observations into a Ptolemaic cosmology. One of Milton's angels characterises the process:

Hereafter, when they come to model Heaven,
And calculate the stars; how they will wield
The mighty frame; how build, unbuild, contrive
To save appearances; how gird the Sphere
With Centric and Eccentric scribbled o'er,
Cycle and Epicycle, orb in orb.¹⁹

Our own heliocentric model has increasingly complex additions qualifying it. But at what point do we throw out the old system and remodel it? How do we know when we have reached the point at which modifications are merely patching? And how do we process the mountainous data into a new model?

Let us look at this problem from another direction. What is the accumulative value of case studies? Do they add up to more than the sum of their parts—and what, in any case, is the nature of that adding? Case studies, both those that offer accounts of the typical, and those that explore the exceptional, often as a means of shedding light on the boundaries of the typical, have shed new light on flows of news, on the complexity of news transactions, and, perhaps most importantly, asked new and paradigmatic questions.

¹⁸ See Ch. 3, above.

¹⁹ John Milton, *Paradise Lost*, ed. Alastair Fowler (1968; revised edition, London: Longman, 1998), book 8, ll. 79–84.

A few examples: Ottavia Niccoli's study *Prophecy and People in Renaissance Italy* demonstrated the dynamic between a local news community with one set of concerns, and a much broader community with a different set of concerns, and the translation of a cluster of news stories between the two, and between corresponding modes of communication.²⁰ Stéphane Haffemayer has demonstrated, using a meticulous and technically adept quantitative analysis of headings in news stories, that the *Paris Gazette* in the 1680s was focussed on a narrowing news horizon of major cities, and also that the speed of news crossing France increased during the decade.²¹ Paul Arblaster's study of the transmission of news from England to the Habsburg Netherlands between 1620 and 1660 demonstrated one way by which the fragmentary content of individual newspapers, embedded in a postal network, might constitute a coherent European system of communications.²² These studies have the potential to transform the way we conceive of the history of news more generally, and they qualify—should perhaps overthrow—a narrative that follows the traditional milestones, from the invention of the printing press, through Strasbourg in 1605 and the Thirty Years War, to *Die Einkommenden Zeitungen* in 1650.

But, this influence notwithstanding, is it reasonable to assume that the cumulative effect of these case studies will be a fully new narrative, rather than a richer and more complicated version of the old one? To use probably the simplest example: do studies that demonstrate the vitality, sophistication and continuing reach of manuscript news through the seventeenth century that set up print as the gauge offer a means of understanding the complementarity of the two, or even of approaching that understanding? My own sense is not, and that we should face the possibility that the accumulation of case studies—even an endless accumulation, so that the studies separately covered every aspect of all kinds of news in all formats in all countries—would result in a comprehensive picture without a comprehensive understanding. It would be like trying to make an accurate model of the earth with a million

20 Ottavia Niccoli, *Prophecy and People in Renaissance Italy*, trans. Lydia G. Cochrane (Princeton, 1990).

21 Stéphane Haffemayer, 'La Gazette en 1683–1685–1689: analyse d'un système d'information', *Le Temps des médias*, 20 (2013), pp. 32–46.

22 Paul Arblaster, 'Posts, newsletters, newspapers: England in a European system of communications', in *News Networks in Seventeenth Century Britain and Europe*, ed. Joad Raymond (London: Routledge, 2006), 19–34; and *From Ghent to Aix: How They Brought the News in the Habsburg Netherlands, 1550–1700* (Leiden: Brill, 2014). See also Wolfgang Behringer, *Im Zeichen des Merkur: Reichspost und Kommunikationsrevolution in der frühen Neuzeit* (Göttingen: Vandenhoeck & Ruprecht, 2003).

Lego bricks, or in the world of Minecraft. Some years ago I proposed that we should think about early modern European news communication as a network. For the remainder of this chapter I intend to press that term a little harder, and discuss the implications of research into networks, and network theory, for understanding early modern news, and for the looked-for new synthesis.

My conclusions are circumscribed by the fact that this is not a case study: I am not analysing any data in this exposition, and so will not be illustrating my points with material examples of early modern news. However, my conclusions suggest that such illustration would add surprisingly little. Instead I will bring together some of the key themes and conclusions of network research in other fields for their relevance and application to our subject; I hope to project what network analysis could do on a larger scale, in terms of creating a more holistic vision of early modern news.

Organisation versus Randomness

One premise underlies all of the propositions stated above. News communication in early modern Europe was not random. It was organised into a complex network. This has logical consequences.

Randomness is a mathematical property, and I use it in both a colloquial and a mathematical sense. Complex networks were long thought to be random. This was essentially because there were so many factors involved, and because it was impossible to grasp the whole, even—especially—for those within the system. Here I need to introduce two words from network analysis. First, node, which refers to objects or categories in a network (which could be a particular person, or a city); nodes are also known as vertices (singular vertex). Secondly, edges, which refer to the relationships, or connections, between nodes. The mathematicians Paul Erdős and Alfréd Rényi illustrated the properties of randomness by representing it in graph form. Take a system where there is an equal probability of two nodes being connected—this connection hereafter being called an edge. So the probability of node A being connected to node B is 50:50; it could be determined by the toss of a coin. Let us say this experiment is conducted with a large number of nodes, a 1,000. The chance of any one node having 1,000 edges is very small. Most nodes will have around 400–600 edges. A few will have more than 600, many fewer still upward 700, and so on. The nodes vary in their number of edges, but not to extremes. And if we plot the number of nodes against the number of edges we will therefore find that the result is a bell curve, with most nodes clustering in the middle and

increasingly few approaching the limits. That is normal or continuous probability distribution.²³

This pattern, the bell curve, obtains in a number of real-life situations, such as height. The shortest person on record was 55cm tall, the tallest 275 cm. Almost all of our friends are somewhere between 150cm and 200 cm. Most of them are between 160 and 190. So if we chart height against number of friends we see a bell curve (or a *Poisson distribution*, where the variance fits within certain parameters), which is a mark of a random system. This is because the values that are being assessed are relatively homogenous. The same is true of road networks: there is variation between the number of roads off any given road, but it tends to be in the order of tens rather than thousands. Random variation within a network tends to look like this: the variation between random values is small.

One of the reasons the random graph is useful is because we can compare it with non-random systems: network theory evolved through analyses of systems, which do not show the bell curve of continuous probability. These are complex systems, systems in which magnitudes are heterogeneous, in which the number of edges possessed by nodes are radically different: the internet is one of them; friendship networks are another.²⁴ In complex systems, distribution is heterogeneous. Instead of a bell curve we find a power law, a graph that drops from a tall peak on the left to a long tail on the right. On the left are the few nodes that dominate the number of connections; on the right the many that are poorly connected (also known as the 80–20 rule). If a power law governed height, it would mean that in a large enough population there would probably be one person who was 1 cm tall, and one who was a thousand metres tall.²⁵

Power laws do occur in nature, however, and the science analysing them lies within physics as well as mathematics. It is seen in nature in *phase transitions*. This is what happens when matter changes states, and when a metal is magnetised. It is a transition from disorder to order. I am not going to explicate this in detail: the key point here is that the science of the transition of matter into an

23 See <commons.wikimedia.org/wiki/File:Normal_Distribution_PDF.svg#mediaviewer/File:Normal_Distribution_PDF.svg> [2/10/14].

24 Albert-László Barabási, *Linked: The New Science of Networks* (Cambridge, MA: Perseus Books, 2002), *passim* and esp. pp. 143–59 (on the internet and the World Wide Web); Charles Kadushin, *Understanding Social Networks: Theories, Concepts, and Findings* (Oxford: Oxford University Press, 2012), *passim* and esp. pp. 56–73 (on friendship); Guido Caldarelli and Michele Catanzaro, *Networks: A Very Short Introduction* (Oxford: Oxford University Press, 2012), *passim*.

25 A generic example can be seen at <commons.wikimedia.org/wiki/File:Long_tail.svg#mediaviewer/File:Long_tail.svg> [2/10/14].

orderly state shows that complex systems *organise themselves* and they do so observing a power law. Power laws are not only ways of describing distribution of frequency; they are a *signature of self-organisation*.²⁶

Analyses of complex social networks have shown them to be governed by power laws, and, far from being random, to display the properties of self-organisation. There are nodes that are profoundly connected, that make it possible, for example, to navigate the internet with surprisingly few clicks, or to contact a stranger with surprisingly few intermediaries. This is the small world effect, also known as 'six degrees of separation' (more on this below). This is because of the presence of highly connected nodes—known as hubs—which exist because of the way the networks develop over time (I discuss the notion of 'fitness' below). They evolve in such a way as to make navigation easier, yet they do so without anyone managing or engineering their development. As the internet developed no one was able to see the whole, let alone shape it—with something of such complexity, any single agent can only have a worm's-eye view—and yet it developed with a strong principle of cohesion, observing precisely the power law that appears in phase transitions. The internet was, then, self-organised.

The world of early modern news communication was just such a network. Pan-European and beyond the grasp of any one agent, it was a complex, self-organised system, and if it were possible to map it in its entirety we would see that it was governed by a power law rather than a bell curve. It had profoundly connected hubs; and outposts (peripheries) that, even if they were not exactly geographically remote, were accessed through those hubs. From this several other conclusions follow.

It's a Small World

First, the small world effect, or six degrees of separation. This proposition of network theory is well known through the website The Oracle of Bacon, which began as a student game, then became a research project, and then a commonplace idiom—the phrase itself originating in an eponymous 1990 play by John Guare, made into the 1993 film.²⁷

The principle is this: in a complex network there will be hubs, well-connected nodes that enable a connection to be established between any two nodes in a small number of stages. As an actor who has performed with many other actors

²⁶ See the works cited in n. 24, above.

²⁷ See <oracleofbacon.org/help.php> [2/10/14].

Kevin Bacon—like the mathematician Paul Erdős and perhaps also the scholar Francis Bacon—is such a hub, and all actors can allegedly be connected to him in no more than six steps.²⁸ The number six is arbitrary (it is seldom six, not even in the case of Bacon, who is not even the most highly-connected actor in Hollywood), and not really a typical property of complex systems. With the internet the maximum number of stages between two pages has been estimated as being closer to nineteen.²⁹ And because those navigating the system cannot see the whole, they do not in practice necessarily choose the shortest route. However, it is the case that complex systems organise themselves in such a way that this it is possible to find connections between any two nodes via relatively few edges. That is: it's a small world.

This is how news moves, between nodes, along edges, via hubs. The edges are frequently postal networks; the nodes are cities; the hubs, depending on when the event happens, are Venice, Augsburg, Antwerp. If an event takes place in Sicily, it will be communicated by letter to Venice. One stage. There it is adapted into a paragraph in a newsletter. Two stages. Then this will be sent to Augsburg, three stages. To Brussels, four stages. Antwerp, five stages. To Calais, six stages. To Dover, seven stages; to London, eight. And somewhere on this journey it will be translated, which might constitute another stage, or degree. We can think of translation as a stage, a point of connection: nodes and edges do not have to be people or places. Nine stages or degrees, perhaps then, from Sicily to London, more if the news is to reach a provincial reader, more if it is to be printed. But the connectivity of each of these nodes is what allows for a relatively efficient transport of this item of news. We can see something similar happen when news from Naples travels—and it does—to Madrid via Antwerp rather than via Genoa and Marseille, and when news travelled from Rome to Florence via Venice.³⁰ It does so because these well-connected hubs increase the speed and reliability of communication.

The early modern news network had shortcuts running across it, enabling efficient communication between Augsburg and Aberystwyth. While network theory proposes that participants in a complex (or emergent) system cannot see the totality, and when they seek to cross it do not always choose the shortest path, we can find in early modern Europe examples not only of people who understood that there were shorter paths but also of those who believed that they could grasp the whole or at least a significant portion of it. Adept news factors understood how to send a message across Europe using more than one

28 See <sixdegreesoffrancisbacon.com/> [2/10/14].

29 Barabási, *Linked*, pp. 29, 41–78.

30 Arblaster, 'Posts, newsletters, newspapers', pp. 21–2.

means of communication, which implies a practical comprehension of large and heterogeneous parts of the entirety.³¹

More ambitiously, others sought to establish *Bureaux d'adresse*, realising in practice an idea of Michel de Montaigne. These offices gathered and disseminated all kinds of information: they were imagined as a kind of super-hub of information and communication. Among the aspirants to this were the well-known Théophraste Renaudot and Samuel Hartlib, whose vision included a transnational information network; but also the less well-known Henry Robinson who ran an office in London in 1650 (and who wrote, not incidentally, an eloquent attack on censorship on the grounds of liberty of conscience, shortly before Milton's *Areopagitica*); also J.A. de Sumaran who proposed one in Vienna in 1636; Gottfried Wilhelm Leibniz; and Wilhelm von Schröder. An anonymous man sought to establish something similar in San Sebastián in northern Spain in the 1680s: this is particularly significant, because San Sebastián might seem remote or peripheral (an issue I deal with below). Anton Tantner, who has analysed the development of these bureaux, suggests that, engaged in a process of 'mediatisation', these entrepreneur-visionaries eventually metamorphosed into newspaper publishers.³² Another individual worth mentioning here is Jean-Baptiste Colbert, who saw that an information system could be a valuable administrative apparatus within the French government. These people grasped not only that there was a complex system with shortcuts running across it, but also that an effective means to achieve their end (whether this was political control, commerce, or communication in itself) was to know the system. These are the extreme versions of those more plentiful men who knew how to send a letter from Venice to Exeter. They effectively believed they were able to make the world smaller through the acquisition and organisation of large datasets.

To return to our own analysis: this connective facility of hubs makes the movement of news simpler and more efficient. It also makes it possible to predict and to gauge its movement. Indeed it should be possible to calculate the number of nodes—both a maximum and the mean, median and modal

31 See Ch. 2, above.

32 Anton Tantner, Ch. 19 below; also his *Early Modern 'Registry Offices' as Employment Agencies* (Université Libre de Bruxelles, Institut d'études Europeennes, 2008); and 'Frühneuzeitliche Adressbüros Eine Vorgeschichte der Internet-Suchmaschine' (2005, 2011), <adressbueros.tantner.net/projekt.html> [20/11/14]; Astrid Blome, 'Offices of Intelligence and Expanding Social Spaces', in *The Dissemination of News and the Emergence of Contemporaneity in Early Modern Europe*, ed. Brendan Dooley (Farnham: Ashgate, 2010), 207–22; Howard M. Solomon, *Public Welfare, Science, and Propaganda in Seventeenth Century France* (Princeton, NJ: Princeton University Press, 1972).

averages—that news passed through in order to travel from one person to another anywhere in Europe. The ‘speed’ at which news moves is only partly an effect of geography. This *is* a Euclidean world, so the network has to reflect distance and mountains and rivers and so on, but other factors are involved. Physical proximity is not a reliable guide to the speed or the extent of communications along a route. Weekly posts can slow things down; if a post from town A arrives in one city B after the post has left from city B to town C, then town A and C can be distant in terms of communicative efficiency, though they may be physically close.

When we have a sufficiently large database of news items indicating the path by which they travelled, and/or a means of identifying the connections between discrete news items, it will be possible to reconstruct a model of the (or a version of the) early modern news network from the movement of news itself. In this network we will find that cities and other places can be assessed as nodes, with moving items of news (no doubt partly guided by roads, and postal, carrier, and shipping routes) as the edges. Hence the resulting analysis could become a map, shaped by geography. Crucially, however, the connections within the map would not have been reconstructed from postal and carrier services, using assumptions, potentially idealistic, about their facility; nor from the endorsement of letters at an office within a postal system, which demonstrates the movement of actual letters within a single system.³³ Instead the network analysis would project actual speeds of news with the horizon of possible trajectories, showing how news actually moved across all systems.

The step from analysis to visualisation would present interesting options. The analysis could be superimposed upon a conventionally projected map, with the edges drawn to encode information about velocity. Or it could be a heat map, indicating the geographical spread of the richest sources.³⁴ Alternatively

33 For these reconstructions—and I do not deny their usefulness—see Ch. 2, above; J. Crofts, *Packhorse, Waggon and Post: Land Carriage and Communications under the Tudors and Stuarts* (London: Routledge & Kegan Paul, 1967), 84–8; 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, 3 (1998), pp. 265–88; Wolfgang Behringer, ‘Communications Revolutions: A Historiographical Concept’, *German History* 24.3 (2006), pp. 333–74, at 342–5. For the dangers of such idealistic reconstructions of actual practices a useful point of comparison is printing house practice: see D.F. McKenzie, *The Cambridge University Press 1696–1712*, 2 vols. (Cambridge: Cambridge University Press, 1966), and ‘Printers of the Mind: Some Notes on Bibliographical Theories and Printing-House Practices’, *Studies in Bibliography*, 22 (1969), pp. 1–75.

34 As executed brilliantly by the Die Fuggerzeitungen project: <fuggerzeitungen.univie.ac.at/karte> [12/5/15].

the spatial organisation of the nodes could reflect the distance between them measured by time: in which case we might find Antwerp and Augsburg adjacent to distant cities, and other, physically proximate towns in areas with irregular communication represented as remote. Such a visualisation presents distance as relative to speed, and therefore relativises geography. It proposes that our neighbours are those whom we are closer to in time rather than space.

However, a news network has more than two dimensions: the next, important element is volume. This analysis could be complemented by an assessment of the quantity of news flows. This is more complex than the analysis of speed, because variation in survival rates will more directly influence the evidence of quantity than evidence of speed. However, with a representative sample of large and small archives spread across a geographically wide area, we could also calculate the volume of traffic along particular edges within the network as a proportion of the whole (necessarily excluding specialist communication media that might not be represented in these archives, such as the Jesuit epistolary network). A force-directed visualisation of this—that is to say, one that presented the proximity between nodes as a function of the quantity of news that passed between them—would offer another perspective on neighbourliness: our neighbours are those about whom we hear the most.

A complication with this analysis, which would be thrown into relief by the visualisation, would be the potential asymmetry in the relationship between places. The flow of news from Arnhem to Utrecht was probably substantially less than the flow from Utrecht to Arnhem; and the total flow of news into Utrecht was greater than that into Arnhem, so the Arnhem news in Utrecht would be proportionately even smaller. Would it thus be true to say that Arnhem is closer to Utrecht than the other way around? These flows can be understood quantitatively and qualitatively. It would be possible by this means—by choosing an admittedly arbitrary weighting between speed and volume—to analyse and represent the European news network as the quantity and speed of movement of news between various places.

This would, of course, not be all that could be said, or even all that could be quantitatively analysed, about the network. The patterns of these flows change over time, and a more comprehensive analysis would need to offer an account of a changing network. Moreover, particular news events create distinctive patterns, while others create impediments to the network itself. The 1584 Siege of Antwerp, for example, was both an event extensively reported within the network and had a profound direct effect on its functioning, as it displaced much news traffic elsewhere, including Amsterdam. These examples could be multiplied: the point is that network analysis offers an invaluable means of analysing in quantitative and qualitative terms the European system of communications that is commonly referred to, in loose terms, as a 'news network'.

Fitness

In a complex system, as we have seen, some nodes have exponentially more edges than others. How does this happen? Network analysis proposes that some nodes in a network are particularly suited to accumulate connections and thereby become hubs, which characteristic is labelled 'fitness'. Some nodes—websites, people, cities—have properties that make them better at establishing connections than others. In news networks geography plays an obvious part in the *fitness* of nodes to become hubs, because of the Euclidean universe of mountains and rivers in which these networks exist. From a European perspective London is evidently remote geographically, but *also* isolated because of the unpredictable Manche, because of the poor roads between it and Antwerp, and because of its limitations as a printing centre. It is connected to the relatively *poor* system of the rest of Britain. It is not Augsburg or Antwerp (see Figure 4.1).

Networks develop over time, according to internal pressures, and when they grow, they establish more connections. Moreover when a new node appears it is more likely to establish connections with a place that is already well connected (a phenomenon, labelled *preferential attachment*, that has been observed in the internet, companies and other networks). So the older a node, the more connections it is likely to have, and by this means growth within the network results in increasing disparity between the numbers of connections nodes in the network have. This fact has important consequences, and it is a key feature of what are called scale-free networks, that is to say those that are governed by a power law, including the networks of news that prevailed in early modern Europe.

Age doesn't always win. Famously Google rapidly surpassed other search engines, and became a hub despite being new, because its code was innovative and well written.³⁵ This was, in network terms, an example of fitness. The questions of why a particular place should develop a powerful and influential news culture, why an individual newswriter should attract a large number of subscribers, or why a newspaper might develop an effective news-gathering infrastructure or a broad readership are instinctively asked and answered by historians. This quality of fitness partly explains why Antwerp surpassed Venice as a news entrepôt, though it appeared later on the scene: its developed printing industry, preferential road network, and relative freedom from government interference made it stand alongside Brussels (with which it must have worked in tandem?) and Augsburg as *the*

35 Barabási, *Linked*, pp. 93–107.

FIGURE 4.1 *Detail from a sketch map of major European postal routes operating at various times during the sixteenth and seventeenth centuries. Collaboratively compiled at the Vienna workshop of the News Networks in Early Modern Europe research project, 13/9/12*

hub of the early modern newsbook. In other words, Antwerp was the Google of its day.

The superficially improbable emergence of a *Bureau d'adresse* in remote San Sebastián in the 1680s provides an example of unexpected fitness. The city was a point of transit for news from London to Madrid; its printers were French educated, and had typefaces from Amsterdam; and it had a printing business. San Sebastián was cosmopolitan in its varied constituent materials, and therefore was well disposed (or fit) for establishing a well-connected communication network: and so a projector conceived of a bureau there.

But Not that Small

What happens when we scale up?

Recent studies have reconstructed small networks of early modern pedlars. Alberto Milano has shown that the pedlars associated with the Italian publishing and printing family, the Remondini, “were not isolated figures with their travels individually orchestrated, but were part of a well-organised network for the distribution of popular prints”. His reconstruction of their itineraries in the eighteenth century shows them travelling thousands of kilometres across Europe and beyond—possible only because behind this extraordinary travelling (by foot) was a sophisticated organising principle.³⁶ Jeroen Salman has also reconstructed a smaller network of itinerant booksellers and pedlars operating in Amsterdam at the end of the seventeenth century (see Figure 4.2).³⁷ It was their collaboration in an underground network that made their illegal operation feasible. These networks have been reconstructed—without the explicit use of any network analysis, though describing the object as a network—through traditional historical methods. But what happens when we scale these up? Salman and Milano use datasets on a scale that is compatible with traditional humanist analysis: their nodes have names and identities. As we increase the size of the network this becomes more difficult.

FIGURE 4.2 Jeroen Salman, *Network of booksellers and pedlars, Amsterdam 1690–1707*

36 Alberto Milano, “Selling Prints for the Remondini”: Italian Pedlars Travelling through Europe During the Eighteenth Century’, in *Not Dead Things: The dissemination of popular print in Britain, Italy, and the Low Countries, 1500–1900*, ed. Roeland Harms, Joad Raymond and Jeroen Salman (Leiden: Brill, 2013), pp. 75–96, at 76, 88.

37 Jeroen Salman, ‘Pedlars in the Netherlands from 1660 to 1850: Nuisance or Necessity?’ in *Not Dead Things*, ed. Harms, Raymond and Salman, pp. 53–74, at p. 62.

For example: in her analysis of the dissemination of news from America in Europe during the sixteenth century, reconstructed from references within the texts of newsletters and through cross-reference to printed news, Renate Pieper proposes that manuscript and printed news travelled by different networks.³⁸ The former was centred at Madrid; the latter at Dieppe, and the distinction between the ways these two networks operated hinged on the fact that the capital for printing had to be put up front. Pieper does not indicate that these networks are disconnected: rather that they need to be analysed discretely in order to be grasped and understood. However they clearly overlap, not only in the important nodes of Florida, Madrid, Vienna and Florence, but also in the mechanisms of distribution, translation and reception. Moreover, the economics of manuscript news and the economics of printed news were connected in complex, multiple ways. So in fact we have a single complex network that is capable of partial disassembling in order to be analysed as two. And this is only for news from America in transit to central Europe. Next consider Nina Lamal's research on news moving across the Holy Roman Empire and Italy, which proposes the existence of independent or semi-independent Catholic networks.³⁹ Or Ruth Ahnert and Sebastian E. Ahnert's ongoing reconstruction of a Marian Protestant letter network, with its distinctively shaped news flows.⁴⁰

The networks in these case studies were in the early modern world joined up. But how do we connect them? How do we join these analyses of particular flows in order to understand them, with all their nuances, on a Europe-wide scale? Not by traditional humanist methods, that much is certain: the scale of the data would be unmanageable. But if we reduce them to data, nodes and edges, then perhaps we can. Moreover by doing so we can step beyond the reach of intuition and informed deduction. A network-based analysis might help us look at the evidence in a different way and thus defamiliarise it; or it might produce unexpected results.

Take the common example of a food chain. It includes a predator fish A, and a prey fish B. We would expect that if because of fishing patterns numbers of A fell, then numbers of B would increase. Yet it sometimes happens that a decline in numbers of A results in an apparently paradoxical decline in the numbers of B. Further analysis then shows that A also predated upon C, and C predated upon B; a decrease in A results in an increase in C which in turn

38 See Ch. 21, pp. 495–511, below; also the research presented by Dr Pieper at the News Network workshop in Seville, 22–3 November 2012.

39 Nina Lamal, 'Le Orecchie si piene di Fiandra: Italian News and Histories on the Revolt in the Netherlands (1566–1648)', PhD thesis (Leuven and St Andrews, 2014).

40 Ruth Ahnert, Sebastian E. Ahnert, 'Protestant Letter Networks in the Reign of Mary I: A Quantitative Approach', *ELH*, 82 (2015), pp. 1–33; see also Ch. 5, below.

affects the numbers of B. This is the simplest possible model, and the impact of variation is quite predictable once the connections are understood. However, scale this up to the complex food chains of the Serengeti, and the analysis cannot be described so simply. All biological understanding must be stripped out, and the network reduced only to the species and their interactions, and these must in turn be assembled into groups or guilds on the basis of behaviour.⁴¹ Only then can the guilds be organised into a set of interactions that can be predicted and understood—so we know who is eating whom.⁴² Thus understood in the abstract (by which I mean mathematically rather than historically) and analysed as a complex network it is manageable; a force directed, interactive visualisation of the same could be used to explore local relationships within the broader network. This would be the equivalent of being able to zoom in on Strasbourg, or the journalist John Dillingham, and see the nature and extent of their interactions with, for example, Venice, and the part they play in transnational news communication—and all with a mouse click. It would enable us to isolate and re-combine the manuscript and printed sub-networks that transmitted news from the new world, and see the extend of their interdependency; and it would enable us to see ways in which the letters of Marian Protestants fitted into news communication more broadly.

However, one of the practical obstacles faced for future network analysis is the varying protocols followed by those scholars and institutions that have recorded their datasets, both those stored privately and those publicly available. Efforts across Europe to digitise newspapers, as images, texts, or simply bibliographic records, have not been co-ordinated, and the data they store cannot at present be absorbed into a unified analysis using the same algorithms.⁴³ Analyses therefore face restriction by particular collection, or even title, by time period, and especially by a geographical region. Breaking these restrictions is necessary not only to expand the field of analysis, but because localised conclusions may well not only be modified but even transformed by broader analysis.

41 Edward Baskerville *et al.*, 'Guilds in the Serengeti Food Web Revealed by a Bayesian Group Model', *PLoS Computational Biology*, 7.12 (2011); see <www.trevorbedford.com/pdfs/baskerville-serengeti-2011.pdf> [17/11/14].

42 E.B. Baskerville, A.P. Dobson, T. Bedford, S. Allesina, T.M. Anderson, *et al.*, 'Spatial Guilds in the Serengeti Food Web Revealed by a Bayesian Group Model', *PLoS Computational Biology*, 7.12 (2011); accessible at: <journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1002321> [17/4/15].

43 For these digital resources, see <www.cemmn.net/resources/web-resources/> [17.11.14], which is updated regularly. I am presently seeking to develop ways of integrating these databases.

Centre and Periphery

Another problem: is the network itself bounded? Does the network have a periphery? This is a problem implicit in the very title of this project, with its overwhelming emphasis on western Europe.

Centre and periphery are of course relative terms, which is to say that from the perspective of Strasbourg, Lisbon looks like the periphery of Europe; whereas from the banks of the Tagus, Lisbon looks like the point at which the new world meets the old, a centre for the encounter between Hispanic and Moorish civilisations, and, at least until 1755, a financial powerhouse. Sixteenth- and seventeenth-century London has a very different kind of peripheralness. The inbound flow news is more plentiful than the outbound. It serves as a distribution point for other British cities, but in comparison with Antwerp it provides little two-way transit. Though it was one of Europe's largest and most important cities, on an urbanisation trajectory to becoming a major trading centre, the hub of an empire, its news infrastructure was limited and local. Extraordinarily (and perhaps symbolically), the news of the actions of the Elizabethan privateer Sir Francis Drake in Santo Domingo and Cartagena in 1586 were not transmitted to London directly; instead the news came via Seville.⁴⁴ And yet it did provide a transit point for Spanish and Portuguese news when communication between Spain and France broke down. When one channel is impeded, another can restore its latent capacities. There were moments when London did serve as a news hub precisely because of its other-wise peripheral status.

Is it then meaningful to use these terms? Don't we risk drawing an artificial boundary around Europe, thereby overlooking the significance of the Atlantic or wider world in making the news networks that made Europe?

Network analysis may ultimately furnish us with a different kind of answer, but one way to approach this is to think about what happened in Strasbourg in 1605. Part of the problem in discussing centre and periphery lies in an analytic condition that might well be called *Strasbourg syndrome*: that is, the *double* confusion of (i) conflating geographic with functional centrality, and (ii) the attribution of functional importance to a symbolically-important event: which is to say, the printing of the first weekly newspaper in 1605. The place of Strasbourg in histories of news is ensured because it was there that the printer and scrivener Johann Carolus printed twelve issues of a weekly *avviso*, and

44 Pieper, 'News from the New World', below pp. 505–6.

then petitioned for the right to do so.⁴⁵ However, it is more doubtful that this is an “epoch-making qualitative advance” in any realm beyond the symbolic gesture. Strasbourg was not at the time the best-connected city in the area, nor was it a centre of news.⁴⁶ While geographically central, it is not central in terms of connectivity (see Figure 4.1).

If the intensity of news communication, measured in terms of speed and volume of flows, is a factor in innovation, it is surprising that Strasbourg played an epochal role. However, the earliest surviving copy of the *Relation* dates from 1609, and, while survival rates from this period are very low indeed, it is possible that Carolus’ claim in his 1605 petition to have printed twelve issues were fictitious or exaggerated (because he was seeking to obtain a valuable monopoly). The importance of Strasbourg in 1605 is not a material, commercial, intellectual, or social change: all of these factors were in place there and elsewhere prior to that moment.⁴⁷ Rather it is that a scrivener and printer there, perhaps within a peripheral position within a network, had time, cash, and the relative freedom to perceive and realise this commercial possibility. There is a risk that the significance of the event is further distorted when placed in a national narrative.

The means that network theory provides for thinking around this syndrome involves replacing geographical centrality with connectivity, and understanding centre and periphery in terms of flows. Blackspots are areas of a network in which the nodes have relatively few connections: in such areas, there are few alternative pathways between the nodes. A node with few connections can be understood as occupying a peripheral position. However, where such a node provides a connection between two parts of the network that have few alternative connections—such as Lisbon and Seville, with their connections to the new world, or Cyprus with its connection to the Ottoman Empire—then it importantly functions as a hub between remote parts of the network. If military conflict renders the road from Constantinople to Ioannina less passable then the role of Cyprus is enhanced.⁴⁸ Such nodes hold together the system. These connections are partly determined by geography, of course, but centre and periphery are here understood as functional roles. And were we able to replace my suggestive examples with big data then we would be able to see all the more clearly how the various parts of the network affect each other, how

45 Johannes Weber, ‘Strassburg, 1605: The Origins of the Newspaper in Europe’, *German History*, 24.3 (2006), pp. 387–412.

46 See Ch. 2, above.

47 Pettegree, *Invention of News*, Ch. 9.

48 See Ch. 1 above, and Chiara Palazzo’s chapter, at pp. 854 and 855–6 below.

events that affect the flows on one part of the network have consequences for another—and in ways more subtle than can be inferred by anecdote—and, crucially, how the network changes over time. Because—and this is an important aspect of the self-organising network, and it is clearly true of early modern news—when the network is injured it heals itself. When one route is closed down, others develop to replace it. The network is, by definition, an evolving one: we need to think of innovation not in terms of print, seriality of periodicity so much as developing transformations in the nature, scale and directions of flows moving around the system.

By focussing on connections rather than spatial relationships we can visualise relationships in alternative ways. With the Serengeti food web, for example, the data connecting the species is processed using an algorithm that balances Hooke's Law and Coulomb's Law, further weighted for members of the same group. Even geography can be represented in a more functional way by abandoning spatial exactitude: the London underground map does precisely that.⁴⁹ In news networks central and peripheral relationships could be analysed in terms of the speed or volume of communication, or both, the diversity of the content, or even the number of unique individuals in the node who participate in the flows. In such a context the notions of centre and periphery could be meaningfully deployed in relation to particular questions, and with analytic value.

Finally and most speculatively, how could this enhance our understanding of the boundaries of Europe, if these boundaries are real as well as imagined, and thus our understanding of the nature of Europe itself? Analysis of news flows will, I predict, indicate that the volume and speed of news declines east of the line between Venice, Vienna and Krakow; at least viewed from the west of that line, news from the east is late in coming, and poor in volume and quality. We may also find that there is more appetite for news of the Ottoman empire in the European news network than the other way around; and that this unevenness is reflected in an asymmetry of news flows. Or that to the east news flows in a connected but separate network (demonstrating the strength of weak links) of spies, informers, agents, prisoners, diplomats and sailors, one quite different in the way it works from the relatively public network of postal routes to the west.⁵⁰ This being the case, the flow of news

49 The evolution of the map—from 1908 to 2012—can be seen at <www.bbc.co.uk/news/uk-england-london-20943525> [17/11/14]; an alternative, less cluttered version by Dr Max Roberts, even less faithful to geography, can be seen at <metrouk2.files.wordpress.com/2013/01/london_underground_circle_map_2013.jpg> [17/11/14].

50 Evidence to support this proposition can be found in Noel Malcolm's masterpiece—published too late to shape this chapter or this volume—*Agents of Empire: Knights, Corsairs, Jesuits and Spies in the Sixteenth-Century Mediterranean World* (London: Penguin, 2015).

may be said to be one of the things defining the contour lines of European identity.⁵¹

Joining the Dots

Early modern news was a Europe-wide network: which is to say that it was a complex, self-organising system governed by a power-law distribution. This has difficult implications for writing a new, pan-European history. The contributors to this volume, and others who have participated in the transformation in the history of media, share an interest in empirical research and internationalism, and are committed to the romantic mess of hard evidence. This has made us gravitate towards the case study, and to the accumulation of case studies. The logic behind this approach is not far to seek: case studies can offer representative examples, and by the multiplication of case studies they can be joined up in order to build a new whole from manageable parts. By this means we can respect the standards of evidence expected of modern media history and still aspire to a large canvas.

Everything I have said points towards the desirability of a *holistic* and *networked* history of Europe's early modern news communication. To write local or regional histories is to deal with the epiphenomena without conceiving of the European system as a whole, and thus to remain in thrall of a post-Victorian narrative. Yet the quantities of evidence we would have to assess to rewrite that narrative on a fully European scale, and the rigorous and imaginative approach to evidence required, make it impossible to master all sources in conventional, humanist ways. The meticulous empirical and evidentiary standards of this new international history of news demand an engagement with sources of such extent and detail that the research will always undermine the approximations of the overview. While we have provided the basis for a new narrative of news, displacing the old Victorian one, we seem to have done so in a way that prevents us from realising it. We can either examine particular cases or microhistories or offer a secondary overview that always risks belying the very insights that we seek to preserve.

51 See Johann Petitjean and Virginia Dillon in this volume (Chs. 7 and 36); Gagan Sood, 'Circulation and Exchange in Islamicate Eurasia: A Regional Approach to the Early Modern World', *Past and Present*, 212 (2011), pp. 114–62; Johann Petitjean, *L'intelligence des choses: une histoire de l'information entre Italie et Méditerranée, XVI^e–XVII^e siècle* (Rome: Ecole française de Rome, 2013).

However, the heterogeneity of the news network, and the fact that it is a complex self-organising system presents a further problem. The distribution of connections among entrepôts across the network is governed by a power law that indicates divergence rather than by the bell curve of resemblance. Network theory therefore confirms an intuition. There are no typical places, forms, people, or words; there is no average event. Antwerp and Aberystwyth are too far apart. We can find associations, trace connections, expand our scope by studying mobility and flows. But not more than that. The full range of places, forms and events are too distant to be brought together—and for purely statistical reasons. The theory suggests that while we can use network analysis to develop new case studies, understand case studies better, and even explore the associations between case studies, we cannot use the theory to scale up from the representative examples. Which is to say if we think of the early modern European news network as a network in a robust sense, that is, as a complex, self-organising system, then we should recognise that the principles behind network theory propose that the only way of achieving a perspective on the whole is not through the accumulation of local details but through a comprehensive analysis of the flows and transformations of the network. A comprehensive analysis: based on the meta-data of news communications as well as individual paragraphs of news, sensitive enough to detect the nuances and variations of translation, including news communicated in speech, manuscript and print from all areas of Europe, and indeed beyond in order to reveal the effects of Europe's permeable boundaries.

The only way to develop a new narrative and a new picture that is detailed and holistic—not built from Minecraft or a million Lego bricks—will be to supplement our case studies with network analyses of big data, necessarily based on transparent interfaces that will allow data-sharing between internationally-dispersed projects. If we want to see the whole, and to rewrite the story of the whole, then we have to recover the whole.