

INDIVIDUAL PERCEPTIONS: A NEW CHAPTER ON VICTORIAN INFORMATION HISTORY¹

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Studies in Victorian information history have tended to focus upon the technological or organizational infrastructures and processes of information. This paper takes a different approach and examines four individuals as case studies — the Duke of Wellington, Florence Nightingale, Julius Reuter and Eleanor Sidgwick. Using contemporary archival material it attempts to understand the multifaceted notion of information as it was understood by the Victorians themselves, and in doing so proposes some personal perceptions of information during the nineteenth century. It concludes that information and knowledge played a recognized and varied role in nineteenth century society, but that this role was more subtle and understated than some Victorian information society literature has previously implied.

Introduction

This article endeavours to take an interdisciplinary approach to provide fresh insight into the study of Victorian information history.² Historical and information science research in this area has to date been implicit in its discussion of how information in its many forms was regarded by contemporaries, tending instead to focus on the cognitive processes of communication exchange, wider information dissemination, or organizational tools.

Contemporary dictionary definitions of the word 'information' make it possible to gain a sense of how it was used within Victorian language. Dictionary definitions are, after all, formed by a word's accepted use within society. To take this a step further, by examining the way a number of individuals thought of and used the concept of 'information' in their own lives, it becomes possible to gain a reflection of what 'information' could mean to people in nineteenth century England. By exploring these varying contexts and perceptions of information, and by looking at the differing meanings of the word itself, it is also possible to begin to build a more general understanding of the history of information in the Victorian period.

While nineteenth-century society in England was anything but homogenous, the individuals represented here — Arthur Wellesley, Duke of Wellington; Florence Nightingale;

Paul Julius Reuter; and Eleanor Sidgwick — demonstrate a small cross-section of Victorian values, ideologies, classes, and gender, right across the century. It is not the objective of this article to discuss in depth their historical or biographical roles, but to examine their perceptions of information.

Admittedly they are selective, and somewhat subjective, choices, to some degree forced by practical issues of access to archive material. However, this does not mean that their experiences are any less valid than those of any other individual. Historian Asa Briggs has shown that it is possible ‘to trace patterns of perceptions and values through the experiences of individual people, [and that] there was no one sense of what life was like’.³ In this particular case, the fact that they are well known individuals makes it easier to assess their biases and the impact that wider contemporary events may have had upon their attitudes towards ‘information’. It is argued here that their ways of thinking about ‘information’ show some remarkable similarities, despite their differing individual social, political, and cultural beliefs. These similarities suggest some general trends towards the concept of ‘information’ in Victorian England.

There are admitted dangers of attempting to view the past through twenty-first-century eyes and values, but it is hoped that by focusing on individuals rather than technologies, this may be avoided, and we may see a more contextually accurate picture of what ‘information’ meant to the Victorians.

Language in the nineteenth century

Language is the most subtle reflection of social change. This can be seen in our own society with the development of new text messaging and e-mail language and forms which develop as new technologies are absorbed into popular culture.⁴ The nineteenth century was a period of immense change, and to quote Briggs again, ‘there were such sharply contrasting varieties of experience after the advent of the steam engine ... that neither the statistical nor the verbal frameworks of explanation received total assent’.⁵ In other words, the huge changes brought about by industrialization meant that language and the meaning of words, and the introduction of new ones, also changed more rapidly during the nineteenth century than they ever had before. There was a distinct move away from the relative constancy of Braudel’s ‘total history’ of previous centuries.⁶ It has been well documented that Victorian society saw key developments in transportation and communication technologies, in the dissemination of information, and organizational tools such as cataloguing, public libraries, and office bureaucracy.⁷ Alongside this were social advancements including improved literacy and education, a widening electoral franchise, increased disposable income, and a more developed and independent popular press.⁸ The developments which occurred over the century transformed English speaking culture.

Linguistic change and meaning during this period has often been overlooked, in part due to the apparent familiarity of the words, which has the effect of ‘lulling modern readers into imagining that this English is much like our own, when it is not’.⁹ While not regarding itself as an ‘Information Society’, the nineteenth century did have unprecedented linguistic self-awareness, which was often associated with social status, manners, and morals. These associations were reflected in the usage and semantics of words.

The word ‘information’ was not new to the nineteenth century. Its etymological origins stem from the Middle Ages, where it was derived from the Medieval Latin *informationem* and Old French *enformacion*, meaning ‘formation of the mind, or teaching’¹⁰. Samuel Johnson’s groundbreaking 1755 *Dictionary of the English language* was the first proper attempt to provide some clarity of definition of English words. The dictionary responded to a widely felt need for stability in the language. It defined the concept of what a dictionary was, and can therefore be used as a benchmark of sorts. *Volume I* of the 1755 edition defined ‘information’ as ‘1. Intelligence given; instruction, 2. Charge or accusation exhibited, 3. The act of informing or actuating’, but Johnson recognized that the meanings of words evolve, writing in the *Preface* to his dictionary that ‘language is only the instrument of science, and words are but the signs of ideas: I wish, however, that the instrument might be less apt to decay, and that signs might be permanent, like the things which they denote’.¹¹ Johnson’s *Dictionary* was considered authoritative until the appearance of another benchmark in lexicography in 1884, the *Oxford English dictionary* (originally under the name of *A new English dictionary*, or *NED*). The two make for an interesting lexicographical comparison. The *NED*, as with other later Victorian dictionaries, attempted to impose more rigorous, objective definitions to words, as opposed to Johnson’s sometimes highly personal ones, in a reflection of the more scientific Victorian approach to philology.¹² Therefore, by the nineteenth century, examples of dictionary definitions for ‘information’, while based on Johnson’s, were more varied:

The act of informing or apprising.

Intelligence given; instruction, advice.

Charge or accusation.

(*Law.*) An accusation or complaint made in writing to a court of competent jurisdiction, charging some person with a specific violation of some public law.

Synonym of ‘*Advice*’: intelligence; information.

(J. Worcester (ed.), *A dictionary of the English language* [London: 1859, 1863, 1878 editions], 752.)

Intelligence given; instruction.

Charge or accusation; act of informing or accusing.

(H. J. Todd (ed.), *Johnson’s dictionary of the English language* [London: 1871], Vol. I, Pt II, 1257.)

The act of informing; news or reading or instruction, or gathered in any way; a statement of facts laid before a court of justice.

(C. Annandale, *A concise dictionary of the English language, etymological and pronouncing, literary, scientific, and technical* [London, 1894], 356).

One can see from these definitions that, just as in our contemporary society, there is no singular meaning for ‘information’. While this may appear obvious, there is too often an emphasis upon how the tools and technologies for organizing and disseminating information have evolved and changed, while assuming that information itself has remained fixed and constant. Rather, just as in today’s society, its semantic ground can shift according to the context in which it is being used.

The remainder of the article focuses upon the individuals discussed above and the contemporary debates and issues which surrounded them at certain key points in their

lives, with reference to these dictionary definitions. With Wellington the emphasis is on his anti-reform attitude to the 1832 Parliamentary Reform legislation, specifically with regard to how he viewed uneducated working class men having the vote. For Florence Nightingale the emphasis is on her use of information and statistics during and after the Crimean War to support sanitation reform. The section on Julius Reuter examines his policy with regard to information collection and dissemination to the newspapers, specifically what ‘information’ he thought was important or most valuable. Finally, Eleanor Sidgwick’s belief in the importance of women’s right to be informed and to have a university education is the subject of the final segment.

The Duke of Wellington (1769–1852)

Many of the issues of the early 1800s can be found to have originated during the eighteenth century. Arthur Wellesley, Duke of Wellington, encompasses both the eighteenth- and nineteenth-century traditions, reflecting some of the social and political tensions of early-nineteenth-century England. Wellington’s opposition to the Reform Bill of 1831 can be explained not in terms of his conservatism *per se*, but because he saw it as a direct attack upon the established traditions of property.¹³ The Duke ‘entertained an exaggerated dread of democracy’, as to him, ‘democracy’ was equated with France and revolution, and he became ‘obsessed with the threat of mob violence’.¹⁴ During the 1831 debates on the Bill he claimed that ‘a democracy has never been established in any part of the world, that it has not immediately declared war on property’.¹⁵ It was in this atmosphere of suspicion and unrest that Wellington’s references to information, intelligence and news must be understood.

Two key points are argued. First, that Wellington’s attitude towards revolution and ‘the mob’ shaped his perception of information.¹⁶ This meant it was more in line with the eighteenth century definitions and ideas of news and insider intelligence (using Johnson’s *Dictionary* as a reference point), than with some of the more Victorian ideas of education, and objective and rational data. In his correspondence and discussions he uses the word ‘information’ with interchangeable meanings depending on the context — either as intelligence or news. The second argument is related to this interchangeable meaning of ‘information’, and concerns his relationship with the press and the character of public opinion — both of which can be seen as vehicles to inform and provide intelligence, but also to manipulate and exacerbate social unrest. These issues will be explored, so far as they affected Wellington, in order to gain a sense of the fluidity and flux of perceptions of ‘information’ during the Reform Bill period.

The Revd George Gleig, a friend and supporter of the Duke’s, wrote to him in November 1831 warning of the possibility of violent attacks against him due to the agitation in the country. Wellington shrugged off the concern, and said he would not be prevented from travelling by such threats:

What I always do in these cases is to give information to the magistrate. It is his duty to protect all his Majesty’s subjects ... and even to take precautions for their protection if necessary. It is my opinion that these secret informants, who will not and probably dare not come forward with their information, do more harm than good. There is a perpetual gossip going on in the public-houses upon all sorts of plans of mischief.¹⁷

This is his most explicit reference to ‘information’ that can be found amongst his voluminous correspondence in these years, although there are similar implications elsewhere. When he is writing both of his own actions and those of the informants (to which his reference of public-houses associates them with the lower classes), there is a strong suggestion of spying, and of inside intelligence. Compare this to a quotation in Johnson’s 1755 *Dictionary*, to define ‘News’:

They have News-gatherers and Intelligencers distributed into their several Walks and Quarters, who bring in their respective Quotas, and make them acquainted with the Discourse and Conversation of the whole Kingdom or Common-wealth where they are employed.¹⁸

In this same edition ‘information’ was defined as ‘Intelligence given; instruction ... Charge or accusation exhibited ... The act of informing or actuating’. Similar examples can be found in nineteenth century dictionaries, but in these, the ‘act of informing or accusing’ is found amongst several other definitions referring to learning, law, advice and education.¹⁹ In the eighteenth century there is a strong association between ‘information’ and ‘news’ both providing what we would term now as inside intelligence or even surveillance.²⁰ Wellington shared this view.

His friends and supporters wrote to him often to discuss things they had discovered on a grass roots level during the agitation of 1831. One such correspondent wrote six pages to the Duke on how political unions in Birmingham were developing (a key area for disturbance). In his typically brief reply, Wellington thanks him for ‘the information [and] ... your intelligence’.²¹ Another wrote to him that he had learnt ‘of a plan ... for the diminution of the Army in general’. Such a reduction would have drastic consequences because ‘I have heard from good authority that the Police ... would soon be ... destroy’d, when they know that no Army [exists] to support them ... and that in fact, they would not face a mob’, thereby leaving the country defenceless.²² Such frantic sentiments are, in historical hindsight, unlikely to have actually occurred. However, in terms of his perceptions of information, Wellington’s network of acquaintances, supporters, and colleagues were in a sense his ‘News-gatherers and Intelligencers ...’, as *The Spectator* described in 1712, and Johnson defined in 1755.

Such intelligence and news were of course linked to the press, with whom Wellington enjoyed an uneasy relationship. Unlike George Canning and the Whigs, he distrusted newspapers as ‘journalists, in his experience, existed for the propagation of falsehoods’.²³ There was a certain distinction between the ‘popular’ and ‘respectable’ branches of the press, the latter of which were ‘generally considered to be devoted to the Government, — to be its instrument, and the organ of expressing its views, vented with impunity ...’.²⁴ Government, Wellington included, had long used the press to leak ‘inside information’ to correspondents for publication, and since most reporters in the early nineteenth century made a living from their contacts, they were invariably part of the elite circle.²⁵ John Wilson Croker, an MP, journalist, and friend of Wellington’s, spent the few weeks between February and April 1827 ‘in an ecstasy of exclusive information [*sic*]’ while the King decided who would succeed Liverpool as Prime Minister.²⁶ However, ‘the cheap press ... remain[ed] in the hands of the ill-informed and mischievous’.²⁷ It was the power of this press to distribute information to an uneducated people which, he believed, was the cause of much of the social unrest and demands of ‘the mob’. During the second reading of the Reform Bill in October 1831, ‘the state of public feeling

and opinion in London, as well as in the north of England, and elsewhere in the country, had been influenced by the state of affairs in France, Belgium, and other parts of Europe', which had been reported in the press.²⁸ 'Every great political change infallibly disturbs the public mind, which when once unsettled is not easily quieted, but more frequently acquires a restlessness, which getting beyond human control, rapidly overturns all existing institutions.'²⁹ This was perhaps a little far-fetched even for 1832, but it illustrates contemporary fears of an uneducated 'mob' knowing too much without understanding how to use that information. For Wellington, such knowledge should reside in the aristocracy who had the education and intellect to understand it properly and govern responsibly. Fear of the working classes 'knowing too much' was not uncommon in the early nineteenth century and was one of the reasons behind the high stamp and paper duties, or 'taxes on knowledge'. A tax was first imposed on British newspapers in 1712, and was gradually increased until in 1815 it had reached 4d. a copy. As few people could afford to pay this for a newspaper, the tax restricted the circulation of most of these journals to people with fairly high incomes.

Just as there was a distinction between the cheap and the respectable press, there were also distinctions between mass and respectable public opinion. This is a huge issue in itself, subtly tied up with questions of class, social mobility, and economic and political power, but it is also associated with Wellington's attitudes towards 'mob' agitations and clamour, which he believed were fuelled by the press. A letter discussing the Reform Bill distinguished between 'good' public opinion which has been 'the source of a good thing and permanent, [and] is the work of time and reflection', and 'bad' public opinion which is 'an incoherent foundation of a public foundation hastily collected and cemented by passion'. The Reform Bill, it argued, was based on the latter.³⁰ Similar thoughts on 'good' and 'bad' public opinion were expressed by Mackinnon in his seminal work on the topic in 1828. He argued that 'public opinion is a sentiment that depends on the degree of information and wealth, which together may be styled civilization, and also with a proper religious feeling that exists in any community'.³¹ By saying this he immediately limited 'public opinion' to those who had education and economic power, which in 1828 represented the new middle classes (and existing elites), and the inclusion of religious feeling ensured that Victorian moral sensibilities were satisfied. This had the effect of excluding the working classes from holding 'public opinion' under his definition, as the masses were not tended to be viewed as having high moral characters (however untrue or generalized that may have actually been). He continues that 'public virtue seems a necessary requisite to render public opinion of importance', thereby justifying the irrelevance and danger of 'bad' public opinion through the 'mob', or what he termed 'popular clamour, so often confounded with public opinion, yet so essentially different in every respect'.³² For Mackinnon, then, ignorance and a lack of education equated with a violent mob, which was not deemed to have an opinion either respectable or worthy.

And yet, if the working classes had access to information about events through the popular press, as Wellington admitted, then how could their opinion be deemed ignorant? Nineteenth-century views of education were, as with most aspects of society, connected with class and social status; there was a crucial difference between having information and having an education. A gentleman was expected to have a classical education, and to have an understanding and appreciation of politics and economics.

This is why so many eighteenth- and nineteenth-century texts, whether it be novels, newspapers, pamphlets, or speeches, use subtle references and quotations from classical works and poetry. It was accepted that someone who was well informed would not need these things explained.³³ This is discussed further in relation to Julius Reuter, but here it can be seen in terms of Wellington's belief that only men of property and education should be enfranchised, in order to avoid uninformed, ignorant, 'clamour' in parliament and in governing the country. In a letter to Lady Shelley in 1825, he advised her upon the necessity of her son undertaking the 'right kind' of education, as he 'is coming into the world at an age at which he who knows nothing will be nothing'.³⁴ In the early decades of the century to be uninformed was to be unrespectable, and the unrespectable could not be trusted to be enfranchised. It is no coincidence that, as the century progressed, both education and the press became less exclusive at the same time that the franchise was widened under the subsequent reforms of parliament.

Therefore, for Wellington, 'information' was a fluid concept, tied up with politics, social class, the power of the press, public opinion, and continuity and change, and represented the ideas of being both educated and of being informed.

Florence Nightingale (1820–1910)

Despite reservations from her family over the suitability of nursing as a career for a lady, Florence Nightingale became heavily involved in the profession during the Crimean War (1854–1856). She was also the first elected female member of the esteemed *Statistical Society of London* in 1858.³⁵ Her use of graphic and tabled statistical data to educate, inform and persuade Government and the public of the importance of hygiene and sanitation was a way of demonstrating 'the act of informing ... intelligence ... knowledge derived from ... or gathered in any way; a statement of facts ...'.³⁶ This section explores her utilization of, and belief in, this kind of numerical information.³⁷

For some of the individuals discussed in this chapter, 'information' was perceived as something flexible and subjective; in contrast, it is proposed here that, for Nightingale, 'information' was objective, rational, fixed, and scientific. Statistics were, for her, significant but dispassionate pieces of evidence to be used in solving the social questions of the day. For Nightingale, the issues (of mortality and hygiene) were emotive, but the information itself was not. This provides a contrast to Eleanor Sidgwick (discussed later), for whom information and education were highly personal matters.

The nineteenth century was the era when science and statistics really came into the fore, with even the Reform Bill of 1831 described as 'an experiment in legislation founded on a numerical theory'.³⁸ Florence grew up among these new social debates and expressed an interest in measurements and statistics from an early age, even methodically marking her travel guide for Egypt while she was abroad between 1849 and 1850 with the distances of all the places she would be traveling to during her visit.³⁹ After taking up nursing she interwove her theology with her ideas on probability and social behaviour. She believed that the patterns of behaviour identified by statistics were expressions of the 'laws of God' left by the Creator in order to be discovered and acted upon.⁴⁰ For her, 'to understand God's thoughts, we must study statistics for these are the measure of His purpose'.⁴¹ These natural laws combined science and religion in a

way which allowed her to avoid the crisis of faith many Victorians faced following the publication of Darwin's evolutionary theory in 1859.⁴²

The high Victorian era was one of 'facts', best summed up by the educational philosophy of Mr Gradgrind in *Hard Times*, who declared that 'In this life, we want nothing but Facts, sir; nothing but Facts!'.⁴³ The novel was intended as a satire on a society which was dehumanized by the regularities imposed by statisticians. In September 1882, a future student of Newnham College, Cambridge, Winnie Seeböhm, wrote that 'What I think about knowledge (or rather about *mine*) is this: it is not so much knowledge I want as "thought" and "grasp". It is no use knowing a lot of facts and truths if you do not know their relation to one another and to you'.⁴⁴ The statistics of Florence Nightingale were an attempt to provide exactly that; she wanted to make people understand the appalling sanitary conditions, the high mortality rates, and the unnecessary death of soldiers during the Crimea, through the use of comparisons to civilian mortality rates and objective facts. If these facts were presented graphically rather than as tables then all the better as she was one of the earliest to realize what is now taken for granted, that 'diagrams are of great utility for illustrating certain questions of vital statistics by conveying ideas on the subject through the eye, which cannot be so readily grasped when contained in figures'.⁴⁵

Nightingale published several works on her return from the Crimea, based on the evidence she had gathered there, although she was not the first to use statistical methods for presenting information; over fifty years earlier William Playfair had created an early 'pie chart' of the levels of tax certain countries paid.⁴⁶ However, as Small argues, Nightingale's information was unique in that she used her statistics to argue a case, and persuade people of the need for change. Her publications, as opposed to what had gone before, 'were more topical and conveyed a call to recent action — they were prescriptive rather than descriptive'.⁴⁷

Edwin Chadwick had tried to do a similar thing with his Condition of England reports in the 1830s and 1840s using text and statistical tables. Although the two of them were to combine forces after her return from the Crimea, Chadwick differed from Nightingale in his attitude believing that sanitation reform was an issue for the engineers who built the sewers, and lawyers who legislated against unhygienic conditions, rather than for medical practitioners. At the time, 'his plan to force people to be clean by law was seen as both dictatorial and impractical', and in 1852 the Prime Minister Lord Derby stated 'that it would be impossible ever to enforce cleanliness by legislation'.⁴⁸ Around the same time, *The Times* commented that, 'we prefer to take our chances with cholera and the rest, than be bullied into health'.⁴⁹ And this was the public and government that Nightingale was trying to educate and persuade with her statistics. She attempted to do so by making the reports as scientific and informative as possible. Her friend and later colleague, Dr William Farr, was the Superintendent of the Statistical Department of the Registrar-General's Office, which made him responsible for writing explanations to accompany the summarized statistics produced in the Office.⁵⁰ Florence's publications were heavily influenced by him, and he offered advice on the content of her reports and diagrams, including the suggestion that the tables could be improved 'by omitting all lines containing no facts'.⁵¹

Although her statistical data was rational and objective, she did care passionately about the appalling things she had seen in the Crimea. In 1897 she wrote a letter complaining of the current public tendency to recollect the 'relics of the Crimean War'

favourably, when the only real relics were death, illness and terrible conditions. She writes several times throughout the letter, ‘O these enthusiasms without facts’.⁵² She was able to separate the emotive issues themselves from the impersonal facts and data she used to illustrate them. She also had the advantage that the Crimean War was one of the earliest wars to be reported by the popular press (and the first which directly involved British troops and British interests), allowing those at home to relate directly to her arguments. The war reporting, particular that of W. H. Russell of *The Times*,

excited the popular interest and the popular sympathy with the army ... While in this mood the report of the Royal Commission on the Health of the Army was laid before Parliament. It was eagerly taken up by the Press. It was extracted, abridged, analyzed, commented on, and excited a marked interest among all classes of society.⁵³

Herbert continued that the testimony published in the Report of the Royal Commission, and the Nightingale publications that followed it, made more of an impact than previous reports because the facts had a purpose. Earlier statistics had been ‘content to rest when [they] got what [they] were always asking for, “information”, and it remained useless because it was unused’.⁵⁴ The sentiment is the same as the one Winnie Seebohm would express in 1882. For facts to be useful, they had to have a purpose. Information for information’s sake was not enough.

Therefore, for Nightingale ‘information’ meant facts with a function. Although this section began with a nineteenth century definition of ‘information’, in Nightingale’s case, a contemporary definition for ‘facts’ could be more appropriate:

[Lat. *factum*.] Effect produced; action; deed: (... a matter of *fact* being opposed to one of law; *facts* being opposed to fancies, fictions, or theories, and the like).⁵⁵

Pure numerical data was meaningless; in order to present the best possible argument statistics should be objective, rational, and informative. ‘Information’ was a rational way of communicating something emotive and abstract. Nightingale’s concept of information was fixed and scientific, and in this respect she differs to the other three individuals who are discussed here.

Paul Julius Reuter (1816–1899)

In 1851 Julius Reuter established the small three-man Reuters Agency, to exploit the new technologies of telegraphy communications. Most existing work on Reuter (both Historical and Information Science) tends to focus upon his utilization of technology to organize and disseminate news, and makes the assumption that ‘news’ and ‘information’ are synonymous — both in the nineteenth century and today, which as is illustrated here, was not necessarily the case.⁵⁶ There is much that could be said about the infrastructural aspects of the company, but the purpose here is to look at the more sociological features, and examine his perceptions of the information with which he was dealing, rather than how it was communicated by the new technology.

It has been recognized that Reuter thought of news as the commodity of the day.⁵⁷ In taking that idea one step further from the technicalities of how he organized, collected and distributed news, it is proposed here that information itself interested him only so

far as it was saleable and commercially viable; the actual content did not matter to him, as long as it mattered to those who bought his telegram service. He used the terms 'information', 'news', and 'intelligence' interchangeably in his business correspondence. He was one of the most successful early capitalist entrepreneurs, providing information to the newspapers, at a price, and followed the trends for information in the country. Therefore, the second point argued is that it was his customers, the mass market for news, who shaped his own perception of information. He was objective about his work, although in a difference way to Nightingale — he could enjoy the stories as interesting and dynamic (he was himself part of the mass market for news after all), while still able to rationalize that for information to be worth anything to him, it had to be of value to someone else. This has interesting resonance with recent debates in the Information Science community over the value and pricing of knowledge in businesses, and suggests that a trend of recognizing and valuing information within commerce was being established by the mid-nineteenth century.⁵⁸

The electric telegraph was first used on the railways as a communication device in the 1830s, but by the 1850s, the technology had been diffused enough to allow Reuter to adapt its practicality for other communication purposes. The popular press had been expanding at the same time, allowing more people access to newspapers and the information they contained, and a more mobile population and expanding Empire meant that by the establishment of the Reuters Agency in 1851, there was a new and untapped potential market for 'information'. Reuter's perceptions of information were determined by his market, and 'his market was the minds of men'.⁵⁹ To be successful, he had to be aware of what was commercially viable.

The Reuters Group in 2006 covers all kinds of information and news, but in the 1850s its coverage was much more limited. An examination of what types of stories were included and when they first began appearing, suggests that Julius was aware of the topics on which the public audience wanted more information. In his years before the news agency, Reuter had used pigeons to send details of closing prices of the Brussels bourse due to demand from the financial market. After his establishment in London, one of the earliest arrangements he made was with the London Stock Exchange, to provide the market prices twice a day in London and Paris, later extending to Amsterdam, Berlin, Vienna, and Athens.⁶⁰ The 'news information' side of the business came after the financial one, where there were already established commercial interest groups who had long been willing to pay for up-to-date knowledge of market and bourse prices. In 1854 when Reuter was first establishing himself, the total circulation of the daily papers in the United Kingdom was under 100,000 copies a day, of which *The Times* accounted for half that sum. Consequently there was less of a market for non-financial news. Within two decades the emphasis had changed due to new markets created by increased numbers of newspapers and those reading them. By 1870, for example, the *Daily News* alone was reaching 150,000 copies daily.⁶¹

During the relatively unsophisticated market of the 1850s, the news stories of the Agency largely covered political or overseas information. A decade later, however, new types of information were beginning to be integrated, including the first cricket story in April 1862, and the first 'culture' item in July of the same year reporting that Victor Hugo's *Les Misérables* was selling well in Portugal.⁶² This was reflective of the development of sport and the arts in popular tastes, aided by increased disposal income and

leisure time by the second half of the century.⁶³ In 1848, the ‘year of the revolutions’ across Europe, Reuter returned to Germany and exploited the demand for sensitive information by publishing political pamphlets, then moved to Paris (the centre of revolutionary influence) to work in the Havas News Agency.⁶⁴ Read recognizes that Reuter was most likely acting more from a commercial motive than a political one, as taxes on newspapers had been abolished in France and Belgium in 1848, and he returned to financial information once the ‘revolution’ was over. He was opportunistic in his choice of what news to report, and so what information to provide. The information he provided throughout his career was what people would pay for; he went where the money was. He was a businessman through and through and this was fundamental in how he perceived information.

This commercial importance meant that Reuters was one of the first companies to make efforts to copyright news. In an edition of the *Reuter Service Bulletin* there is discussion of ‘copyright in telegraphic news’ being studied by Reuter representatives. Legislation from the Union of South Africa is praised, where ‘the *substance*, as well as the *form*, of a message is protected ... The man who steals your news is as much a thief as the man who steals your purse’.⁶⁵ Interestingly, in the *Rules of common action* agreed by Reuters, Havas (the main French news agency), and Wolff (the German agency) in 1870, the document does not use the terms ‘information’ or ‘news’ at all, but instead refers to telegraphic *intelligence*. The implications and connections between the semantics of these words have been discussed above, but the fact that an official business agreement as late as 1870 was referring to a commodity as ‘intelligence’, supports the emphasis on the content of the information being the saleable factor, not just the speed or format in which it was delivered as is often suggested.⁶⁶

However, his audience was diverse and the topics of the information it demanded were not homogenous. Readers of his telegrams ‘were taken to be men (not women) of middle class liberal opinions’ and this reflected the subject matter of information which was covered.⁶⁷ The nineteenth-century concept of a gentleman’s education has been referred to in relation to the 1832 Reform Act agitation, and it was still an important aspect of society by the last quarter of the century. Assumptions about the audience’s knowledge of names, places, and classical references can be found in the Reuter’s telegrams as late as 1876.⁶⁸ Part of the Reuter’s company uniqueness was that they reported only the facts, and did not provide any analysis or commentary. This was in part due to expediency of short messages when telegraphy was still expensive, and in part allowed the newspapers to discuss the ‘facts’ according to their own allegiances and sensibilities. By the end of the century journalistic discussion of this sort was becoming more common.⁶⁹ Sometimes newspapers complained that Reuter sent them too much irrelevant information.⁷⁰ Competitor news agencies which tried to focus on alternative information and did not fit the market demand collapsed within just a few years. The Dalziel Agency was established in 1890, and focused its coverage on American news — an area in which Reuters coverage was not so strong. Despite some early success, the English public proved more interested in their own Empire and political affairs, and by 1896 the Agency had all but collapsed.⁷¹

As the state became more democratic, with the franchise expanding through the Parliamentary Reform Acts of 1832, 1867 and 1884, and education reform in 1870, the political ideology of Liberalism and state intervention became more dominant over older

traditions of property. This in turn, meant that the ‘first duty of the press is to obtain the earliest and most correct intelligence of the events of the time, and [disclose] them to make them the common property of the people’.⁷² There was increased emphasis for Reuter therefore to provide information which would educate and inform people, to allow them to be responsible and moral citizens. By 1871 the press was being described as unable to ‘fail to promote morality, as well as spread intelligence, among all classes of the community’.⁷³ Things had come a long way since the fears that such access to information would provoke revolution in the 1830s.

In some ways Reuter’s Victorian perception of information is similar to the dominant material twenty-first-century view; that it was something intangible to be bought and sold, packaged and processed, and the only ‘information’ that existed was that for which people would pay. Perhaps it is this ideology that has enabled the Reuters Group to survive for 150 years and flourish within the Information Society. It also suggests a fundamental continuity of certain attitudes to ‘information’, and implies that the qualities of the Information Age are perhaps not as new and unique as is often assumed.

Eleanor Sidgwick (1846–1936)

Dictionary definitions of ‘information’ in the nineteenth century include concepts of education and being educated.⁷⁴ Eleanor Sidgwick was a strong advocate of women’s rights to university education, co-founding the all-female Newnham College, Cambridge in 1871, of which she was Principal between 1892 and 1910. By focusing on some of the debates over women’s right to university education in the last quarter of the century, it is possible to tease out some of the Victorian perceptions regarding such a concept of information.⁷⁵

This section argues three main points. First, that there was a fundamental difference between male and female education, and the type of information they wanted and were given, and that this was a reflection of contemporary social context. ‘General’ information and the etiquette of information appear as key themes. Second, that as a defence to the arguments proposed as to why women should not be recognized by the University, or be taught on equal terms as men at this level, techniques were employed to gather personal and statistical information on the women at Newnham, by the women at Newnham. This was related to the wider eugenics debate of this period, which had been filtered down to a cultural level. Third, that while individuals could be moral crusaders for women’s rights, these beliefs could be put to one side when challenged by traditional and accepted social conduct and manners. To nineteenth-century society, recognized social and cultural patterns of behaviour, particularly within the upper and middle classes concerned with this debate, dominated more radical interpretations of ‘information’ access or dissemination. Access to certain levels of education was allowed or denied because of class, gender, religious, or other factors, which necessarily involved the communication or restriction of certain kinds of information.

In the early days of the College women were not eligible to sit Tripos examinations, although they were allowed to sit the paper separately and be informally marked, if the lecturer was willing.⁷⁶ One of the main reasons for this segregation of men and women

was that established social norms regarded women as at best different, and at worst inferior, to men, providing them with few legal rights. Alongside this were the further subtleties of class distinction: 'ladies' and 'women' were not considered the same. A university education was out of the question for anyone who was not a lady, and yet 'a lady was not supposed to have any desires or functions outside her home duties'.⁷⁷ Enquiring minds were often stifled by such conventions, yet women of a higher social status used these same arguments to justify their elevation from women of a poorer social background. The subtleties of such social distinctions are complex, but essentially, when discussing university education for women, neither the groups in favour, nor those against the idea, were homogenous or fixed, but rather that 'shifting and temporary alliances cut across all kinds of personal and academic relationships'.⁷⁸

The distinctions between men and women (that is, ladies), was reinforced by the scientific debates on social Darwinism and eugenics.⁷⁹ Even the recognition that the situation for women may be changing was described in scientific and Darwinian terms:

It is clear that women are in a time of transition ... As environment changes, the organism adapts itself or perishes ... How woman's environment has changed, research and observation tell us; how the change must be met, it is the work of deduction and experiment to show.⁸⁰

These arguments were held up as examples of why women could not, and should not, be admitted to Cambridge. The biological, natural order ideology was used to suggest that women's bodies and minds were too weak, too frail, to cope with a university education, and that such study was 'unfeminine' and would threaten traditional domestic roles. Their brains were designed to cope with domestic information — how to cook and clean and manage household accounts — not the intellectual pursuits of economics, mathematics, or philosophy. A critic argued in 1897, around the time of the second (unsuccessful) attempt to secure for women the titles of degrees, that women's and men's intelligence, while equal, was different, and therefore 'it follows as a natural, if not a necessary, corollary that the lines of development and the modes of education should be different'. His adaptation of the 'natural order' debate continued by suggesting that women should not be admitted to Cambridge, but should instead start up their own 'University for women, and for women only', which would provide information and education more suitable for their biological needs.⁸¹

To a certain extent, Eleanor Sidgwick agreed that there was a difference in the way in which men and women thought and learned. Consequently Newnham, under the Sidgwicks, followed the principle that it was better to adapt the curriculum and existing Cambridge framework to suit the needs of women. The Newnham Register makes the note that 'the policy adopted by the College was that each student while in residence should take the course of study which was best suited to her attainments and her future plans without necessarily attempting to fulfill the regulations laid down for men undergraduates'.⁸² Educational opportunity, and thus access to information, was restricted and defined within the social limits of class and gender, and what was acceptable within existing Victorian social values and beliefs. Whether Eleanor truly believed there was a difference is difficult to tell, as not only was she conditioned by her own time, but she was also conscious that the male establishment would seize upon anything which could be deemed as evidence of unladylike behaviour, or ill-health caused by excess

work (or indeed information overload). Historian Helen Fowler agrees that ‘the Sidgwicks may have held unconventional views on many subjects but they did not tolerate unconventional behaviour in students. The place of women in Cambridge was too tenuous to allow any challenges to the social norm’.⁸³

As a further response to criticisms and concerns over the fragility of the girls studying at Newnham, Eleanor put together a report, published in 1890, which used statistical information to argue that women were not adversely affected by studying and being educated at a university level. The data was collected by sending questionnaires out to past students, asking them to rank their health on a sliding scale from excellent to bad ‘between the ages of 3 and 7 years, 8 and 14 years, 14 and 18 years, at the time of entering College, during College life, and since leaving College’.⁸⁴ The questionnaire also asked for details of the student’s social and parental background, marital status, occupation, and diet, and compared this with each girl’s sisters or cousins who had not attended university, so as to give some sort of comparison. The resulting report was 100 pages of complicated statistical tables, which unsurprisingly concluded with the remarks that ‘any serious alarm as to the effect of university education on the health of women is groundless’.⁸⁵ The reliability of these statistics, particularly the manipulation of some of the data, is certainly questionable, not least in that each woman who volunteered information was in effect defending her own time at university, therefore making for potentially rather subjective responses; however, what is interesting is the effort gone to by Mrs Sidgwick to produce ‘scientific’ statistical evidence, in a similar vein to Nightingale, of the Newnham girls’ physical ability and biological potency in order to silence their critics. It is highly reflective of both the rise in the use of statistics during the Victorian period, and the nineteenth-century obsession with measuring of all kinds. Measurements were used to identify criminals, the mentally ill (by Victorian standards), professional inclinations, and within academic research itself.⁸⁶

The statistical argument had changed somewhat since the Condition of England Question in the 1830s, where Porter had claimed in 1851 that, through the use of statistical information, the elites had ‘been awakened to the duty and the necessity of making provision for the education of the people’, by showing that ‘the people’, by which he meant the lower classes, specifically men, were weak, neglected, and unable to help themselves.⁸⁷ By the late 1880s when Mrs Sidgwick was researching her study, the aim was to prove that women were physically strong and mentally competent — while still retaining feminine and nurturing values — and it was for these reasons, that they should be recognized as needing a university education.

Following her published study in 1890, she spent a period of two years between 1898 and 1900 collecting further personal and intimate information on the girls at Newnham. This time, however, the information was succinct and factual, detailing bodily measurements rather than attitudes towards health. In the College archives there are 150 unpublished index cards, which detail explicit and very personal measurements and physical attributes.⁸⁸ The overall impression is one of an extremely intrusive study. There has only been brief discussion of them in historical literature.⁸⁹ During this two-year period, Miss Clough (the first Principal of the College) wrote to Francis Darwin (the son of Charles) and requested that he stopped by the College ‘after the girls have been measured ... [and] ... kindly give us some information about these measurements’.⁹⁰

There is no date on the letter but a reference to 'Saturday 19th December' would make the year either 1885 or 1891, as Miss Clough died in 1892. This would suggest that the girls at Newnham were being measured for some time before the index cards were printed.

Paradoxically, to a certain extent these statistical arguments served to reinforce the idea that the Newnham women's physical potency made them suitable for domestic life and motherhood. This fed back into the debate about *what* women should be learning, and what they ought to know, hence the kinds of information to which they should be given access. Society deemed that there were certain subjects which were not suitable for ladies. In November 1873 a male lecturer at Cambridge wrote to Henry Sidgwick saying that his lecturers for that term were clinical ones at the hospital, and therefore 'my lectures are not suited for ladies ... mixed classes of young men and women in hospital wards and clinic lectures are in my judgment highly objectionable'. However, he continues that in the following term he will be conducting lecturers within the University 'on the Causes & Prevention of Disease, and I should have no objection to ladies attending them'.⁹¹ In other words, it was not deemed suitable for a lady to gain information in hospitals where she may actually *see* someone dying, but learning how to prevent and nurse such conditions was more appropriate to her feminine status (Florence Nightingale had done much to improve the reputation of nursing as career to young women by the 1870s).⁹² Eleanor was one of the guest speakers at the opening of a new high school for girls in 1896, where the topic of *what* the girls should be taught was a key issue. The Bishop of Worcester suggested that although 'such changes had come over our views of what the proper education for girls was', he strongly felt that there should be a distinction 'between instruction and education', and that the 'perfect woman [would have] a great knowledge of a practical kind'.⁹³ By this last statement he meant *domestic* information that would be of use in running a household. He added that such a woman would also be 'something beautiful, bright, fascinating, charming, with all that was attractive, exquisite, delicate, and beautiful'. With such social expectations, it is no surprise that on Eleanor's Newnham index cards there is space to describe more aesthetic physical features of the girls, as well as their bodily measurements. Eleanor recognized that social convention required girls to have a body of domestic knowledge, but she argued that this was something that could be learned in schools, whereas university allowed for 'the development of an alert intelligence, a scientific spirit, a habit of independent thought about the matters with which we have to deal'.⁹⁴ Interestingly, in Florence Nightingale's huge 560-plus-page report *Notes on matters affecting ... the British Army* of 1858, she includes a section on how to cook hygienically. This includes recipes and 'practical information' on the best way to prepare food, providing an example of how scientific and domestic information could be combined.

This kind of conflict between academic education, domestic advice on how to manage a household (or a 'practical education'), and statistical evidence of physical ability, can be seen to mirror the dictionary definitions with which this paper began, and wider Victorian values and social norms of social status and behaviour, social Darwinism, eugenics, and scientific data. For Eleanor Sidgwick and those involved with debates over women's right to university education, 'information' was a fluid concept, but one whose semantic meaning had to operate within the existing framework of what was acceptable.

In Conclusion

It has only been possible to touch upon the detailed literature that is available on the individuals and wider themes discussed here, but it should now be evident that nineteenth-century perceptions of information were irrevocably tied up with Victorian values and wider concerns — class, morality, fear of a changing world, progress, early capitalism, empire, and expansion, to name but a few. This is not a radical statement in itself, but it is worth taking this a step further and making the distinction between our own twenty-first-century values and concerns that shape the way *we* perceive information; terrorism, global consumer culture, mass media, cyberspace and cyber-crime, identity fraud, personal privacy, and so on. There is a difference between the two, and this is reflected in how individuals perceive the concept of ‘information’ in the twenty-first century as compared to the individuals discussed here. Our society is self-consciously aware of the value and significance of information in our everyday lives, businesses, economies, and governments; everyday terms such as the Information Society, the Knowledge Economy, or the Digital Divide illustrate the fundamental importance we believe information has in our lives. By identifying aspects of how information was perceived by the Victorians, it becomes apparent that while it was no less important to their society and everyday lives, it was more taken for granted, and less of an independent phenomenon in its own right. It is this subtle difference which has been overlooked in previous research by Information Scientists and Historians. There has been a tendency to focus upon the technological and organizational tools of information dissemination and management in the nineteenth century, whereas issues of the access, use, and influence of information, and the differing social and economic values placed upon it, could be just as powerful as they are within our own society.

¹ This article is based upon PhD research, A cultural history of information: Victorian perceptions of an idea, funded by an AHRC studentship, directed by David Bawden. Our thanks to an anonymous referee for comments on this paper.

² For discussion of Informational History, see T. Weller, The arrival of informational history: a new approach?, in *Proceedings of the XVI international conference of the Association for History and Computing, 14–17 September* (Royal Netherlands Academy of Arts and Sciences, 2005) 273–78. Also see A. Black, New methodologies in library history: a manifesto for the ‘new’ library history, *Library History* 11 (1995) 76–85; and A. Black, Information and modernity: the history of information and the eclipse of library history, *Library History* 14: 1 (1998) 39–45.

³ A. Briggs, *The collected essays of Asa Briggs. Volume 1: words, numbers, places, people* (Harvester Press, 1985) xvi.

⁴ S. Birkirts, *The Gutenberg elegies: the fate of reading in an electronic age* (Faber & Faber, 1996); B. Winston, *Media, technology and society. A history: from the telegraph to the internet* (Routledge, 1998); P. DiMaggio *et al.*, Social implications of the internet, *Annual Review of Sociology* 27 (2001) 307–36; B. Hoeppe, The history of words: ‘spam’, in *The National Centre for the History of Education* (2005).

⁵ Briggs, *The collected essays*, xvi.

⁶ F. Braudel, *The structures of everyday life: civilization and capitalism, 15th to 18th centuries — the limits of the possible*, 1, translated from the French by Sian Reynolds (London: Collins, 1981).

⁷ J. Beniger, *The control revolution: technological and economic origins of the information society* (Harvard University Press, 1986); J. Yates, Evolving information use in firms, 1850–1920: ideology and information techniques and technologies, in L. Bud-Frierman (ed.), *Information acumen: the understanding and use of knowledge in modern business* (London & New York: Routledge, 1994) 26–50; D. Headrick, *When information came of age: technologies of knowledge in the age of reason and revolution, 1700–1850* (Oxford: Oxford University Press, 2000); J. Agar, *The government machine: a revolutionary history of the computer* (MIT Press, 2003); A. Black, Hidden worlds of the early knowledge economy: libraries in British companies before the middle of the 20th century, *Journal of Information Science* 30: 5 (2004) 418–35; E. Higgs, *The information state in England: the central collection of information*

on citizens since 1500 (Palgrave Macmillan, 2004); T. Weller and D. Bawden, The social and technological origins of the information society: an analysis of the crisis of control in England, 1830–1900, *Journal of Documentation* 61: 6 (2005) 777–802.

⁸ E. J. Hobsbawm, *The Age of Capital, 1848–1875* (London: Weidenfeld & Nicolson, 1975); G. A. Cranfield, *The press and society: from Caxton to Northcliffe* (London: Longman Group, 1978); L. Brown, *Victorian news and newspapers* (Oxford: Clarendon Press, 1985); A. Briggs, *The age of improvement, 1783–1867* (Longman, 1993); and A. N. Wilson, *The Victorians* (Arrow Books, 2003).

⁹ R. Bailey, *Nineteenth-century English* (University of Michigan Press, 1996) vi.

¹⁰ *Chambers dictionary of etymology* (Chambers, 1988) 527; *The Oxford dictionary of word histories* (Oxford: Oxford University Press, 2002) 272; *The Oxford English dictionary*, 2nd Edition, (Oxford: Oxford University Press).

¹¹ S. Johnson, *A dictionary of the English language* (London: W. Strahan, 1755) 4.

¹² L. Mugglestone, Departures and returns: writing the English dictionary in the eighteenth and nineteenth centuries, in F. O’Gorman and K. Turner (eds.), *The Victorians and the eighteenth century: reassessing the tradition* (London: Ashgate, 2004) 144–62.

¹³ For discussion of Wellington’s life, see Revd Gleig, *Personal reminiscences of the Duke of Wellington* (Edinburgh and London: William Blackwood & Sons, 1904); P. Guedalla, *The Duke* (London: Hodder and Stoughton, 1931); and C. Hibbert, *Wellington: a personal history* (London: Perseus Books Group, 1999). For his military career, see G. Davies, *Wellington and his Army* (Oxford: Blackwell, 1954); and for politics, see P. Jupp, *British politics on the eve of reform: the Duke of Wellington’s Administration, 1828–1830* (Macmillan Press, 1998); and Wilson, *The Victorians*. For the wider historical context at this time, refer to N. Gash, *Reaction and reconstruction in English Politics, 1832–1852* (Oxford: OUP, 1965); and R. Price, *British society, 1680–1880: dynamism, containment and change* (Cambridge: Cambridge University Press, 1999).

¹⁴ Gleig, *Personal reminiscences*, 5; Wilson, *The Victorians*, 117.

¹⁵ *Parliamentary Debates*, 4 October 1831. Quoted in Guedalla, *The Duke*, 408.

¹⁶ The word ‘mob’ and ‘working classes’ has been used here because this is the way Wellington and many of his contemporaries wrote and thought of the poorer classes. This does not mean to say that in any strict historical sense these groups were homogenous or so easily defined at the time. Similarly, elites, upper classes, and such did not all hold Wellington’s views on reform and revolution.

¹⁷ Letter from Duke of Wellington to Revd George Gleig, 7 November 1831, quoted in Gleig, *Personal reminiscences*, 101–02.

¹⁸ Originally from *The Spectator*, 439 (24 July 1712).

¹⁹ Johnson, *A dictionary of the English language*; J. Worcester (ed.), *A dictionary of the English language* (London, 1859) 752; C. Annandale, *A concise dictionary of the English language, etymological and pronouncing, literary, scientific, and technical* (London, 1894) 356.

²⁰ A referee of this article points out that in the eighteenth century newspapers were available in bookstores and coffee houses and so on, which had elements of both the library and the club and helped with the cost issues involved in individual purchases.

²¹ Southampton University, Hartley Library — MS 61 Wellington Papers WP1/1199/8, letter from Wellington to F. Lloyd, 19 October 1831.

²² Southampton University, Hartley Library — MS 61 Wellington Papers WP1/1184/1, letter from Colonel Sir H. F. Cook to Wellington, n.d. May 1831.

²³ Guedalla, *The Duke*, 369.

²⁴ W. M., A letter respectfully addressed to His Grace the Duke of Wellington, by a Whig commoner, on the question of reform, *Tracts 1380* (Roake and Varty, 1 August 1831) 12.

²⁵ J. Curran, The press as an agent of social control: an historical perspective, in G. Boyce, J. Curran and P. Wingate (eds.), *Newspaper history from the seventeenth century to the present day* (London: Constable, 1978) 51–75; P. Schofield, Bentham on public opinion and the press, in D. Kingsford-Smith and D. Oliver (eds.), *Economical with the truth: the law and media in a democratic society* (Oxford: ESC Publishing Limited, 1990) 95–108; J. Sommerville, *The news revolution in England: cultural dynamics of daily information* (Oxford: Oxford University Press, 1996); H. Barker, *Newspapers, politics and English Society, 1695–1855* (Longman, 2000); S. Hoyer, Newspapers without journalists, *Journalism Studies* 4: 4 (2003) 451–63.

²⁶ Guedalla, *The Duke*, 352.

²⁷ Southampton University, Hartley Library — Wellington Pamphlet 1194/12, *A letter to a minister of state respecting taxes on knowledge*, 2nd edn. (London, 29 January 1831).

²⁸ Duke of Wellington, Speech of the Duke of Wellington, on the motion for the second reading of the reform bill, in the House of Lords, *Tracts 1379* (London: John Murray, 4 October 1831) 4.

²⁹ Anonymous (1831), Letter to a Noble Lord: On the draught of a new constitution about to be set up to the House of Peers, *Tracts 1380* (London: Roake and Varty, 1831) 8.

³⁰ *Ibid.*, 33.

³¹ W. Mackinnon, *On the rise, progress, and present state of public opinion in Great Britain, and other parts of the world* (London: Saunders and Oatley, 1828) 1.

³² *Ibid.*, 8, 17.

³³ N. Smelser, *Social paralysis and social change. British working-class education in the ineteenth century* (California: Centennial, 1991); W. Stephens, *Education in Britain, 1750–1914* (New York: St Martin's Press, 1998); Wilson, *The Victorians*, esp. 279–87.

³⁴ Lady Frances Shelley, *Diary II* (1825) 128. Quoted in Guedalla, *The Duke*, 345.

³⁵ Nightingale's life has been well documented. The best examples are H. Small, *Florence Nightingale; avenging angel* (London: Constable); T. Coates (ed.), *Florence Nightingale and the Crimea 1849–55* (TSO Publishing, 2000); and B. Montgomery Dossey, *Florence Nightingale, mystic, visionary, healer* (Philadelphia: Lippincott, Williams and Wilkins, 2000).

³⁶ One of the definitions of 'information', in Annandale, *A concise dictionary*, 356.

³⁷ More specific research on her role as a statistician includes B. Cohen, Florence Nightingale, *Scientific American*, 250: 3 (1984) 128–37; H. Small, Florence Nightingale's statistical diagrams, a paper presented at the 'Stats and Lamps' research conference, 18 March 1998 (available at <http://www.florence-nightingale.co.uk/small.htm> — last viewed 17 April 2005); Small, *Florence Nightingale; avenging angel*; and, E. Magnello, *Florence Nightingale and medical statistics in Victorian England*, Wellcome Trust for the History of Medicine, University College London. Paper read at St Thomas Hospital, London, 24 January 2001.

³⁸ W. M., A letter respectfully addressed, 1.

³⁹ Florence Nightingale Museum Collection — 1.0111 — The guide is Sir G. Wilkinson, *Hand-book for Travellers in Egypt* (London: John Murray, 1847). It is inscribed inside 'Florence Nightingale Egypt 1849–1850'. The list of places, all along the river Nile, are from Alexandria to Cataract II and written in pencil by Florence. The distances are listed for each place, and then as total figures.

⁴⁰ Florence Nightingale Museum Collection — 1.0734 — F. Nightingale, *A contribution to the sanitary history of the British Army, during the late war with Russia, illustrated with tables and diagrams* (London: Harrison and Sons, 1859) 7–9; Small, *Florence Nightingale; avenging angel*, 10, 188–89.

⁴¹ Quoted in K. Pearson, *The life, letters and labours of Francis Galton II* (Cambridge: CUP, 1924) 250.

⁴² This is discussed in W. E. Houghton, *The Victorian frame of mind, 1830–1870* (Yale University Press, 1963); A. Desmond and J. Moore, *Darwin: the life of a tormented evolutionist* (W. W. Norton and Company, 1994); and, J. Browne, *Charles Darwin. The power of place* (Knopf, 2002).

⁴³ C. Dickens, *Hard times* (London, 1854) 1.

⁴⁴ V. Glendinning, *A suppressed cry: life and death of a Quaker daughter* (London: Routledge and Kegan Paul, 1969) 32.

⁴⁵ Florence Nightingale Museum Collection — FNIF-28 — F. Nightingale, *Mortality of the British Army, at home, and abroad, and during the Russian War, as compared with the mortality of the civil population of England, illustrated by tables and diagrams* (London: Harrison and Sons, 1858) 1.

⁴⁶ W. Playfair, *The statistical brevity* (London, 1801).

⁴⁷ Small, Florence Nightingale's statistical diagrams, 1.

⁴⁸ Small, Florence Nightingale's statistical diagrams, 38, 39.

⁴⁹ Quoted in Small, *Florence Nightingale; avenging angel*, 39.

⁵⁰ 'In 1864 Farr was the first to publish work containing material calculated and printed by a machine, Scheutze's Difference Engine. Its design was based on Charles Babbage's earlier Difference Engine (1815), forerunner of the computer ... Farr used it to calculate life tables based on 6,470,720 deaths in England between 1841 and 1851': P. M. Dunn, Dr William Farr of Shropshire (1807–1883): obstetric mortality and training, *Archives of Disease in Childhood Fetal and Neonatal Edition* 87: 1 (2002) 67.

⁵¹ London Metropolitan Archives, Florence Nightingale Collection — HOI/ST/NC/15/11/002a, letter from William Farr to Florence Nightingale, 30 July 1859.

⁵² London Metropolitan Archives, Florence Nightingale Collection HI/ST/NC/3/SU/169 — letter from Florence Nightingale to Maude Verney, 23 February 1897.

⁵³ London Metropolitan Archives, Florence Nightingale Collection — HI/ST/NC/16/3 — S. Herbert, *The sanitary conditions of the Army* (London, 1859) 7.

⁵⁴ Herbert, *The sanitary conditions*, 7.

⁵⁵ Johnson, *Dictionary of the English language I*, part II, 905.

⁵⁶ G. Storey, *Reuters: the story of a century of news gathering* (New York: Greenwood Press, 1969); O. Boyd-Barrett, Market control and wholesale news: the case of Reuters, in G. Boyce, J. Curran and P. Wingate (eds.), *Newspaper history from the seventeenth century to the present day* (London: Constable, 1978); L. Brown, *Victorian news and newspapers* (Oxford: Clarendon Press, 1985); and, D. Read, *The power of news: the history of Reuters, 1849–1989* (Oxford: Oxford University Press, 1992).

⁵⁷ Storey, *Reuters*, v; Read, *The power of news*, 5.

⁵⁸ For discussion on the value of knowledge in this context refer to J. Eaton and D. Bawden, What kind of resource is information? *International Journal of Information Management* 1: 2 (1991) 156–65; Bud-Frierman, *Information acumen*; and Black, Hidden worlds of the early knowledge economy, 418–35.

- ⁵⁹ Storey, *Reuters*, v.
- ⁶⁰ Reuters Group Archive LN695/1/962632 — letter from Paul Julius Reuter to N. M. Rothschild, 27 April 1850.
- ⁶¹ Storey, *Reuters*, 10–15, 18.
- ⁶² Reuters Group Archive — *Telegraph Books* 1, 1854–1881.
- ⁶³ R. Ohmann, *Selling culture; magazines, markets, and class at the turn of the century* (London and New York: Verso, 1996); Wilson, *The Victorians*, 409.
- ⁶⁴ Read, *The power of news*, 8–9.
- ⁶⁵ Reuters Group Archive LN1/1/860412 — cutting from the *Reuter Service Bulletin* 4 (January 1918) 20, inside *The Epoch, a booklet explaining news copyright, 1890–1911*.
- ⁶⁶ See above section of Duke of Wellington for discussion of ‘intelligence’, ‘news’ and ‘information’; Reuters Group Archive LN248/1/880244 — *Rules of Common Action, 1870: Havas, Reuters and Wolff (Continental Telegraph Company)*.
- ⁶⁷ Read, *The power of news*, 30.
- ⁶⁸ Reuters Group Archive — *Telegraph Books* 1, 1854–1881.
- ⁶⁹ M. Hampton, Journalists and the ‘Professional Ideal’, in Britain: the Institute of Journalists, 1884–1907, *Historical Research* 72: 178 (1999) 183–201; S. A. Matheson, The net’s eyes are watching, *The Guardian* (15 November 2000).
- ⁷⁰ Letter from Mowbray Morris to Julius Reuter, 21 October 1859; letter from Mowbray Morris to Julius Reuter, 24 November 1862, quoted in Read, *The power of news*, 25; and Storey, *Reuters*, 30. Morris was editor of *The Times*, and was infamously dismissive of Reuter’s Agency.
- ⁷¹ Boyd-Barrett, *Market control*, 195.
- ⁷² *The Times*, February 1852, quoted in Storey, *Reuters*, 17.
- ⁷³ J. Grant, *The newspaper press: its origins — progress — and present position* II (London: Tinsley Brothers, 1871) 322.
- ⁷⁴ In the 1871 edition of *Johnson’s dictionary of the English language*, and the 1859, 1863, and 1878 editions of Worcester’s *A dictionary of the English language*, definitions of ‘information’ included ‘intelligence given; instruction’.
- ⁷⁵ The focus is on university education because elementary education for women was fairly accepted by the 1870s. University education was regarded as different because it had traditionally been a male preserve and privilege. Oxford and Cambridge dominated as Victorian educational institutions.
- ⁷⁶ The history of the University and the College has been well documented and good starting points can be found in E. Leedham-Green, *A concise history of the University of Cambridge* (Cambridge: Cambridge University Press, 1996); E. Shils and C. Blacker (eds.), *Cambridge women: twelve portraits* (Cambridge: Cambridge University Press, 1996); and G. Sutherland, *Faith, duty, and the power of mind: the Cloughs and their circle 1820–1960* (Cambridge: Cambridge University Press, 2006), esp. chapters 5–8.
- ⁷⁷ Glendinning, *A suppressed cry*, 6.
- ⁷⁸ M. Beard, Review of ‘Cambridge women: twelve portraits’, in *The London Review of Books* 18: 17 (September 1996) 23–24.
- ⁷⁹ Beard, Review of ‘Cambridge women’; A. Richardson, *Love and eugenics in the late nineteenth century: rational reproduction and the new woman* (Oxford: Oxford University Press, 2003).
- ⁸⁰ Anonymous, Female poaching on male preserves, *Westminster Review* 129 (1888) 290–97. The tone and title of the essay suggest that the author was most likely male.
- ⁸¹ Newnham College Archives — Sidgwick Papers — A. H. F. Boughey, The universities and the education of women, *The New Review* XVI: 96 (May 1897) 509, 511.
- ⁸² This was a different view to that of Emily Davies, founder of Girton in 1868, the first all-female college in Cambridge, who believed that men and women should be treated on absolute equal terms. A further example of how interest groups did not necessarily make decisions by class or gender loyalties.
- ⁸³ H. Fowler, Eleanor Sidgwick, 1845–1936, in Shils and Blacker, *Cambridge women*, 19.
- ⁸⁴ Newnham College Archives — Sidgwick Papers — E. Sidgwick, *Health statistics of women students at Cambridge and Oxford and of their sisters* (Cambridge: CUP, 1890) 6.
- ⁸⁵ Sidgwick, *Health statistics*, 91.
- ⁸⁶ Glendinning, *A suppressed cry*, 42; S. Cohen, *Visions of social control: crime, punishment and classification* (Cambridge: Polity Press, 1985); Small, *Florence Nightingale; avenging angel*, 15.
- ⁸⁷ G. R. Porter, *The progress of the nation in its various social and economic relations from the beginning of the nineteenth century*, 3rd edn. (London: John Murray, 1836) xxi.
- ⁸⁸ Newnham College Archives, *Descriptive cards of members, 1898–1900* — these include space for descriptions of skin (pale, ruddy, dark, freckled); hair (red, fair, brown, dark, jet-black, straight, wavy, curly); eyes (light, medium, dark); face (long/narrow, medium, short/broad); cheekbones (inconspicuous, prominent); ears (flat, outstanding); and lobes (absent, present). Following this there is room for the actual measurements for each individual’s head (length, breadth, and height measurements); nose (length, breadth, profile measurements); face (length, upper face length, breadth, inter ocular breadth, bigonial breadth measurements); height, span, weight, breathing power,

strength (pull as archer, squeeze of right and left hand); eyesight (right and left eye measurements), colour sense (i.e. normal or colour blind). In addition to this, there is space for (although few are completed) Cephalic Index, Nasal Index, Total Facial Index, and Upper Facial Index.

⁸⁹ Beard, Review of 'Cambridge Women', 23; Fowler, *Eleanor Sidgwick*, 20.

⁹⁰ Newnham College Archives, Letterbook — letter from Miss Anne Clough to Mr Darwin, 16 December *n.d.*

⁹¹ Newnham College Archives, Sidgwick Papers, *Letters about ... becoming members of the Association* — letter from G. E. Pagot to Henry Sidgwick, 18 November 1873.

⁹² See Small, *Florence Nightingale; avenging angel*, 17–18; London Metropolitan Archives, Florence Nightingale Collection HI/ST/NC8/14/d — letter from Florence Nightingale to War Office from the Barrack Hospital in Scutari, 1 May 1855.

⁹³ Newnham College Archives, Sidgwick Papers — Report of the proceedings of the opening of King Edward's School, Birmingham, 26 November 1896, 6.

⁹⁴ E. Sidgwick, *The place of university education in the life of women* (London: The Women's Printing Society, 1897) 20; Newnham College Archives, Sidgwick Papers — Report of the proceedings of the opening of King Edward's School, 19.