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The journal is dedicated to the publication of academic essays on the subject of literature and science, broadly defined. Essays on the major forms of literary and artistic endeavour are welcome (the novel, short fiction, poetry, drama, periodical literature, visual art, sculpture, radio, film and television). The journal encourages submissions from all periods of literary and artistic history since the Scientific Revolution; from the Renaissance to the present day. The journal also encourages a broad definition of 'science': encapsulating both the history and philosophy of science and those sciences regarded as either mainstream or marginal within their own, or our, historical moment. However, the journal does not generally publish work on the social sciences. Within these confines, essays submitted to the journal may focus on the literary and scientific productions of any nation or group.

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Introduction

Ingenious Minds: British Women as Facilitators of Scientific Knowledge Exchange, 1810-1900

Alison E. Martin

“In every science, in every branch of knowledge, more than ninety-nine hundredths of what is this day known have been discovered by male understandings,” wrote the Irish chemist Richard Chenevix in his two-volume *Essay upon National Character* published in 1832 (II: 316). A work that sought to demonstrate in two weighty volumes how England had become the only truly civilised nation in Europe, it examined the processes by which “domestic and foreign prosperity, pride, virtue, wisdom, liberty” had come to be united in this country so successfully (I: 270). Yet the role that women might play in fostering such “wisdom” was – like his sweeping statement on their contribution to science – reduced to generalities. “The difference between male and female intellect is greater in searching after causes, in creating new knowledge, [...] it is less in appreciating individual facts, qualities, and relations,” he added, thereby sustaining the nineteenth-century stereotype of women as good observers of detail, but not as the great minds that make inspired connections (II: 316-17). It was more in the arts and manufactures that women could productively contribute: “they can lend their dexterous hands and their ingenious minds; and thus become more and more the companions of man, and the necessary partners of his toils and pleasures” (II: 333). Yet by the early 1830s, when Chenevix’s *Essay* appeared, women had already demonstrated their active involvement in a range of rapidly evolving scientific disciplines. Thus while Chenevix relegated British women to the “empire of the drawing-room” where they might turn their “ingenious minds” to acting as useful helpmeets to their husbands, the reality already looked rather different (II: 321).

As the papers in this special themed issue demonstrate, women were beginning to acquire distinction as scientific travellers, collectors and specimen preservers, while also working as illustrators, authors, editors and translators of scientific literature. This collection of articles has developed from an international workshop held at the University of Reading in 2013 and the title “Ingenious Minds: British Women as Facilitators of Scientific Knowledge Exchange, 1810-1900” illustrates the project’s overall themes. We are interested in the role that women played as often less “visible” mediators, co-ordinators and assistants in the construction or transmission of scientific knowledge in the nineteenth century, a period in which women’s involvement in the sciences underwent profound changes. The women on whom we focus could be deemed “ingenious” not only for their strong intellectual capabilities, but also for their inventiveness in jumping the hurdles that limited them from achieving their goals and for their talented diplomacy in renegotiating the possibilities that their otherwise rather peripheral position offered them. Our collection therefore moves beyond the notion of scientifically-minded women as “victims” of a patriarchal society. Certainly, women were largely excluded from science by men in that they were physically kept out of scientific clubs, societies or educational institutions and, of course, professional posts. But what this collection explores is how women gradually removed or circumvented such barriers, using, as Londa Schiebinger has termed it, “their culturally defined difference as a platform for critique” (307).

This collection therefore considers how women employed a range of narrative possibilities in their writing, translating and editing work not only to present new scientific findings to a British reading public but also to demonstrate their own proficiency in science. As Charlotte Sleight reminds us, science "cannot be conducted without language, and language is not a neutral tool" (6). Since it actively shapes not only what is conveyed, but how, the style adopted by scientific writers and the general form of their work is significant in indicating how they conceive of the content of the work, its position within the tradition of scientific textual production and the type of audience they seek to instruct and entertain. While we are interested in the textual form that characterised a piece of scientific writing, our concern is also to understand how these texts were brought to press and enjoyed by a range of different readers. As material artefacts, the books we discuss here, whether privately published with an extremely small print-run or destined for much larger, highly competitive, national markets, all entered into what Robert Darnton has termed a "communications circuit" (495). The ways that a book is written, edited, published, illustrated, translated, advertised, bought, sold and reviewed, have the potential all to be deeply significant in enabling us to understand how scientific knowledge is produced and consumed. As James A. Secord has recently argued, science was "central to defining the meaning of print" in the nineteenth century, precisely because these products emerging from publishing houses were "tangible evidence of spiritual and material progress," even if we still know surprisingly little about how these presses were used to "announce novelties and more generally to create images of science and invention" ("Science, Technology and Mathematics" 443).

Our collection also reflects an ongoing concern with the "woman question" in science and the "science question" in women's writing that was also the subject of two London conferences in 2014: Claire Jones and Sue Hawkins' "Revealing Lives: Women in Science 1830-2000," hosted by the Royal Society, and Carl Thompson's "Women's Scientific Travelling Before 1850," held at the Institute of Modern Languages Research. Both were concerned with the ways in which women have operated as gatekeepers to knowledge and how women scientists have brought different perspectives and new aspirations to bear on the fields in which they work. The papers presented at these conferences still owe much to foundational scholarship from the 1980s and 1990s that sought to restore the position of women in science writing: collections edited by Pnina G. Abir-Am and Dorinda Outram, Marina Benjamin, and Barbara T. Gates and Ann B. Shteir remain pivotal studies in understanding the contributions that women made to the physical and natural sciences. Annotated bibliographies of women in science that have appeared with increasing regularity over the past couple of decades are now proving particularly useful in bringing hitherto overlooked female figures in scientific research, authorship and knowledge dissemination, to public attention. Works such as Marilyn Ogilvie and Joy Harvey's *Bibliographical Dictionary of Women in Science* (2000) and Mary Brück's *Women in Early British and Irish Astronomy: Stars and Satellites* (2009) now serve as extremely valuable sources by which to gain a wider overview both synchronically and diachronically of women's involvement in a range of scientific fields. And Deborah Jaffé's intriguing 2003 collection of material on British women as scientific inventors – from Sarah Guppy's 1811 patent of a "New Mode of Constructing and Erecting Bridges and Railroads without Arches" which inspired Thomas Telford's suspension bridge designs to Emma Pike's more domestic 1890 patent for a "Bronchitis Kettle" –

quite literally demonstrates the extent of women's inventiveness in the Regency and Victorian periods (Jaffé's Appendix 169ff).

More recent publications have either continued to group women's involvement around the particular field to which they contributed – botany in particular, but also entomology, marine biology, geology, astronomy or mathematics – or to concentrate on a biographical case study as a way of investigating close-up the networks in which one particular scientifically-minded woman operated. Sam George's *Botany, Sexuality and Women's Writing, 1760-1830* (2007) has, for instance, been particularly instructive in demonstrating how productive the relationship between literary writing and botany was for women working in the eighteenth and nineteenth centuries, and how it could be used to initiate crucial debates around gender, sexuality and culture. Botanising women favoured a variety of different genres of writing that could, for example, be dialogic, epistolary or confessional in style, depending on the audience which they were aiming to target. Such narrative strategies potentially side-lined women as mere "popularisers" of knowledge, who posed the least threat to their male counterparts by relegating themselves to the sphere of children's science writing or elementary science books for adults. Nevertheless, they highlight the themes of sociability, transmission and exchange that influence the ways in which scientific knowledge is constructed, and which inform all of the articles in this special issue.

Biographical studies such as Lucy Lethbridge's *Ada Lovelace: The Computer Wizard of Victorian England* (2001) and, more recently, James Essinger's *A Female Genius: How Ada Lovelace, Lord Byron's Daughter, Started the Computer Age* (2013) have reflected on the impact that women could make on men's thinking. Ada Lovelace's 1843 translation from the French of an article on the "Analytical Engine" by an Italian engineer, Luigi Menabrea – to which Ada added extensive notes of her own – made an original but today largely overlooked contribution to computer science in its very infancy through its influence on Charles Babbage's work. While such "popular," "cross-over" biographies tend to highlight the exceptional nature of women's contribution to science and hype up their individual genius, more scholarly histories of science have generally emphasised the collaborative nature of both male and female endeavours in the field. James Secord's article on how science was a key part of conversational culture into the 1860s – a decade described by Patricia Phillips as something of a cut-off point for women's engagement in science (*The Scientific Lady* 235) – suggests that the "polite" science of the first half of the nineteenth century still enabled a broad range of individuals to be involved in scientific knowledge-making in a more informal setting. Seeing women less as singular prodigies and more as figures embedded in different networks of scientific exchange has been more helpful of late in understanding how they developed their talents in settings which were not necessarily as controversial or spectacular as one might imagine. While Mary Somerville, for example, undoubtedly occupied a unique position in Victorian science as an integral part of the British scientific community, as Kathryn A. Neeley's study *Mary Somerville: Science, Illumination, and the Female Mind* (2001) shows, she achieved this status through carefully managing her gender identity and by producing highly readable, authoritative scientific literature that was both rhetorically compelling and aesthetically engaging. Suzanne Le-May Sheffield's *Revealing New Worlds: Three Victorian Women Naturalists* (2001) offers a comparative analysis of three women arguably of lesser scientific standing: Margaret Gatty, who specialised in the study of seaweeds and other marine life, the botanical artist and scientific traveller Marianne North, and Eleanor Anne Ormerod, now classed as an "economic entomologist" for her work on

how to eradicate insects injurious to orchard crops. It offers us a valuable insight into how women negotiated the discontinuities and non-linearities of life as scientifically-interested women operating within the norms of Victorian femininity and domesticity that put them at a distinct disadvantage over their male counterparts. Most recently, Robyn Arianrhod's *Seduced by Logic: Émilie du Châtelet, Mary Somerville, and the Newtonian Revolution* (2012) has drawn attention to the role that women played as translator-editors in the Victorian scientific community and highlighted what women contributed to science but also what it gave back to them.

The focus in this special issue is primarily on the nineteenth century as a period in which women could engage increasingly publicly with science. The five articles that make up this collection explore women's engagement with science writing in the nineteenth century from a variety of different angles. They present, in chronological order, a number of different ways of understanding the encounters between women who wrote science and the varied audiences whom they sought to reach with their work. Some of these audiences were decidedly "serious" and others more "popular." While the negative connotations of the term "popularisation" have been debated at length, Barbara T. Gates and Ann B. Shteir have argued for "popular science" to be seen as its own form of knowledge "shaped in relation to the needs of audiences beyond elite and learned culture" (4) and it is very much in this light that we explore how women were keen to promote the outward expansion of scientific knowledge in search of wider readerships. In what follows, we will therefore be discussing a range of different forms of textual engagement with science – the travelogue, the manual, the catalogue, the elementary instructional book, the translation – as we examine issues of authorial intent and narrative strategy. Given that the technology of book illustration – and the costs associated with it – changed radically over the course of the nineteenth century, we shall also be investigating how the relationship between text and image complicated or facilitated scientific knowledge construction for women writing, editing and translating scientific literature.

Focusing on the English rendering of Martin Heinrich Lichtenstein's *Reisen im südlichen Afrika* (1811) by the Norwich-born translator Anne Plumtre (published as *Travels in Southern Africa*), Alison E. Martin investigates how women could combine their knowledge of modern foreign languages – particularly German – and scientific expertise to good effect, thus adopting a pivotal position as facilitators in the onward transmission of scientific knowledge. The important role played by women in scientific translation is only gradually beginning to be recognised and researched (Martin, "The Voice of Nature"; "Translation, Scientific Travel Writing and Modernity"), because they tended to hide their involvement for reasons of modesty or because publishers considered translators' input too minor to name them on the title-page. But Plumtre exploited the de-centred, marginal spaces that she could occupy as annotator of her own translation to criticise, correct or complement Lichtenstein's scientific assertions. She therefore harnessed the performative potential of translation to demonstrate her facility with scientific ideas, concepts and terminology, while casting herself as an adroit diplomatic negotiator of the complex politics of international scientific networks.

Mary Orr continues to explore the role of women as translator-editors in her discussion of Sarah Bowdich Lee's *Taxidermy*, which appeared anonymously in 1820. While the contribution that Bowdich makes to the practice of taxidermy is in itself ground-breaking, Orr argues, the intertextual quality of her work – part translation from the French of Louis Dufresne's 1816-19 "Taxidermie" article, part addition of her own weighty instructions for "Museums and Travellers" – is also highly revealing of the

knowledge markets that she targeted with her work. Bowdich, like Plumptre, was present paratextually in *Taxidermy* in various ways, using what Orr deftly describes as the "footnote zone" as a space in which this extremely visible participant in the onward transmission of expert knowledge could emphasise her own active involvement. The hybridity of the text Bowdich constructed in *Taxidermy* stands as testimony to the fact that reconfiguring and enriching the practices of science and their documentation was not solely the preserve of men.

Carl Thompson's discussion of Maria Graham's editorial work on the *Voyage of HMS Blonde* (1826-27) focuses on what was probably one of the most complex texts commissioned by John Murray II, whose publishing house was one of the leaders in producing scientific travel writing. By exploring how Graham handled the natural historical data from the voyage, Thompson sheds new light on how Maria Graham grappled as an editor with the scientific papers collated from the *Blonde* voyage (1824-25) to Hawaii. While Graham was, of all the women on whom this collection of essays focuses, probably the one most publicly recognised for her contribution to professional science in her time, her editorial work on the *Voyage of HMS Blonde* has also attracted the most criticism. Thompson refutes allegations that Graham was the cause of scientific deficiencies in the account and highlights instead the problematic nature of the source documents with which she was working. As with Plumptre and Bowdich, Graham adopted an active role in enhancing the account's scientific content, while also showing an awareness of the scientific *and* literary agendas to which travel writing still needed to adhere.

The fourth article, by Susan Pickford, analyses how participants excluded from formal knowledge exchange networks were nevertheless able to make use of the informal networks in which they operated to contribute to the construction of scientific knowledge. Focusing on Etheldred Benett's *Catalogue of the Organic Remains of the County of Wiltshire* (1831) as a print artefact, Pickford shows how its privately printed status appears to suggest complicity with a modesty topos. Yet this is tacitly denied by the patterns of distribution which Benett was herself relatively well able to control, given the limited print run of her work. Women like Benett have tended to be overshadowed by scholarship on the young men whose discoveries shaped early writing in the earth sciences. However, as Pickford demonstrates, Benett offers a particularly fascinating study of how the limited circulation of their work could enable women to escape censure and, through carefully depositing their work with key libraries, could disseminate their discoveries unostentatiously to high-ranking figures of the male scientific establishment.

Finally, Angela Byrne's article examines the construction of natural knowledge about Canada in Catherine Parr Traill's scientific works for children. Traill disseminated her experiences as a settler in Upper Canada from 1832 onwards through an impressive range of publications, including children's fiction, emigrants' guides and natural historical works. While she cast herself merely as a "gleaner" of knowledge and actively employed modesty topoi, Traill's success owed much, Byrne argues, to an awareness of the possibilities that changes in the publishing market were opening up to women. Her own international networks – which included "men of science" as much as interested laypeople – provided her with data, specimens and information that illustrate her pivotal position in knowledge production that transcended national and social boundaries. While Traill's desire to amuse and instruct gave her natural historical writing broad appeal, her religious beliefs also shaped her vision of Canadian natural history. Byrne's closing discussion of the illustrations in Traill's books is particularly

instructive in revealing the tensions between the "domestic" and the "wild" that made these works fascinating books for Canadian, American and British children alike.

The articles in this special issue do not necessarily suggest that a linear development can be traced that charts women's increased involvement in the transmission of scientific knowledge through the nineteenth century. But the grouping of the three articles by Orr, Thompson and Pickford in the 1820s and 1830s suggests that these were particularly effective decades in women's establishment or consolidation of their position as disseminators of knowledge within scientific fields. The women whose work is explored in this collection do not appear to have been directly linked with each other in any way, and no textual cross-referencing suggests any recognition of each other's work. As such, they present rather isolated cases of British women's engagement with science – an image which further scholarship can only begin to refine. The variety of roles that women took on – as authors, editors, translators, illustrators and as preservers of scientific specimens – is testament to their own creativity in finding outlets for their intellectual curiosity and ambition, stimulated in the case of Bowdich, Graham and Traill, by travel to more exotic parts of the world. Each one of these case studies reveals, then, in different ways how Chenevix's assertion that women were "by nature, timid, retreating, little confident" (II: 319) was demonstrably untrue.

Notes

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Performing Scientific Knowledge Transfer: Anne Plumptre and the Translation of Martin Heinrich Lichtenstein's *Reisen im südlichen Afrika* (1811)

Alison E. Martin

In 1812, the account by the German zoologist Martin Heinrich Lichtenstein (1780-1857) of his South African travels, the *Reisen im südlichen Afrika in den Jahren 1803, 1804, 1805 und 1806* (1811-12), appeared in English with the London publisher Henry Colburn. The *Travels in Southern Africa, in the Years 1803, 1804, 1805 and 1806*, translated by Anne Plumptre (1760-1818), quickly drew the attention of British critics. One of the most comprehensive accounts to emerge on the interior of Africa, Lichtenstein's travelogue drew amply on official reports, private journals and scientific papers to offer a narrative of the Cape Colony that cast itself as emphatically different than those of previous travellers, notably the British statesman Sir John Barrow's *Account of Travels into the Interior of South Africa* (1801-04). Yet the journalist writing in the *Monthly Review*, Joseph Lowe, was wary of heaping praise on the English translation of Lichtenstein's narrative: "We cannot help feeling both surprize [*sic*] and regret that Miss Plumptre did not take on herself the task of reducing and adapting his diffuse composition to the taste of the English public," Lowe complained (351).¹ Indeed, he noted of Plumptre, she "has occasionally subjoined an [*sic*] useful annotation: but this serves little other purpose than to tantalize the reader with a view of the improvement which the book might have received at her hands" (351). Were she to take on another translation for Lichtenstein, Lowe concluded, "we hope that her modesty will not prevent her from lopping off his manifold exuberances" (352).

Lowe's criticisms of the apparent textual temerity of Lichtenstein's female translator are useful in enabling us to gauge early-nineteenth-century responses to women's engagement with science through translation. While the decision by some women to be involved in translation rather than authorship has often been cast as a "specifically female flight from public recognition" (Stark 37), Lowe's comments suggest that women were by no means "invisible" agents in the translation industry, nor was such invisibility deemed desirable. Indeed, his comments confirm that astute contemporary readers acknowledged the input of the translator in the translated text and considered it pivotal in shaping the character that a scientific work acquired in a different language. Lowe's observations also suggest that he condoned the presence of women translators as participants in the international transfer and circulation of scientific knowledge: his reference to Plumptre's "useful annotations" signals a readiness to accept the importance of her paratextual input in translation as a means of entering into critical dialogue with the author whose work she was putting into English. Furthermore, in upbraiding Plumptre for not having intervened more actively to abridge and "improve" Lichtenstein's account through stylistic modification, he was ascribing editorial powers to Plumptre that question traditional images of the female (scientific) translator as a submissive mediating figure. Lowe's reflections on Plumptre's involvement in the Englishing of Lichtenstein's *Reisen im südlichen Afrika* therefore address issues of women's visibility, scientific proficiency and intellectual self-fashioning through translation that are extremely relevant to recent discussions of the

role of translators as social agents, whose work is shaped by the social, cultural and political context in which they work.

The concept of agency – and particularly female agency – in scientific translation has gradually acquired greater definition as scholars of translation studies have recognised the importance of understanding science writing as a creative narrative process. In his highly influential work on science and translation, Scott Montgomery has observed that “what we call ‘science’, today and in the past, is predominantly a reality of language – knowledge generated, shared, and used through media of written and spoken communication” (271). While Steven Shapin reminds us that the wide distribution of scientific knowledge depends very much on the success of certain cultures in creating standardised contexts for applying knowledge (7), what permits scientific knowledge to “travel” are extremely local factors that are intimately connected to the agents in the communications circuit, not least translators. Translation therefore brings into sharper focus questions as much about the universality of ideas, as about the embeddedness of scientific texts in the culture in which they were created and the motivations of those who mobilise them to present them to a potentially rather different linguistic and cultural target audience. John Milton and Paul Bandia stress that translators are often not only figures who devote great energy to the dissemination of knowledge and culture but do themselves promote cultural innovation and change, to “go against the grain, challenging commonplaces and contemporary assumptions” (1).

Early feminist translation theory was concerned precisely with the ways in which translation enabled women to communicate new insights and counter dominant (male) discourses. As Sherry Simon observed, translators “communicate, re-write, manipulate a text in order to make it available to a second language public” and in so doing “they can use language as cultural intervention, as part of an effort to alter expressions of domination, whether at the level of concepts, of syntax, or of terminology” (8). Feminist accounts of women’s involvement in translation revolved for a long time around the binary opposition of writing as “original” and “masculine” versus translation as “derivative” and “female” (see: Chamberlain). More recent studies, notably Luise von Flotow’s 2011 edited collection *Translating Women*, have shifted the emphasis away from adopting such deterministic views to highlight the flexibility and creativity adopted by female translators as they use the discursive possibilities available to them to articulate their gender in individual ways (8). Drawing on Andrew Parker and Eve Kosofsky Sedgwick’s work on performativity, Flotow has argued that translation allows various “performances” of a text to take place, mobilising, transforming, and potentially subverting the original, depending on the dynamics of the contextual politics operating in the target culture (9).

Much of the research conducted into women as translators of science has focused precisely on issues of visibility. Aphra Behn, the translator of Bernard de Fontenelle’s astronomical work the *Entretiens sur la pluralité des mondes* (1686), which appeared in English two years later as *A Discovery of New Worlds* (1688), clearly refused to consider translation as a marginal activity, using her translator’s preface to articulate barely veiled criticism of Fontenelle’s text as a piece that cast the female protagonist as intellectually inferior (see: Agorni; Martin, “No Tincture of Learning?”). Some later female scientific translators were far less openly self-promotional – Elizabeth Carter’s translation of Francesco Algorotti’s *Il newtonianismo per le dame* (1737) as *Sir Isaac Newton’s Philosophy Explain’d for the Use of Ladies* (1739) did not, for example, offer her much opportunity to express her gendered voice (Agorni 194). Others, such as Émilie du Châtelet, demonstrated that translation was not

just an exercise in linguistic transfer but also a process of critical engagement with the ideas in the source text. This was, as Agnès Whitfield has described when discussing du Châtelet's translation of Newton's *Principia mathematica* (1687), a process of "traduction-confirmation" [translation-confirmation] rather than "traduction-copie" [translation-copy] (109) which highlighted the intellectual challenge to which women translators of science rose, with varying degrees of success. Charles Darwin's French translator Clémence Royer, possibly presents the most radically outspoken picture of women's engagement in science through translation, Royer's prefatory disavowal of revealed religion making her translation of Darwin's work a sensational publication (Harvey 357).

While women translators such as Behn, Carter and du Châtelet now have an unassailable position in the history of science, research is increasingly turning to the more "archaeological" undertaking of identifying and analysing the work of less visible female scientific translators. In many cases, women's names did not appear on title-pages (and therefore in library catalogues) for reasons of female modesty, fear of public castigation or silencing by male agents in the publishing process. Pnina G. Abir-Am and Dorinda Outram eloquently warn of the distorting potential of gendered histories which tend to over-enthusiastically reconstruct women's roles in science (1-16). Jean Delisle's seminal edited collection *Portraits de traductrices* (2002), which contains contributions on women as translators of science, history, pedagogics and literature, is likewise not intended in a defensive activist spirit to "restore" women's contributions to the history of translation, nor does it aim to cast all of its subjects as (proto-)feminists (9). A number of subtly-argued case studies of less prominent female translators of scientific writing, particularly scientific travel literature, have begun to emerge which indicate that this is an especially productive area for further research (see: Orr; Johnston). Given that travel writing was such a bestselling genre, it is actually unsurprising that by the end of the eighteenth century, women were becoming highly prodigious translators of travelogues, working often under immense pressure of time and in fierce competition with other publishing houses. Therese Huber and Margarete Forkel were important figures in Georg Forster's "Übersetzungsfabrik" ("translation factory"), while Alexander von Humboldt's work was largely translated for the British market by women, Helen Maria Williams being responsible for the first English translation (1814-29) of his South American voyage, the *Relation historique du voyage aux régions équinoxiales* (1814-25) and Thomasina Ross for the second, revised edition (1852-53) some three decades later (Martin, "These changes and accessions of knowledge").

Anne Plumptre has recently received renewed attention for her role as a translator of travel writing and as a writer who ranged confidently across a series of decidedly "unfeminine" topics that included mineralogy. As Susan Pickford, Glenn Hooper, and to a lesser degree, Isabelle Baudino, have shown, Plumptre was a woman whose own independently authored travel narratives and translations of travel writing cast her as a particularly assertive, "visible" figure in textual production. This article seeks to complement this existing scholarship on Plumptre's activities as a non-fictional translator by understanding how her rendering of Lichtenstein's work cast her specifically as a scientifically knowledgeable and linguistically adept translating woman. The performative aspect of translation that Lowe highlighted – Plumptre's extensive use of quite provocative annotation – is particularly instructive in revealing how she used paratextual devices to comment on the work she was translating, querying or supplementing Lichtenstein's account, and reflecting on issues of non-equivalence

in translation. Her translation is therefore evidence of how linguistically distinct scientific knowledge generation was at the start of the nineteenth century, but also of its competitive potential between nations. As Plumptre was acutely aware, Lichtenstein's criticism of the authority and accuracy of preceding accounts – in particular his vitriolic treatment of the British scientist Barrow's *Account of Travels into the Interior of South Africa* – required diplomatic handling as she put the *Reisen im südlichen Afrika* into English, to ensure that she herself sidestepped direct attack and the translation did not attract a similar critical onslaught.

“Moral, religious, and unexceptionable”?: Anne Plumptre as Writer and Translator

“Miss A. Plumptre,” noted the *Ladies' Monthly Museum* in a three-page article on her in 1817, “early discovered a propensity for the study of languages; and the encouragement of her father [...] greatly stimulated her exertions, and she acquired a competent knowledge of the French, German, Italian, and Spanish languages.” Plumptre, born in Norwich as the second daughter of Robert Plumptre, prebendary of Norwich Cathedral and later president of Queen's College, Cambridge, received an uncommonly good education for a woman of her time, together with her sister Annabella, who would also go on to carve out a career for herself as a writer. Anne Plumptre's literary reputation has undergone thorough revision over the past decade or so, as knowledge of her works has expanded beyond the translations of extremely popular works by the German playwright August von Kotzebue in the 1790s for which she was hitherto best known (and which probably explains recognition in the contemporary German press of her work).² Deborah McLeod's 1996 re-edition of Plumptre's *Something New, or, Adventures of Campbell House* (1801) restored this utopian novel to the accessible canon of women's late-eighteenth- and early-nineteenth-century fiction, and Katharina Rennhak's discussion of this work in combination with *The History of Myself and a Friend* (1817) has offered valuable insights into Plumptre's engagement with issues of gender through the first-person male narrators in each of these novels. While the *Ladies' Monthly Museum* rather downplayed Plumptre's “original writings,” describing them as “generally read” and “moral, religious, and unexceptionable,” it was more admiring of her “spirited and faithful” translations (242). Besides translating work by and on Kotzebue, she had also produced Friedrich von Mathison's *Letters from Various Parts of the Continent, between the Years 1785 and 1794* (tr. 1799), Johann Carl August Musaeus' *Physiognomical Travels* (tr. 1800), Jean Baptiste Bertrand's *Historical Relation of the Plague at Marseilles in 1720* (tr. 1805), and, after a few years' break, more travel literature in the form of François Pouqueville's *Travels through the Morea, Albania, and other parts of the Ottoman Empire* (tr. 1813) and Georg Heinrich von Langsdorff's *Voyages and Travels to Brazil, the South Sea, Kamschatka, and Japan* (tr. 1813-14).

Whether Plumptre's life was indeed as “unexceptionable” as her writings is debatable. Norwich in the 1780s and 1790s was a hotbed of provincial discontent that left Fanny Burney “truly amazed, & half alarmed” in 1792 at how its “little Revolution Societies” fed larger committees with political ideas that were in turn transmitted to London (qtd. in Fawcett 14). Plumptre's surviving correspondence demonstrates that she associated with figures who were members of these dissident political clubs, not least the Norwich Patriots (Plumptre, Letters), who were known for toasting at their gatherings the parliamentary candidate Thomas Beevor who had promised to oppose “all attempts upon the liberty of the Subject and every other UNCONSTITUTIONAL

measure" (qtd. in Knights 176). Correspondence dating from the 1790s shows that Plumptre was actively using the language of post-Revolutionary Europe. In a letter addressed "Dear Citizen" to the political reformist George Dyer, whose writings on poverty were a call for reform that drew on Thomas Paine's *Rights of Man* (1791-92), she mentions the sermons of the radical orator John Thelwall, who had become intoxicated by the doctrines of 1789: listeners to his sermons in Norwich in 1796 "cannot fail I think to be improved by what they hear," she asserted (Letters). Her correspondence with Dyer is also instructive in indicating why she embarked on a career as an author and translator. Writing to Dyer about the money she had hoped to earn from a novel newly completed but turned down by Robinson – probably her first work *Antoinette*, which appeared with William Lane's Minerva Press in 1796 – she noted:

It is not to be sure that I am personally in want of it, for as I reduce my own private wants into as small a compass as I can I have more than sufficient already to satisfy them but I really see such misery all around me that think it a duty incumbent on me as a citizen of the world to increase [*sic*] as much as lies in my power by capacity of relieving it. (Letters)

As a self-professed "citizen of the world," she was not afraid to ally herself with other Norwich-born female radicals, not least Amelia Opie, with whom she enjoyed the cultural life of London in December 1800 (Brightwell 77). Plumptre's travels in 1802 to witness post-Revolutionary France first-hand were documented in her *Narrative of a Three Years' Residence in France* (1810), a work that scarcely endeared her with the British press, not least for her vindication of Bonaparte. Plumptre's will of 1818, witnessed by Susannah and John Taylor, gives us an important indication of the radical dissenting circles in which she continued to move after her return from France (Plumptre, Last Will and Testament): Susannah Taylor, who allegedly danced round the tree of liberty at Norwich on the receipt of news of the taking of the Bastille, forcefully shared her husband's liberal persuasions (Martin and Goodman 50).

Norwich was not only a place of lively political debate: it was also a place of religious dissent which was key to its literary and intellectual flourishing. As David Chandler notes, the Unitarian impulse was central not only to the founding of the Norwich Public Library in 1784, but also the establishment of the Natural History Society in 1747 (Chandler 175-77). While it is now hard to prove any involvement between Plumptre and the members of the Society, it is not difficult to imagine that the interest which her work shows that she had clearly developed in science by the 1810s was stimulated by the spirit of enquiry prevailing in the city in which she lived. In a perceptive analysis of Plumptre's account of her trip to Dublin and Wicklow, Antrim and Down started in the summer of 1814, Glenn Hooper has described the *Narrative of a Residence in Ireland* (1817) as an "accomplished piece" that blended "unfeminine" topics as diverse as science and architecture, politics and mineralogy, while making no efforts to be self-denigrating or self-effacing (Hooper 130-32). Indeed, Hooper suggests, in the compilation of her narrative Plumptre was "drawn towards the sort of methodological procedures outlined by Lichtenstein" (130) which itself grappled with the complexities of narrative form inherent in scientific travel writing. The adoption of a quasi-scientific voice came easily to Plumptre, perhaps because she had already developed it in her translation of Lichtenstein's *Reisen im südlichen Afrika* completed a couple of years before her Irish visit. As Hooper rightly notes, she was well-versed in

the use of scientific terminology and supported the assertions she made in her Irish travelogue with references from heavyweight publications such as the *Journal de Physique* and the *Philosophical Transactions* (132). She had certainly mastered a distanced, intellectually authoritative tone, as her reflections on the basalt of the Giant's Causeway demonstrate: "Where basalt does not divide itself precisely after the manner of prismatic columns [...] it often forms laminated spheroidal bodies, which varying in their diameters, constitute, by aggregation, rocks of considerable magnitude" (Plumptre, *Narrative* 144-45). While Plumptre's efforts as a scientific *translator* were, as we have seen, received favourably, the *Quarterly Review* was quick to sneer at her scientific pretensions as an *author*. The scientific sections of Plumptre's narrative were either ascribed by its reviewer to a male member of her travelling party – "the historical and geographical parts are fully equal to Lady Morgan's romance, and the scientific parts do great honour to the mineralogical footman" (338) – or the assertions she made were immediately queried as unscientific, as, for example, in the observation that "[w]e suppose from this statement, that this scientific lady herself measured the mountain; we wish she had given us a hint or two, as to the process employed" (342).

"Manly Frankness and Openness": Lichtenstein's *Reisen im südlichen Afrika*

How did Plumptre come to choose Lichtenstein's travelogue for translation and publication with Colburn? This was the first piece she would translate for him, and indeed it was one of the first travel narratives that he would incorporate into his rapidly expanding range of travel literature from 1812 onwards (see: Melnyk). Plumptre would only have needed to leaf through the opening pages of Lichtenstein's *Reisen im südlichen Afrika* to realise that he had deliberately set out to produce an account that was not a harmless rehearsal of the facts hitherto gathered on the Cape Colony, with a few minor additions by which to make his mark on the scientific world. Nor indeed, as Lichtenstein stressed in his lengthy preface, was it full of "rare adventures and extraordinary occurrences" but rather a piece he intended to be "useful to the travelling part of the community" by focusing on the "topography, political situation, natural history, and ethnography" of South Africa and offering "what has hitherto been entirely neglected, a general history of the colony" (Lichtenstein, *Travels*, I: iv-v). His awareness of the corpus of writing already amassed on South Africa – previous travellers included the German astronomer Peter Kolbe, the Swedish naturalist Anders Erikson Sparrman, the French ornithologist François Le Vaillant, and the British scientist Barrow – sharpened Lichtenstein's resolve to produce as impartial an account as possible, "earnestly desirous as I was of avoiding former failures" (Lichtenstein, *Travels*, I: iv). Lichtenstein, a medical man, had gone out to the Cape Colony in 1804 as physician and tutor to the son of the Commissary General, Jacob Abraham de Mist, and his travels to Africa essentially launched Lichtenstein's illustrious career in science. By 1811 he had accepted a position of Professor of Zoology at the University of Berlin and in 1813 he was made director of the Zoological Museum which now forms the basis of the Berlin Museum of Natural History. Siegfried Huigen has argued that Lichtenstein's account made an extremely valuable contribution to early nineteenth-century public discourse on southern Africa not only because Lichtenstein had an intimate knowledge of the region, having crossed the interior both alone and in the company of De Mist and Hendrik Van de Graaf (185). He also drew on official and personal Batavian travel accounts, of which he had acquired an extensive collection during his travels. The Dutch were clearly just as interested in Lichtenstein's account as the English: a first edition of the *Reizen in het zuidelyk gedeelte van Afrika, in de*

jaren 1803, 1804, 1805 en 1806 appeared with the Dordrecht publisher A. Blussé & Zoon between 1813 and 1815 and a second in 1818.

Plumptre, herself a woman of forthright opinions, would not have shied away from tackling the translation of a work that openly drew swords with John Barrow's acclaimed account, weightily titled *An Account of Travels into the Interior of Southern Africa. In Which is Considered, the Importance of the Cape of Good Hope to the Different European Powers, as a Naval and Military Station, as a Point of Security to our Indian Trade and Settlements during a War, and as a Territorial Acquisition and Commercial Emporium in Time of Peace: With a Statistical Sketch of the Whole Colony; Compiled from Authentic Documents*. Received by critics as "among the most judicious and intelligent books of travels" (*Critical Review* 249) and "extremely valuable [for its] prolix statement of the argument for taking and retaining possession of the settlement" (*Edinburgh Review* 443), the *Annual Review* even suggested it was "one of the best books of travels in our own or in any language, and far, very far, the best account of the country which it describes" (22). Plumptre might well have been alert to the saleability of a provocative account casting doubt on the findings of Barrow, whose ardent imperialism would have sat ill with this provincial "citizen of the world," but there were intellectual, and perhaps also gendered, reasons as to why Lichtenstein's account drew her attention.

The index entry under "Barrow" at the end of the first volume of Lichtenstein's travelogue is instructive in understanding how in the English translation his rival was presented to a British public:

Barrow, Mr. defectiveness of his map, 36, and note – His want of liberality in the description he gives of the African colonists, 48 – He accuses the colonists wrongfully of cruelty to their oxen, 66 – His mistaken ideas concerning the Neisna lake, 198 – In an error when he considers the colonists as the aggressors in the Caffre war, 200 – His account of the Caffres, an exceedingly good one, 250 – Mistaken in his representations with regard to the colonists of Bruintjeshoogte, 360. (n. p.)

Lichtenstein's critical onslaught against Barrow's account – its "defectiveness," "mistaken ideas," wrongful accusations – stopped at almost nothing to undermine his authority as a geographer, naturalist and ethnographer. While some of the issues indexed revealed a tendency to pedantry on Lichtenstein's part – had Barrow's measurement of the eland antelope as ten-and-a-half feet long included the tail or not? (Lichtenstein, *Reisen*, II: 24; *Travels* 23-24) – others involved corrections which Lichtenstein must have thought important for future colonisers or industrialists. The Berg River was not well suited, for example, as a source of water for residents of Saldanha Bay, as Barrow had suggested, since "the Berg river itself is not at all times of the year well supplied with water" (Lichtenstein, *Travels*, I: 40-41) ["der Bergfluss selbst ist nicht zu jeder Jahreszeit [*sic*] mit Wasser versehen, wie Herr Barrow behauptet" (Lichtenstein, *Reisen* 65, his emphasis)].

Of greater import, as scientists tried to chart those parts of the world still not accurately mapped by Western cartographers, were Barrow's incorrect data on the longitude and latitude of key points. Of the location of Table Bay Lichtenstein remarked (in Plumptre's translation), "According to Mr. Barrow the mouth of the bay is in latitude 33°10' south; -- according to my calculations it is 32°54.*" (Lichtenstein, *Travels*, I: 36). He then added by way of a footnote:

*) Herr **Barrow** selbst gesteht im 2ten Theil seines Werks [...] die Mängel seiner Karte, wiewohl nicht mit der Offenheit und Unbefangenheit, die man verlangen könnte. Dem günstigen Zeugniß des General Vandeleur, auf den er sich beruft, muß ich das meinige entgegensetzen und behaupten, daß ich seine Karte sehr selten brauchbar gefunden habe. So liegen z. B. auch *Graafreynett* und die *Algoabay* um *einen ganzen Längengrad* zu weit östlich. (Lichtenstein's emphasis, *Reisen* 58)

*Mr. Barrow, in the second part of his Travels, acknowledges the defectiveness of his map though not with the manly frankness and openness which might be wished. Against the favourable testimony of General Vandeleur, to which he appeals, I must venture to set up my own, and observe that I seldom found it of any use: as, for example, Graaff Reynett and Algos Bay are laid down a whole degree too far eastward. (Lichtenstein, *Travels*, I: 36)

It is intriguing that Plumptre added the word "manly" to Lichtenstein's assertion "not with the openness and impartiality that one could demand" ["nicht mit der Offenheit und Unbefangenheit, die man verlangen könnte"] so that it read "not with the manly frankness and openness which might be wished." Perhaps she intended to imply that Barrow had not reacted in a gentlemanly fashion to the criticisms levelled at his work or that she herself would have liked to partake in such robust exchanges but was limited by female modesty. Either way, Lichtenstein's attempts to challenge the factual accuracy of Barrow's writing also undermined the British explorer's credentials as a geographer and member of the prestigious Royal Society. Lichtenstein's criticisms would also serve as ample ammunition for Barrow's rival explorer and naturalist William John Burchell. Author of the richly illustrated *Travels into the Interior of South Africa* (1822-24), Burchell made even shorter shrift of Barrow than Lichtenstein had done, castigating him for his pettiness, "liberality and arrogance" and "numerous errors and misrepresentations" (qtd. in Vigne 26) concluding, "As to the miserable thing called a map, which has been prefixed to Mr. Barrow's quarto, I perfectly agree with Professor Lichtenstein, that it is so defective that it can seldom be found of any use" (Burchell, I: 577-78).

Lichtenstein took every possible occasion to demonstrate how his travels presented new (or more accurate) scientific knowledge to his readers. But he was also careful to adjust the impressions that Barrow had left of the cruelty of the Dutch colonisers and the stupidity of the "savage" indigenous peoples. Barrow, Lichtenstein asserted, "regarded every colonist as turbulent, seditious and a disturber of the public peace," based on hearsay about the Dutch by third parties rather than through the direct contact which Lichtenstein had himself enjoyed (Lichtenstein, *Travels*, II: 9). This certainly casts doubt on Lichtenstein's claims to impartiality, given his positive portrayal of the Dutch in whose employ and company he travelled. But where his recalibration of Barrow's account was less open to criticisms of this kind was in his portrayal of the Caffres and Hottentots. Implicitly accusing Barrow of cheap sensationalism Lichtenstein remarked, "of all this meritorious writer has published concerning the colony of the Cape, nothing has been read with greater avidity [...] than his accounts of the ignorance, the brutality, the filthiness, and the perseverance of the African farmers" (Lichtenstein, *Travels*, II: 22).

Lichtenstein's narrative therefore aimed to offer a more humane and more balanced perspective on the people whom he encountered on his travels through South Africa – an approach that would have chimed well with Plumptre and her circle of Dissenting, abolitionist friends in Norwich. Where Lichtenstein's account might also have struck a chord with Plumptre was in its recognition of the resilience of the female travellers in the party, not least Augusta de Mist, who followed her father in his migration out to the Cape. Far from presenting her as an afterthought in his account, Lichtenstein was quick to introduce to his readers this woman blessed with a "richly stored mind" (Lichtenstein, *Travels*, I: 11) ["vielfach gebildeter Geist" (Lichtenstein, *Reisen*, I: 18)] as an intriguing mix of attributes traditionally connoted as "feminine" or "masculine":

Es war überhaupt in diesem Frauenzimmer eine seltne Vereinigung weiblicher Zartheit mit einer ruhigen, fast männlichen Festigkeit, durch welche sie nicht selten den einen oder andern der übrigen Gesellschaft beschämte. (Lichtenstein, *Reisen*, I: 19)

There was, indeed, in this young lady a singular union of feminine softness and tenderness of heart, with a manly resolution and firmness of mind not often to be found among the rougher part of her sex; – through both she often shamed one or other of the members of our society. (Lichtenstein, *Travels*, I: 11)

Plumptre's translation is again revealing of her subtle manipulation of the source text to make more explicit statements about the complexity of gender, science and travel. She makes "a singular union of feminine softness and tenderness of heart" of Lichtenstein's "uncommon union of feminine tenderness" ["eine seltne Vereinigung weiblicher Zartheit"], thus highlighting the "feminine" qualities of Augusta de Mist, while at the same time turning Lichtenstein's characterisation of August as a woman with a quiet, almost masculine, resolution ["ruhigen, fast männlichen Festigkeit"] into the much less tentative "manly resolution and firmness of mind." Plumptre also adds the phrase "not often to be found among the rougher part of her sex," making of Augusta an even more unusual example of the travelling, exploring woman.

Lichtenstein presents us not only with an early example of European female travel to the Cape but one with which he asks his readers to identify:

I leave it to the readers to conceive to themselves the situation of the ladies who were of our party. Let them but revolve in their minds the occurrences of the preceding days, and then think of two young women, scarcely twenty years of age, accustomed not only to all the conveniences, but to the superfluities of life, going through a long day's journey on horseback, sleeping at night upon the sandy bank of a river, with only a dragoon's riding-cloak for a bed, and then travelling a second day almost without food and refreshment, not only half the way on foot, but climbing rugged rocks, in danger every moment of wounding their delicate hands with the stones and briars, and only assisted occasionally by the servants of the company. To these things must be added, the inconvenience of a woman's clothing, and the wearying manner of riding upon a woman's saddle. (Lichtenstein, *Travels*, I: 83)

The assumption, then, is that Lichtenstein was deliberately embracing inclusive writing, with both a male and female readership in mind. Plumptre, translating this text in her fifties, might not easily have related to the plight of the young women Lichtenstein described, but the frugality and hardship of their travels could well have had some appeal. Certainly Lichtenstein's closing assertion "Probably, few of my female readers will now be desirous of taking the same journey" (Lichtenstein, *Travels*, I: 83) was a challenge to which Plumptre rose as she journeyed as reader and translator through his text.

"In order to exonerate myself": Plumptre's Translation of Lichtenstein's *Reisen im südlichen Afrika*

Glenn Hooper has described Plumptre as "not just an interesting translator in her own right," but the "quietly unobtrusive" and "methodologically sympathetic" figure behind the English versions of Lichtenstein's work (129). There are issues, however, with Hooper's implication that she was a self-effacing and inconspicuous figure in the *Travels in Southern Africa*. While Plumptre did not publish a translator's preface – a paratextual device gradually being used by female translators to initiate the exchange of ideas on translation (Stark 24) – she energetically made use of what Mary Orr has termed the "footnote zone" (see: Orr), that liminal area outside the main text yet lying within the demarcations of the page, to criticise, correct and contribute to Lichtenstein's travelogue with apparent ease. The "footnote zone" operated as space in which to remark on inconsistencies or errors in terminology, to address issues of non-translatability and to tone down Lichtenstein's criticisms of Barrow. The strikingly bold translatorial voice that has been identified elsewhere in Plumptre's later translation work (Pickford 210-11) was also heard very clearly here in her translation of the *Reisen im südlichen Afrika* as she performed a wide variety of roles: scientific translator, terminologist, diplomat, literary commentator and specialist on the history of African exploration.

While Plumptre was not likely to move with the same freedom as male counterparts in scientific circles, she was at least aware of the terminological difficulties that translating geographical works entailed. As M. Teresa Cabré emphasises, terms are "lexical units of language that activate a specialised value when used in certain pragmatic and discursive contexts" and this value needs to be stabilised by expert communities in the field before a word acquires the status of a term (357). Plumptre was confronted with precisely these issues of terminological (in)stability and non-equivalence as she set out to deal with units of measurement. "It must here be recollected that the writer reckons by German miles, every one of which is equal to five miles English" (Lichtenstein, *Travels*, I: 40), she wrote in a footnote as she translated Lichtenstein's account of the point at which a shift from salt-water to fresh-water took place along the course of the River Berg. The woods in the mountains around Zwellendam near the Limpopo presented similar difficulties. Pulling at the long runner of a poisonous oleander, *cynanchum obtusifolium*, Lichtenstein had noted, "I was able without much trouble to draw out a young string of it, but when I had gone as far as thirteen ells,* was obliged to cut it off," to which Plumptre added the footnote, "*We do not know whether the Author means here the Flemish ell, which is only three-quarters of our yard, or the French ell, which is five quarters" (Lichtenstein, *Travels*, II: 131).

Plumptre therefore had no qualms about raising issues of translatability and reminding readers who delved into the paratextual material that the *Travels in Southern Africa* was a mediated text of which she was the author. Visible traces of Lichtenstein's German original were also left in the English for readers to ponder: "This place is called the Hartebeestkraal, and was one of the many stations to which the name of *Ausspannplatze* was given*" (Lichtenstein, *Travels*, I: 19, Plumptre's italicisation), noted Lichtenstein, mediated through Plumptre, as he travelled south-eastwards out of Cape Town. Plumptre, struggling for an English equivalent of the German "Ausspannplatz" decided to leave it untranslated and append the following footnote:

The same reason which the German author gives in a former note for retaining the names of places, as they are called in the country, without attempting to translate them, may be urged as a reason for retaining the German term, here used *ausspannplatze*; since nothing of the kind being known in England, no English term could express what is meant. (Lichtenstein, *Travels*, I: 19)

These metatranslational moments of linguistic self-reference drew attention to the problems with which she was confronted as Lichtenstein's translator, not merely in trying to find equivalent terms but in dealing with the cultural complexity of a piece written in German about a Dutch colony, now destined for an English audience.

Plumptre's translatorial intrusions not only revolved around terminological non-equivalence and the nitty-gritty of linguistic transfer. While Plumptre may have found the controversial nature of Lichtenstein's travelogue appealing, she had clearly also realised that delicate correction of some of Lichtenstein's wilder assertions was required if his account was not to be torn apart by vicious critics, chief among them John Barrow. As Lichtenstein toured the coastal regions of South Africa to describe the Koossa (now Xhosa) tribes, he described his encounter with the Macquinas, traders who specialised in copper and iron. By way of a footnote to a passage about this tribe, Plumptre remarked:

There seems some confusion here, since the country of the Macquinas is represented by the author as to the north-west, and in the interior; yet if it were so, it could not lie between the eastern coast and Beetjuan, as it appears to do from what follows. [...] Perhaps a very unfortunate instance of misprinting has here occurred, and we ought to read "*far to the north-east.*" Still there is a difficulty, as to its being called in the interior of the country, since from all that is said, it appears rather to be towards the eastern-coast. I have, however, given the passage exactly as it stands in the original, but have thought proper to notice it in this way in order to exonerate myself from having created the confusion. TRANSLATOR. (Lichtenstein, *Travels*, I: 298)

Here Plumptre not only cast herself as the critical reader, but also as the critical translator, building in what Theo Hermans has termed "ironic" translation by constructing a visible dislocation between translator, source text author and target text and destroying the illusion that translations are wholly mimetic and the translator little more than the author's mouthpiece (293-95). By inscribing her own subject position in her translation Plumptre could free herself from potentially being held responsible for conveying incorrect facts, while at the same time presenting herself as an intellectually

enquiring woman whose role as translator was not merely that of the passive reporter. By questioning the information with which she was presented, Plumptre was therefore adopting the same practice of "translation-confirmation" that du Châtelet had used with Newton, and highlighting the intellectual reflection as much as the linguistic skills demanded by translation.

The footnotes to the *Travels in Southern Africa* not only demonstrate Plumptre's eye for detail. They illustrate the extremely thorough preparation work she carried out prior to translating Lichtenstein's account, which involved a weight of background reading. Plumptre demonstrated through her footnoting that she was extremely well informed on the wildlife and peoples of Southern Africa and had read other works in German (and possibly also Latin) to confirm what Lichtenstein had asserted in his account:

See Beckmann's *Litteratur der alteren [sic] Reisebeschreibungen*. [*Compendium of Early Travel Literature*] The Translator has sought in vain in Linnaeus for an account of this snake: no name corresponding to the German one is to be found; nor is the animal mentioned in *Nemnich's Lexicon der Naturgeschichte* [*Nemnich's Lexicon of Natural History*]. (Lichtenstein, *Travels*, I: 96)

Plumptre therefore not only showed that she was an assiduous translator, but that she understood the networks in which Lichtenstein operated and the context within which he was presenting the new inroads into science that made the *Reisen im südlichen Afrika* a ground-breaking account. To render his work into English meant travelling the same routes of learning and traversing the same fields of knowledge, if the translation was to be intelligent, accurate and meaningful.

While translating Lichtenstein's account therefore meant understanding how it could be situated within the corpus of work by European explorers on South Africa, Plumptre also had to draw upon her literary repertoire to save Lichtenstein from a serious mauling by British critics. Having just descended from the Sneeuberge (Afrikaans for "Snow Mountains") in the far western part of the Eastern Cape Province of South Africa, Lichtenstein related his arrival at the *Towerfontein* or "Enchanted Fountain," adding the following footnote, which received a meta-commentary from Plumptre:

*In the same manner there are in many places about the colony mountains which bear the name of Towerberg, that is *Enchanted Mountains*. Mr. Barrow confuses this word with the English word Tower, and quotes thereupon, not very much to the purpose, a passage from Shakespeare, in which a hill is likened to a tower.

Above the rest,
In shape and gesture proudly eminent,
Stood like a tower.†

† It must be observed, that the German author here seems to make a mistake in the author Mr. Barrow quotes, since Mr. Barrow could hardly quote this celebrated passage of Milton as Shakespeare's. It is, besides, not a hill, but Satan that is likened to a tower. – TRANSLATOR (Lichtenstein, *Travels*, II: 20)

Cautiously correcting Lichtenstein, who "seems to make a mistake" as he misquotes Barrow, she emends the attribution so that it now correctly refers to Milton's *Paradise Lost* (lines 589-90) and seeks to restore Barrow's reputation as a man of letters in the process.

Plumptre's translation work therefore suggested considerable faith in her own abilities as she confidently offered new or corrected information to her readers to show that she had covered the same ground as her author, yet done so more carefully. Indeed, she appears to feel able to comment and criticise as if Lichtenstein's near equal. Deploying diplomacy at the right juncture was essential to her undertaking, as in this footnote pertaining to the caves at Lowenberg, near Cape Town:

The German author in citing Mr. Barrow's work always refers to a German translation of it. It must be here remarked, that either the translator of Mr. Barrow's work, or Mr. Lichtenstein, has fallen into an error with regard to what Mr. Barrow says of the quantity of shells in this cave. He does not say that in this alone there are many thousand waggon loads of shells; he says: "Many thousand waggon loads of shells may be met with in various places along the eastern coast, in situations that are several hundred feet above the level of the sea." – TRANSLATOR. (Lichtenstein, *Travels*, I: 179)

Barrow, who had travelled to Cape Town just prior to Lichtenstein's exploration of the region considered himself to be one of the most important commentators on South Africa of his day. He was also one of the most acerbic of critics working for the *Quarterly Review*, and one with a decidedly xenophobic, perhaps Germanophobic, streak. Plumptre's comments, eager to adjust, correct and set the record straight, constituted a tactful form of manoeuvring with the aim of ensuring that Lichtenstein's account in her translation was less easily open to attack. Barrow's twenty-one-page critique was decidedly withering: "We apprehend that Doctor Lichtenstein was made 'Professor of Natural History in the University of Berlin,' in consequence of a box of insects presented to that learned body; for we find nothing in this book which indicates the slightest knowledge of the science" (Barrow 377). But it is worth pausing to reflect that without the interventions by Plumptre, who even Barrow admitted "appears to have executed her part of the work with sufficient accuracy" (394-95), the *Travels in Southern Africa* would have been a rather different work.

Translation, Plumptre amply demonstrated, is an interpretative undertaking that draws issues of agency, narrative identity and accountability together to generate a dialogue between source text author and translator that can have marked effects on the text that is produced in a different language. In the *Travels in Southern Africa* Plumptre produced a rather "discordant" narrative through her annotations, which tended to take the form of a metatranslational, self-referential commentary, as she criticised or corrected Lichtenstein's statements in her role as arbitrator and mediator between him and other scientific travellers, including Barrow. She thus constructed a public image of herself as a critical reader, whose combination of scientific competence and linguistic prowess cast her as a highly skilled agent in the international transmission of scientific knowledge. In line with more recent research into the performative nature of nineteenth-century science, particularly in the context of its popularisation (see: Samida), translation has much to say about how women used the interstices between the source text and its translation to position themselves as intellectually enquiring and

scientifically able agents in rapidly expanding networks of knowledge. It is worth reflecting, in conclusion, that while translators can position themselves in a variety of different ways towards the text they translate, as Plumptre's annotation of Lichtenstein's narrative in English translation amply demonstrates, the text they translate also positions them. Plumptre's choice of Lichtenstein's *Reisen im südlichen Afrika* as a piece for translation was itself a statement of confidence in her own abilities to tackle a text that was inherently challenging on a linguistic, cultural and scientific level in ways which enabled her to make her mark within the wider scientific community.

Notes

I particularly wish to thank the Norfolk Record Office for allowing me to access and quote from the archival material relating to Plumptre (Letters to George Dyer. 1795-96. MS 4262, 5B4; Last Will and Testament. 1818. MS NCC Will Register MF/RO 579/3) in this article. I am also very glad to acknowledge the help they gave me in finding this information.

1. For the attribution of the reviewer's abbreviation 'Lo' to Joseph Lowe, see Nangle 38.
2. See the entry "Plumptre" in the 1820 edition of the *Allgemeine deutsche Real-Encyclopädie für die gebildeten Stände*, which could well have drawn on the 1817 article in *The Ladies' Monthly Museum*.

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The Stuff of Translation and Independent Female Scientific Authorship: the Case of *Taxidermy...*, anon. (1820)

Mary Orr

The anonymous *Taxidermy: or the Art of Collecting, Preparing and Mounting Objects of Natural History. For the Use of Museums and Travellers* was first published by Longman in 1820. Due to its immediate success as an authority, it went through four revised reprints in 1821, 1823, 1829 and 1835 (still anonymously), before a much expanded sixth edition appeared in 1843. This included an "advertisement" for the first time, unequivocally to establish the author as *Mrs R. Lee* (1791-1856), and the work as the frequently plagiarised source of "all modern treatises on Taxidermy [...]" as if an anonymous author were a fairer object for piracy than one whose name stands on the title page" (Lee, "Advertisement" iv). Her name is, in fact, equally absent from the title pages of the some dozen books (see: Appendix 1 below) she co-authored and co-translated anonymously with her first husband, T. Edward Bowdich (1791-1824), the explorer of Ashanti (see: Driver, "Thomas Edward Bowdich"). *Taxidermy* stands out among them all in terms of its sole authorship thanks to the retrospective evidence of its 1843 "advertisement":

the task devolved to me alone, and for the better execution of it, I not only read the best writings on the subject, and consulted those most skilled in the Art, but verified all my instructions in the laboratories of the Museum in Paris. Several of the following pages are mere translations from printed memoirs, chiefly that of M. Dufresne. Others are noted down from explanations given viva voce; but these were so mingled with original matter that it is impossible to separate them from each other. (Lee iii, emphasis added)

If Connor notes that Sara [*sic*] Bowdich in 1820 is the first to use the "up-register 'taxidermy'" (rather than the word "stuffing"), this article makes more specific and wide-reaching claims. It demonstrates that Sarah Bowdich's *Taxidermy* was the first major work on the subject *in English*, as well as in other European languages, to be authored by a woman. By so doing, the article also renegotiates, through *Taxidermy* as a case-study, why even the best approaches of history and sociology of science arrive with difficulty at such findings, and why other critical approaches are also necessary to locate similar works in science significantly reshaping their fields, especially when published anonymously, by women.

Historical and sociological research very convincingly explains the presence (or absence) of women in science in the early-to-mid nineteenth century through the many exclusions and obstacles that they faced. As McEwan's *Gender, Geography and Empire*, Driver's *Geography Militant: Cultures of Exploration and Empire* Kohlstedt and Opitz's "Re-imag(in)ing Women in Science" and Livingstone and Withers' *Geographies of Nineteenth-Century Science* variously endorse, women in the period had little or no access to a scientific education and training in museum collections, to learned societies and their outlets for publication, or to expert knowledge gathering overseas. In consequence they negotiated various secondary roles – as translators,

illustrators and popularisers of scientific works by men related to them by blood or marriage – as strategic back-door routes for their own contributions to natural science and geology (see: Abir-Am and Outram; Burek and Higgs). These explanations are problematic, however, when it comes to understanding why and how the relatively few women in science – such as Sarah Bowdich (Lee) – emerge nevertheless in primary capacities in this period. At best they are exceptions to the rule, anomalies, minority and marginal figures: at worst they are monstrous cases, as Clémence Royer (1830-1902) famously exemplifies. She is now known as the first (mis)translator of Darwin's *On the Origin of Species* into French in 1861, (mis)appropriating his work somewhere on a scale between opportunist rewriting (see: Fraisse; Harvey) and wilful misrepresentation (see: Miles; Brisset).

The successful (including notorious) exchange, circulation and advancement of new ideas – religious, political, artistic and scientific – have, however, always depended on multi-lingual, and intra-lingual, re-articulation in many forms and genres. For example, translations, abridgements, popularisations and fictionalisations variously ensure the onward dissemination of human understanding for a range of new audiences. By framing women's knowledge in science within the discourses of socio-political exclusion and exception, historical and sociological research (in all periods) too frequently overlooks women's multi-lingual proficiency, and this as the vehicle allowing them direct access to primary spaces for their own independent contributions. The configuration of women's secondary roles in science as "translators" and "popularisers" assumes a similar secondary status for such activities as derivative, unmediated (mechanical) reproductions of the original in the other language. For literary studies, by contrast, especially on women's and postcolonial writing since the 1970s, the "subaltern" subject (see: Spivak) finds a voice through carefully-constructed agency in master discourses. In the nineteenth century, European women working as creative writers variously negotiated what Mary Poovey calls the "ideology of style" (*The Proper Lady and the Woman Writer*) to circumnavigate the socially-constructed proprieties delimiting female authority and authorship. Frequently in the period women authors had to adopt a (male) pseudonym or pen their work anonymously (see: Easley). Travel and translation studies which foreground gender (by, for example, Pratt; Mills; Simon; and Bassnett), have uncovered many important nineteenth-century women travel writers who operated similarly. Because they additionally took on in their writing practices the genres of rugged exploration and expert observation, their work as "translators" and "popularisers" of science and travel accounts widened the cultural and intercultural parameters for contribution to factual writing (geography, natural science, geology), including by women, in both national and transnational heritages. As Martin ("Performing Scientific Knowledge Transfer") in this special issue, and Martin and Pickford further explore in their edited volume *Travel Narratives in Translation, 1750-1830*, women translators of scientific travel texts (by men in other languages) of the period also made independent primary scientific contributions, for example through their diligent recasting and correction of erroneous information, or insertion of explanatory footnotes not in the original.

The approaches of history and sociology of science (including scientific biography) are thus essential to our reading of *Taxidermy* as a scientific text and wider case study, but are inflected and extended by harnessing the insights of comparative literary, travel and translation studies. Moreover by framing this British woman writer of science transnationally through her engagement with other languages, our reading brings more fully into the spotlight Sarah Bowdich's proactive contribution in

Taxidermy to various genres of science writing normally classified as "rugged." Through close literary-critical reading of *Taxidermy* in the multiple socio-historical and biographical contexts that produced it, this article uncovers for the first time that this work is in fact no seamless "translation" or reproduction of one original text, but realigns two. *Taxidermy*'s "intertextuality" – namely its imitation, adaptation and translation (Orr, *Intertextuality*) of the several factual genres it sets authoritatively in display – are therefore of immense interest to history of science. It is through literary-critical insights, however, that explanations can be given for the specific agendas the anonymous Sarah Bowdich (Lee) promoted in her recrafting of this work.

Taxidermy has elicited only passing critical attention in the history and literature of science. The fullest discussion to date within the history of science of its field is Morris's *History of Taxidermy* (336-37). By quoting elements from the 1843 "advertisement" (see above), Morris remains curiously adamant that Edward Bowdich authored this "translation," and penned the drawings (despite their clear signature as "S. Bowdich del"). While Beaver is principally to be thanked for bringing "Mrs R. Lee" to critical attention in the history of science through his meticulous scientific biography of her life and works, *Taxidermy* is not singled out. This was the object of women's writing (and women's science writing) specialist, Barbara Gates who, in first anthologising *Taxidermy*, drew attention to the importance of its author and her science for studies of women's scientific writing. My own work in a similar vein ("Pursuing Proper Protocol: Sarah Bowdich's Purview of the Sciences of Exploration"; "Women Peers in the Scientific Realm") in nineteenth-century French literary science has focused on the importance and significance of Sarah's rather unusual training for the time (in 1819-22) under Georges Cuvier and others at the Jardin des Plantes in Paris (when the Bowdichs were preparing their independent, jointly conducted, voyage of scientific discovery to Sierra Leone). After Edward's death in The Gambia in 1824, further evidence for Sarah's independent collaborations with Cuvier (including contributions to his definitive *The Natural History of Fish* [*Histoire naturelle des poissons*]) derives from Sarah's additional information about preservation of fish in the 1843 edition of *Taxidermy* (Orr, "Fish with a Different Angle"). In fact its "advertisement" (cited above) is a model of contextual succinctness regarding the activity and importance of taxidermy at the Jardin des Plantes in 1820 for (French) history of science, including the unusual presence within it of a (British) woman receiving "instructions" in the "laboratories" and "consult[ing] those most skilled in the Art."

For historians of French science and education such as Bret, Blanckaert et al and Williams, Napoleon's First Empire secures France's international standing and standard for science collections and endeavour by also instigating training at secondary and tertiary levels in mathematical and scientific subjects. Women in France were automatically excluded from all these activities, because they could not be soldiers, scientific specialists or science teachers. However, because Napoleon instituted French to replace Latin as the *lingua franca* of post-Revolutionary science (and French science education), historians of science of the period overlook the multiple impacts of this medium for the constituency of both French and international science communities in the remainder of the nineteenth century. Frenchmen from modest backgrounds were no longer barred from becoming scientific assistants ["aides naturalistes"] at the Jardin des Plantes and other French institutions. After the Napoleonic Wars these could also reopen their doors to overseas experts fluent in French and/or who were otherwise barred by class, creed, sex or race from their scientific institutions "at home."

Indicative and illustrative of exactly this latter situation was the arrival in 1819, and activities over four years, of Edward and Sarah Bowdich at the Jardin des Plantes. Their subsequent contributions to French and international science also exemplify the far-reaching importance of multilingual proficiency alongside specialist scientific expertise. Because their earlier joint mission to Ashanti attracted no further financial backing from The African Society, the Bowdichs combined their efforts in Paris to prepare their (second) voyage of scientific exploration to West Africa. Their intensive accumulation of the latest French scientific knowledge was further channelled into their publications for informed English readerships, which provided the means to fund their independent journey. The list (see: Appendix 1) comprises key works about recent (French scientific) travel to West Africa, and the latest advances by Chairs in natural science at the Jardin des Plantes. Cuvier's new classification system for the (global) animal kingdom – his *Règne animal* was published in 1817 – directly informed the ornithology he was preparing when the Bowdichs arrived in Paris. Lamarck was also developing new work on molluscs and shells. The publications (in Appendix 1) highlighted in bold directly map onto these new advances.

Like the massive (re)classification project of all known species at the Paris Museum of Natural History, at the Jardin des Plantes in miniature, the very number, range (and also length) of the publications attributed to "T. Edward Bowdich" cannot be the single-handed work of one named (or anonymous) author. Sarah's second pair of expert hands in the four years of these productions is additionally visible through her signature on the many hundreds of accompanying figures in the highlighted works in Appendix 1, taken from specimens in the Museum's galleries and collections. Moreover these titles were not English translation copies of a French original, but compact single-volume compendia of the latest available information gathered from various recent sources. The object of the Bowdich versions was therefore to reduce encyclopedic contemporary French coverage of natural history into portable single-volume reference works for future curatorial assistants ["aides naturalistes"] in Museums as well as for travellers ["voyageurs naturalistes"]. I will return to the bracketed French designations below. Despite their accessibility, and resemblance to textbook primers – signalled by the words "elements," "introduction," "analysis" in the highlighted titles – they were clearly not for beginners. Their short textual descriptions are organised under the new classification systems of Cuvier and others, enhanced and cross-referenced by the fold-out charts of drawings, to facilitate correct identification, description and classification practices for known and unknown species either in the field or in the laboratory. No successful scientific expedition merely recorded descriptions of new findings in notebooks. For the scientific traveller/museum collector worthy of the name, the carefully labelled found specimen was the primary evidence on which any reliable new report with drawings was based. Transmission of new observations and identifications was therefore as dependent on correct preservation and transportation of objects of natural history as on detailed records. In consequence, expert scientific collection of species from hot, damp, insect-rich climates was particularly important since these spoiled most rapidly, even before lengthy and perilous sea transport to national museums to enable their further study. Enter the arts *and* sciences of "taxidermy" – the 1806 coinage for "preserving" – without which no post-Revolutionary (French) scientific traveller of note or ambition could set out (following the model exploration and herbarium preservation practices of Alexander von Humboldt), and upon which museum specialists relied to verify new findings.

The methods of drying specimens (see: Péquignot) or pickling them in spirits date from before 1750 of course, but limited royal and other collections largely to unfleshy forms that still suffered decay and insect infestations. With the arrival from colonial outposts of new living *exotica* (especially colourful birds), came the necessity of their keeping – alive or dead – through building collections. The histories of natural science and museology therefore made unprecedented strides from 1770 as much through important discoveries in conservation and preservation techniques, such as the “arsenical soap” of the pharmacist (and collector of birds) Bécoeur of Metz, as through great voyages of exploration. In fact several major collectors of birds and insects “at home” – l’Abbé Denis Joseph Manesse (1743-1820), Pierre-François Nicolas (1743-1816), Jacques-Marie-Philippe Mouton-Fontenille de la Clotte (1769-1837), Louis Dufresne 1752-1832) in France;¹ John Coakley Lettsom (1744-1815) and William Bullock (1773-1849) in Britain – all wrote important treatises (of which, more below) on how better to prepare, preserve and conserve objects of natural history for the establishment of collections of scientific importance, both private and national. Sarah Bowdich’s *Taxidermy* of 1820 is a major missing link in their transmission precisely because of its *dual* linguistic, but also generic, contexts of production. Its significance has not been appreciated to date because no critic has delved into its composite, bilingual intertextuality, clearly announced *in nuce* in the 1843 “advertisement”:

I not only read **the best writings on the subject**, and consulted those most skilled in the Art, but **verified all my instructions** in the laboratories of the Museum in Paris. **Several of the following pages are mere translations from printed memoirs, chiefly that of M. Dufresne.** Others are **noted down from explanations given viva voce**; but these were **so mingled with original matter** that it is impossible to separate them from each other. (Lee iii, emphasis added)

The incipit to *Taxidermy* (1820) is a chief example:

This treatise is written to facilitate the means of procuring and preserving skins. It will contain a careful description of the Proceedings necessary to collect and preserve all the objects of the animal kingdom.

We find the more pleasure in guiding young naturalists in their interesting labours, as our efforts, for the last fifteen years, have already been rewarded. Since the publication of the first edition, the number of persons who apply themselves to Taxidermy is singularly increased, not only in Europe, but in all parts of the world; and we have had the satisfaction of observing, that almost all the animals sent to the Museum in Paris, have been prepared according to the methods we have recommended.

Natural history can only make a rapid progress when museums are enlarged, multiplied and perfected in the art of preparing, mounting, and preserving animals. (1)

*

[Les premiers essais de ceux qui se livrent à l’étude d’histoire naturelle se portent généralement sur les objets qui frappent le plus leurs yeux. Ainsi, les animaux, et particulièrement les oiseaux, attirent l’attention de tous les voyageurs.

C'est pour leur faciliter les moyens de se procurer et de conserver ces précieuses dépouilles que nous avons écrit cet article. Il contiendra la description soignée de divers procédés employés pour recueillir et préserver tous les objets compris dans le règne animal. Nous trouvons d'autant plus de plaisir à guider les jeunes naturalistes dans leur intéressans travaux, que déjà les efforts que nous avons faits pour eux, il y a quinze ans, sont récompensés. Depuis la publication de la première édition de ce Dictionnaire, en 1803, le nombre de personnes qui s'occupent de *taxidermie* s'est singulièrement accru, non-seulement en Europe, mais dans toutes les parties du monde, et nous avons eu la satisfaction d'observer que presque tous les animaux envoyés au Muséum de Paris sont préparés d'après les procédés que nous avons indiqués.

Les sciences naturelles n'ont pu nécessairement faire du progrès rapide, qu'à mesure que les musées se sont multipliés et perfectionnés dans l'art de préparer, monter et conserver les animaux]. (Dufresne, "Taxidermie" 522-23)

By placing the English translation above Dufresne's source text, what "most strike the eyes" ["les objets qui frappent le plus leurs yeux"] are not natural objects such as birds ["les oiseaux"], but the misrepresentation, even potential plagiarism, of Sarah's Bowdich's translation through omission of Dufresne's original opening paragraph. Reference to "the first edition" in her second paragraph is confusingly not some mistake, for example that her 1820 text is in fact its second reprint of 1821. Rather, her suppression of Dufresne's qualifying "Dictionnaire, en 1803" (in the second paragraph of the French original) further confuses his efforts over fifteen years with hers. Worse still, further cross-checks of the English *Taxidermy* paragraph by paragraph against Dufresne's second revised entry for "Taxidermie" of 1816-19 confirms Sarah's is an almost exact copy of this version, with only further minor suppressions of detail such as this one. The many references within Dufresne's article to other authorities – such as Manesse and Nicolas – are therefore his, not Sarah's, reading of "the best writings on the subject" as she claims in her "advertisement" above. As Morris (*A History of Taxidermy* 336-37) correctly observes, the Bowdich *Taxidermy* is one of two important English translations of Dufresne's work, both published in 1820: its rival *The Taxidermist's Manual or the Art of Collecting, Preparing and Preserving Objects of Natural History* by Captain Thomas Brown enjoyed even more reprints, particularly in North America. Brown had gone to Paris specifically to purchase Dufresne's extensive stuffed bird collection for the University of Edinburgh (Sweet, "The Collection of Louis Dufresne"), and hence had as direct access to this expert "manual" and work on taxidermy as Sarah Bowdich. At best, this British woman translator living in Paris at the time was an opportunist money-spinner, rather coy with the truth concerning the direct provenance of her work, even when calling attention to Dufresne in the 1843 "advertisement."

The truth is, however, rather different when viewed from informed comparative literary-cultural and intertextual investigations of source and non-source texts in both Brown's *The Taxidermist's Manual* and the 1820 *Taxidermy*, including its reprints. Brown much more concertedly disguises and erases Dufresne as his guiding reference: he is not among the "authorities," for example Waterton and Audubon, named in Brown's "Introduction." Cross-checks with Dufresne's "Taxidermie" (1816-19) also rapidly reveal that Brown everywhere rearranged its structure and order, so that

translations of directly lifted paragraphs from different sections are restitched into Brown's own reconstruction as if of *his* piece. Brown includes various plates – there are none in Dufresne – again without acknowledgement of his sources. In short, Brown's recomposition as self-fashioning – mirroring the artifice keyword of his title – is as the entrepreneur closing on his future roles as “conservator of the Manchester Museum of Natural History” (as subtitle pages of subsequent editions of *The Taxidermist's Manual* confirm). Its multiple reprint success over a fifty-year period maps directly onto the rise of taxidermy businesses meeting the demands of bourgeois leisure pursuits (for both sexes), and in all zones of the Anglosphere, as Marcinkus and Coote underscore.

By contrast, Sarah Bowdich's *Taxidermy: on the Art of Collecting, Preparing and Mounting Objects of Natural History* is guided by the word “collecting” of her subtitle, covering the issues of “preparing” and “mounting.” Dufresne's “Taxidermie,” which she is collecting in translation as *summa* of the most recent (1819) and reliable expertise on the subject by the chief taxidermist [“préparateur”] for the Paris Museum, is but the preface in her work – it is almost twice as long again – very specifically written for “Museums and Travellers.” Her omissions in the 1820 *Taxidermy* from Dufresne, and additional minor cuts to it in her subsequent reprints are subtle adaptations pointing to her wider remits for the volume as a whole. For example in her second (1821) and all further editions, the opening two paragraphs of the 1820 text (with their ambiguities about Dufresne's second edition) have disappeared. Strategically, *Taxidermy* then opens with: “Natural history can only make a rapid progress when museums are enlarged, multiplied and perfected in the art of preparing, mounting, and preserving animals.” But these minor adaptations also include her independently authored, and clearly flagged, *supplements* very specifically referring to Dufresne's work – as an authority text; as the chief practitioner-teacher she consulted – both in the 1820 version and more unmistakably in further editions, because she signs this material “T” (translator). An example is a note to the fifth edition (93) adding new material to Dufresne's original work.

Aside from following Dufresne's authority *text* in order and coverage, Sarah Bowdich's “translation” further provides verifications and clarifications of his expert *practices* as a vehicle also for her own authoritative extensions of them (and ahead of undertaking such work independently in the field in Sierra Leone). One example makes these points:

It is necessary to use the oil of turpentine for the exterior of large quadrupeds, and fish, first because the metallic soap cannot penetrate, and secondly, because prudence does not allow us to employ it, on the surface of any animal, not even on the parts free from hair.*

* M. Dufresne means the exterior surface only, which is so much handled in the shifting as to make it too dangerous to anoint it with this soap; and I observe, that the Artists in the Zoology Laboratory at Paris, carefully bend or turn down the points of the various wires, after they have inserted them (as they easily straighten them again with the fingers, if requisite), lest by pricking their fingers, the arsenic might do them serious injury. M. Valenciennes, however, assures me, that it is indispensably necessary for the traveller to anoint the naked parts of the legs of birds killed in hot climates. (*Taxidermy* 14, underlining in the original)

As a "traveller" in the preparation herself in 1820 (and in the 1821 and 1823 re-editions of *Taxidermy*) Sarah's clarification of Dufresne by her underlining in this note directly connects to her own authoritative "I observe." Not only is she retransmitting Dufresne's authority. Through her first-person experience of his work as her foremost teacher, she also further qualifies and extends his expert instructions with her own. Her "retranslation" disguising them includes the work of "Artists" in the preparation laboratory, and "aides naturalistes" such as Achilles Valenciennes (1794-1865). He was engaged by Cuvier in 1820 for his Ornithology project in the preparation of bird specimens, often feather by feather as stipulated in Dufresne's "Taxidermie" (567). Precisely as her 1843 advertisement above endorses, Sarah was indeed "consult[ing] those most skilled in the Art," verified by practical "instructions in the laboratories of the Museum in Paris." Visibly demonstrated too is her expert reading and practical knowledge through her copies in *Taxidermy* of drawings from "the best writings on the subject," including Nicolas (quoted by Dufresne).

But the overt use of "I" and "me" in this footnote clearly stretches both the alleged anonymity of *Taxidermy*, and the deployment by women translators of additional notes (in the third person) as appropriately confined vehicles for their independent authorship by stealth. The anonymous "I" (and as Sarah Bowdich) everywhere extends "the authority of a mediator, anchored in the quintessential domestic drama of the contact zone," to quote Mary Louise Pratt and the term she famously qualifies as "the space of colonial encounters, the space in which peoples geographically and historically separated come into contact with another, and establish ongoing relations, usually involving conditions of coercion, radical inequality and untractable conflict" (Pratt 6). More to Sarah's point (with the ends initially bent down to avoid pricking of the fingers) are women's independent and overt interjections into the narratives of science through use, as here, of the more radical first-person *footnote zone*. As indeed a "space of colonial encounters," but outside the "domestic drama of the contact zone," Sarah Bowdich enlarges the place, and space, for the active and visible (female) participant-observer in onward transmissions of expert knowledge. For *Taxidermy* the "beyond" in these notes is both physical – "in hot climates"; outside the Museum preparation laboratory – and *textual*. Sarah Bowdich's footnote zone therefore marks out the new space for transmission and translation of Dufresne – improved "instructions" deriving from others' expert practices. This call to and inclusion of significant others (by inference, herself) importantly prefaces the second, "non-Dufresne," half of *Taxidermy* that has entirely escaped critical notice:

ADDITIONAL INSTRUCTIONS FOR TRAVELLERS

The preceding treatise having been written for the use of collectors, superintendents of museums, and artists, as well as travellers, *I add* the Instructions drawn up by the Professors of the Jardin du Roi, at Paris, expressly for the use of the latter, to whom they are gratuitously presented. *I would request* this class of readers, to comprehend such parts of *the previous treatise of M. Dufresne*, as are given under the following titles.

- 1st, The manner of collecting and preparing objects of natural history.
- 2dly, The method of packing and enabling them to arrive at their place of destination in the best state possible.
- 3dly, The nature of notes which ought to accompany these objects.
- 4thly, An indication of the objects which are most particularly desired.

(119-20, emphasis added)

The main second part of *Taxidermy* addresses the categories and specific "objects" that are sought, and the persons addressed directly as finders of them, including "natives" (121), "Surgeons, and lovers of natural history [...] in their voyages" (129) and the more generic, but often ambiguously useful "traveller" (143, 160-61). For comparative history of French and international science at this pivotal moment of its development, the rich information in this second half of *Taxidermy* is of immense interest. For example, it gauges the state of health and breadth (or otherwise) of the collections at the Paris Museum and its new menagerie, especially when compared to the London Museum collections its curator, William Bullock, wished to augment through his "treatise" aimed at

sportsmen, gentlemen in the army and navy and persons going abroad [...]. By observing the following instructions, and a little practice, gentlemen will be able to give to their servants, or the natives of the country they may visit, such directions as may be the means of procuring many new and valuable objects of zoology [...]. (Bullock iii-iv, "objects of zoology" are unspecified)

But Sarah's intruding *authorial* perspectives and observations above – as a non-French outsider, woman, student, but also insider educator through preparing this work for Anglophone experts – make her no footnote in this transmission history. Rather, her dual-facing endeavour for "Museums and Travellers" provides in its vital copula the bi-directional retranslation of the footnote zones of taxidermy's various engagements with scientific, technical and geographical *genres*, while authoritatively imparting something new to them all, as we will discover.

The titles in chronological order of the main English, and French,² precursors to Sarah's *Taxidermy* already indicate their target "knowledge markets" as signalled in bold:

- Lettsom, John Coakley. *The Naturalist's and Traveller's Companion. Containing Instructions for Collecting and Preserving Objects of Natural History and for Promoting Inquiries after Human Knowledge in General*. 2nd ed. 1774.
- Manesse, l'Abbé. *Traité sur la manière d'empailler et de conserver les animaux, les pelleteries et les laines*. 1787.
- Nicolas, P. F. *Méthode de préparer et conserver les animaux de toutes les classes pour les cabinets d'histoire naturelle*. 1801.
- Mouton-Fontenille de la Clotte, Jacques-Marie-Philippe. *L'Art d'empailler les oiseaux* (contenant des Principes de théorie nouveaux et les Procédés de pratiques avantageux pour conserver à chaque Famille ses formes et ses attitudes naturelles), *faisant suite au Traité élémentaire d'ornithologie*. 1811.
- Bullock, William. *A Concise and Easy Method of Preserving Subjects of Natural History intended for the use of Sportsmen, Travellers &c., &c.* 1817.
- Dufresne, Louis. "Taxidermie." *Nouveau Dictionnaire d'Histoire Naturelle appliquée aux arts, à l'agriculture, à l'économie rurale et domestique, à la médecine*. 1816-19.

With the exception of Lettsom, this list in effect documents an important new lineage of museum *conservators* who had established large personal collections: Manesse,

Nicolas, Mouton-Fontenille de la Clotte, Bullock, and of course Dufresne. Clearly Brown's *The Taxidermist's Manual* sought aspirational status in this regard, by highlighting the (new) *person* of the taxidermist (and as distinct from the "stuffer," "embalmer," or more generic museum "préparateur") above the art, science, technique, method and knowledge of collecting, preserving, and conserving (taxidermy).

The second half of *Taxidermy*, with its restoration of the genre of "Instructions to Travellers" sets it in a lineage from at least the sixteenth century (see: Schultz). Retrospectively, it differentiates Lettsom's work as the more significant precursor than Dufresne in this list, especially upon closer intertextual inspection of the footnote zones of the other museum conservator texts (in English and French) set out here. For Lettsom (a Quaker, Abolitionist, Philanthropist and Traveller), the call to travel and study of nature was to enlarge understanding – of the Creator, of the universe, and of greater opportunities for human good through knowledge of plants and animals. Indeed before 1815 "instructions" often promoted philanthropic ends (see: Kury). In his introduction Lettsom claimed his *Instructions* to be new, although indebted to directions penned in 1771 by his (Calvinist) friend, John Reinhold Forster (1729-98) "for collecting, preserving, and transporting all kinds of natural history curiosities" (*The Naturalist's and Traveller's Companion* xi). Forster, however, joins a much longer lineage of important explorer-travellers such as Richard Hakluyt (1553-1616), actively engaged in natural scientific pursuits that informed their published travel advice and instructions (as Carey elucidates). Only Nicolas in the list above concertedly and overtly quotes Lettsom's work – in French translation as *le Voyageur naturaliste* – first as an important commentator on Turgot's "Instructive Dissertation on how to collect, prepare, conserve and transport every kind of natural history curiosity" [Mémoire instructif sur la manière de rassembler, de préparer, de conserver et d'envoyer les diverses curiosités d'histoire naturelle] (also a source for Dufresne), and then as an authority for the methods of preserving birds, insects, and fish (Nicolas, *Méthode*: 19, 84-86, 166-67 and 188-89 respectively). Sarah cannot have missed Lettsom when consulting Nicolas's work to make copies for her *Taxidermy* of two of the plates describing the preparation of birds. Her notice above to the translation in the second half of *Taxidermy* of the latest Instructions, drawn up by (unsigned) "Professors" of the Paris Museum, therefore draws direct attention to fascinating role switches, even usurpations, by these new instructors. Their positions were formerly commanded by pre-eminent "voyageurs naturalistes" (like Forster and Lettsom), and eminent contemporaries such as Alexander von Humboldt because they were the principal authorities on collecting, preparing, and packing ("conserver et envoyer") diverse objects of natural history *in situ*.

There is no mistaking the many jostling and competing echelons of instructors within, and beyond, the Museum here: Professors, chief "aides naturalistes" and other "préparateurs," expert scientific travellers. But their ambiguous hierarchies are further compounded by the strategic *authorial* intrusions within this notice: "I add the Instructions drawn up by the Professors of the Jardin du Roi, at Paris, *expressly for the use of the latter*" (*Taxidermy* 119, emphasis added). These *travellers* are, however, no secondary category, but appositional to "collectors, superintendents of museums, and artists." So the complex tensions of function, role, contribution and authority among the instructors equally apply to the instructed within, and beyond, the Museum's departments. In a literally *pivotal* authorial intervention, the anonymous "I" of *Taxidermy* translates – that is collects, preserves and mounts – a major juncture in the redrawing of field and laboratory natural science in 1820, and as demonstrably more complex than the oppositional model proposed in histories of geography (see: Driver,

Geography Militant) or science (Mackenzie) of the nineteenth century. "Preparers" of all stripes, as Hangay and Dingley underscore in Anglophone heritages, make all the difference to the successes of collections for both museum and field trajectories of expertise.

When the "I" here is named, embodied and contextualised, however, these striking first person interventions provide a particular ideological steer amid these shifting categories: "[...] expressly for the use of the latter [travellers]. I would request *this class of readers* to comprehend [...] the previous treatise of M. Dufresne" (119, emphasis added). *Taxidermy* is not targeted to informed generic or leisured travellers, but specifically designed for "voyageurs naturalistes" in the French sense and heritage of Lettsom's and Nicolas's usage. Moreover, this important distinction differentiates the scientific traveller from the figure of the discoverer, explorer or adventurer such as a Baudin or a Cook. Knowledge enrichment, not land or imperial conquest, is the primary object of endeavour. The model "voyageur naturaliste" for whom *Taxidermy* is written turns out to be its author (and her husband), mapping onto their immediate personal, but also French institutional, contexts in 1819-20. The Bowdichs represent non-French prototypes for the specially-trained professional French "voyageurs naturalistes," on the payroll of the Paris Museum for the first time (Laissus 262-63), so that they could undertake specialist specimen gathering to augment Gallery and living collections. Cuvier's stepson, Alfred Duvaucel (1793-1824), was also among their number collecting new species for the Museum in Asia and India. In the Instructions half of *Taxidermy* it is particularly striking that species specified for collection are mainly from West Africa, the Cape of Good Hope, Madagascar, India and the Indian Archipelago. In subsequent editions of *Taxidermy* these sections are the most regularly updated and augmented. Only in the fourth edition (1835) are new sections added, for Chile, Peru and Brazil.

The Instructions half of *Taxidermy* is where Sarah's authorial mark is more complex, in part because her intimation of its intertext – the rather vague "drawn up by the Professors of the Jardin du Roi" – fits a developing model since the 1750s. The opening paragraph however provides contextual and intertextual clues to enable its discovery by equivalence with Dufresne (the latest published expert instructions for voyageurs naturalistes):

ANIMAL KINGDOM

The study of zoology in the Museum of Natural History, does not limit itself to the observation of the forms of animals and the description of their organs; it also embraces the examination of their habit, their development, their sagacity; and seeks if they can be of any utility. Formerly, we could only inform ourselves on these essential points by the relations of travellers. [...] *But, since a menagerie has been added to the Museum at Paris, a new career in observations had been opened to naturalists.* (*Taxidermy* 120, emphasis added)

The source – the œuvre; the word-for-word original for this paragraph – is *L'Instruction pour les voyageurs et pour les employés dans les colonies sur la manière de recueillir, de conserver et d'envoyer les objets d'histoire naturelle, rédigée sur l'invitation de S. E. le ministre de la Marine et des Colonies par l'administration du Muséum royal d'histoire naturelle* of 1818.³ Sarah, however, suppresses some 30 initial pages, her translation here picking up the original precisely, from the second chapter entitled

"Zoology," and from its *second section* headed "mammals and birds" [mammifères et oiseaux]. But her *authorial* intervention is then the more apparent in her different word choice to translate what has now become the main heading for the Instructions half of *Taxidermy*: "Animal Kingdom." This direct reference to (George) Cuvier's *Règne Animal* (1817) is also acknowledgement by inference to the work of his younger brother Frédéric (1773-1838), first keeper of the new Paris menagerie (1804-38), flagged in the emphasis above. Only tiny suppressions (and changes of paragraphing) follow, before more radical reorganisation occurs some ten pages into the "translation." Short paragraphs – on collecting fish; terrestrial and aquatic shells; worms – are lifted from sections two and three in the original second chapter – to preface substantial material drawn from its *first* section. This covers the preparation and packing of specimens in the field (recovering ground familiarly like Dufresne and quoting him as fuller reference). Sarah's overall compression of some forty pages of the original into twenty pages completes the main overview part of her English Instructions. Her freest recomposition of the French *Instruction* is her reorganisation of its lists of species *desiderata* region by region. Instead of mirroring the original's separate lists – mammals and birds, then invertebrates and so on – the remainder of the second part of *Taxidermy* groups together requested *fauna* by regional destination of collection, not by separate classes of organism.

In her re-authoring here Sarah clearly envisages the collection priorities of the expert "voyageur naturaliste," not the Museum "aide naturaliste." But her greatest compositional reconfiguration of the original then becomes the more striking. The English text entirely omits the first chapter of the French *Instruction* as rationale for its whole: "ANTHROPOLOGY OR NATURAL HISTORY OF MAN" [ANTHROPOLOGIE OU HISTOIRE NATURELLE DE L'HOMME]. Anglophone scientific travellers therefore have no instructions for collecting the heads or other preserved bodyparts of humans from other climes. By concerted authorial interventions in both its halves, *Taxidermy* therefore overtly distinguishes non-human specimen collecting, preserving and mounting from the extensive human collection endeavours at the Paris Museum (and later Musée de l'Homme). Display among others of the "Hottentot Venus," whom (G.) Cuvier dissected, is perhaps its best-known specimen of notoriety.

Sarah Bowdich's dual-facing *Taxidermy* to both Museums and (scientific) Travellers is therefore quite unlike Brown's seemingly similar *Taxidermist's Manual*. In its scope and target readership, in its translation and re-composition procedures (and acknowledgements) and its first-person commentary it presents the most current international (French) natural science practices in knowledge gathering, preserving and mounting. Sarah's compact and composite retransmission of Dufresne's second revised edition of "Taxidermie," because integral to the Museum *cursus* of the 1818 *Instruction*, therefore makes *Taxidermy* a double first among Anglophone works targeting specialist scientific traveller *collectors*, as well as future "career naturalists" in menageries (modelled on the Paris collections). Additionally, it is a double first for a woman author, regarding the genres of both the modern scientific taxidermy manual, and instructions for *scientific* travellers, or their compilation. By offering vital information on the practicalities of how to undertake species collection now identified additionally by comparative geographical zone, *Taxidermy* extends information not always found separately in geographies, scientific treatises, travel guides, naturalists' companions (à la Lettsom), or in specialist instruction lists of desirable *exotica* unsupported by necessary directions (manuals) for their successful practical collection. An example of the latter is Chevalier Soulange-Bodin's *Instruction adressée aux Naturalistes-*

Voyageurs (1826) for the Jardin de Fromont. Moreover, because neither a "faithful" (cover-to-cover) translation, nor an illustrated natural history compendium, *Taxidermy* also sets itself apart in terms of its form within the corpus of the Bowdich's other translation-transmission publications (see: Appendix 1).

Taxidermy is therefore much more than a derivative copy, transcription, translation (in the narrow sense), adaptation or imitation – of the manual (à la Brown), the travel guide (à la Mollien) or Instructions (for "voyageurs naturalistes"). In consequence its primary hybridity poses fascinating questions for historians of science and experts in translation and comparative literary-cultural studies regarding its contributions to knowledge, generic (re)classification and precedence. Evaluation of *Taxidermy* as a major contribution to early nineteenth-century natural science thus ultimately hangs on the status accorded to its authoritative *insider* first-person perspectives and double expert audiences, which are everywhere comparative.

Taxidermy clearly magnifies the already composite genres of the modern scientific treatise, first by further blending them, and second by the use of informed authorial comments overtly flagged in the text. These expand and correct a key earlier authority, itself built upon established information with inter-lingual and intra-lingual provenance. An example of the latter is Dufresne's lengthy description of how to make enamel eyes for bird collection, concluding his "Taxidermie" (1816-19), as an acknowledged insertion, copied directly from Manesse (1787). The question behind *Taxidermy*, namely how (better) to collect and preserve, is thus determined by demonstrable additional *first-hand* expertise tested against (the best) known authorities. But furthering best international practice in "collecting, preparing and mounting objects of natural history" is only one of *Taxidermy*'s objectives. It also highlights how the best practitioner-experts in a field and its techniques do not work in isolation. *Taxidermy*'s constituent instructors and informants of its author – Dufresne for taxidermy, Cuvier (G. and F.) among other Professors expanding Museum knowledge of living, and fossil, specimen collections – each relied on *comparative* anatomy for better identification, classification and verification of forms, enhanced by the menagerie. *Taxidermy* importantly targets better *live* comparative collecting in the field, because this activity is now informed by how the specimen will later be investigated in laboratories of comparative anatomy (dissection) and conservation (taxidermy). *Taxidermy*'s focus on preparing *objects* of natural history is therefore equally about better preparing scientific *preparers* for work outside the Museum, because this is central to work inside it. Although no Professor, the "I" of *Taxidermy* can authoritatively instruct and enhance future overseas scientific collecting, thanks to having already experienced its many practical difficulties in hot climates (with T. Edward Bowdich in Ashanti), and through participant observation and instruction in the relevant Paris Museum departments.

The subject of *Taxidermy*'s vital copula – revealing it as authored, and not merely a translated work – primarily promotes an expert participant-observer view of the many competing echelons and cross-over positions of instructors and the instructed within and beyond the Paris Museum. From the standpoints of its double intertextual provenance, and re-editions, *Taxidermy*'s ideological, structural and formal/generic steer on behalf of scientific field collection can now be further clarified as potentially foundational. The two re-editions before the Bowdich's departure for Sierra Leone are little different from the first; the three thereafter are more significant in displaying the work of (anonymous) women in science. As a clearly-conceived, single-volume, practical scientific instruction work combining the best expertise of two subgenres *Taxidermy* from 1820 upholds particular agendas for understanding the *taxa* of "skins"

in scientific endeavour, and marks itself out in consequence from its generic lineages and counterparts. First is its overt exclusion of instructions for the collection and preparation of human subjects and body-parts, counterbalanced by its ethics of inclusion. All non-human forms are equally collectable and valuable for science, especially from least-known regions. Second, *Taxidermy* concentrates with first-hand insight on preparing key scientific preparers who will remain largely outside the aegis and payroll of national Museums but in their work are nevertheless vital partners overseas and "at home." Third, *Taxidermy* retranslates the 1818 French *Instruction* as model textbook manual designed to promulgate particular responsibility for colonial expansion in the training of future institutional "aides naturalistes" and "voyageurs naturalistes." The Bowdichs were invited to serve the French Government in 1820-21, but declined. Their beliefs, like Lettson's, were that scientific endeavour had no nationality or national interest, because for the more general good of mankind. Sarah's *Taxidermy* is, then, a best-practice scientific "conduct book" for particular use by informed protagonists in the advancement of science. If the conduct book more than other genres has been gendered female in its readerships and authors, my argument for labelling *Taxidermy* as a scientific conduct book responds directly to Ann B. Shteir's call for researchers to engage with "canonical and non-canonical forms" of women's writing of science (317). With hindsight, *Taxidermy*'s multiple agendas for the extension of science could not have been more imperative. Even as the Bowdichs left for Sierra Leone in 1822, the Paris Museum training programme for their paid cadre of "voyageurs naturalistes" had essentially folded. The greater success of *Taxidermy* – in effect a major reason to explain its immediate and frequent plagiarism in the Anglosphere – was its potentially better preparation of non-institutional experts for national, as well as international, natural history collecting, because it instructed new *collectors* by means of the standards set in 1818-19 by "Professors" at the Paris Museum.

In the next decades of the nineteenth century taxidermy moved more mainstream and front-of-house – into private settings and drawing-rooms, amateur collections, regional museums and businesses employing and run by women – leaving the work of expert dissection and exhibition to national Museum laboratories and increasingly professionalized experts. Valuing inside(r)s increasingly over outside(r)s translated by 1840 into formations and hierarchies of insiders and outsiders to serious scientific endeavour, primarily led by scientific institutions with imperialising missions, rather than by expert collectors overseas. By writing herself as model scientific collector, preparer and educator from outside into her expertly re-composed text in 1843, Sarah Bowdich ultimately demonstrates that scientific endeavour and *authorship* are multiple, combined, accumulative, partial and therefore open. Her call for greater inclusiveness – as opposed to segregation by primary and secondary orders of contribution and contributor (irrespective of gender) – can now be better grasped and heard behind *Taxidermy*'s strategically chosen opening line from 1821: "Natural history can only make a rapid progress when museums are *enlarged*" (2nd ed., emphasis added). As a foundational "scientific conduct book" for training and preparing expert outsiders into nineteenth-century science at home, and overseas, *Taxidermy* therefore encourages further twenty-first-century critical attention to the moral, inter-lingual and educative dimensions of scientific and travel writing, and scientific translation of this period for science, since it also prepared our own.

The original anonymity of *Taxidermy* – whether a deliberate strategy or not – unquestionably served "I" well, since the authority of *Taxidermy* in all its editions

(including of 1843) was, as demonstrated above, the chief reason for its reprints. For history and sociology of science, merely to add forgotten or anonymous (female) authors to rosters of women in science leaves largely unchallenged the prevailing, and often gendered, hierarchies of primary and secondary contributions/contributors to science fields in all periods. Sarah's "advertisement" neatly articulates the problem: "as if an anonymous author were a fairer object for piracy than one whose name stands on the title page" (Lee iv). Our application of the insights of comparative literary, travel and translation studies to analysis of the merits of *Taxidermy* within the history of its science not only challenges science "translation" as a derivative, secondary production, it also demonstrates the innately inter- and intra-lingual nature of expert science writing and its *transmissions*, if these are to enlarge their fields. That *Taxidermy* was written by a woman as "fairer object" is therefore of quintessential interest to how its transmissions of science – as multiple knowledge transfer, as co-authoring practice, as translation of objects as well as ideas – redefined *primary* players, functions and facilitations in science work outside binary, national or disciplinary oppositions. By the same token, travel and translation studies, including those foregrounding gender, can no longer ignore the *genres* of the sciences as largely minority interests (as recent overview studies such as Pym; Sapiro; and McLaughlin suggest). It is therefore not so much the translator's "invisibility" (see: Venuti) or her sex (see: Delisle; Delisle and Woodsworth) that are at stake in *Taxidermy*, but the subject of taxidermy itself as model for the arts and sciences of re-articulating living and dead knowledge.

A history of European taxidermy has yet to be written, as too a history of women in (national, European, international) taxidermy. The primary importance of *Taxidermy* (1820-43) for such ventures has been demonstrated above as covering very much more than the place of its author – as the first woman in English, and in other European languages to pen such a work. *Taxidermy* demonstrates that this subject is a vital international contact zone, including for women's scientific work, and outside the containments of Pratt's "quintessential domestic drama" (6). By mounting her own authorial "skin" by means of careful preparation of its earlier life forms – texts, objects, practices, instructors, other tongues – Sarah Bowdich in her evolving *Taxidermy* demonstrates that enrichment, reconfiguration and enlargement of science endeavour and authorship is without gender, class, race or exception. Her work (physical, textual, intellectual) now requires a much more prominent place in the galleries of history of science and literature showcasing scientific and cultural "préparateurs," because *Taxidermy* instructs us how better to comprehend multi-mediated re-transmissions of intercultural scientific knowledge and understanding.

Appendix 1: Works by "Thomas Edward Bowdich" produced during the Bowdichs' sojourn in Paris, 1819-22

1820:

Travels in the Interior of Africa to the Sources of the Senegal and Gambia; performed by Command of the French Government in the Year 1818 by G. Mollien.

London: Henry Colburn and Co.

Taxidermy: on the Art of Collecting, Preparing and Mounting Objects of Natural History. For the Use of Museums and Travellers. London: Longman, Hurst, Rees, Orme and Brown.

1821:

The British and French Expeditions to Teembo, with Remarks on Civilization in Africa. Paris: J. Smith.

An Essay on the Superstitions, Customs and Arts common to the Ancient Egyptians, Abyssinians and Ashantees. Paris: J. Smith.

An Analysis of the Natural Classifications of Mammalia. For the Use of Students and Travellers. Paris: J. Smith.

An Introduction to the Ornithology of Cuvier. For the Use of Students and Travellers. Paris: J. Smith.

Taxidermy: on the Art of Collecting, Preparing and Mounting Objects of Natural History. For the Use of Museums and Travellers. 2nd Revised Edition. London: Longman, Hurst, Rees, Orme and Brown.

1822:

Elements of Conchology, including the Fossil Genera and the Animals. Part I: Univalves with upwards of 500 Figures. Paris: J. Smith; London: Treuttel and Würtz.

Elements of Conchology, including the Fossil Genera and the Animals. Part II: Bivalves. Multivalves. Tubicolae. Paris: J. Smith; London: G. B. Sowerby and H. S. Tutchbury.

1823:

A Geognostical Essay on the Superposition of Rocks in both Hemispheres by Alexander von Humboldt. Translated from the original French. London: Longman, Hurst, Rees, Orme, Brown & Green.

History and Description of the Royal Museum of Natural History. Translated from the French of M. Deleuze. Paris: L.T. Celliot.

Taxidermy: on the Art of Collecting, Preparing and Mounting Objects of Natural History. For the Use of Museums and Travellers. 3rd Revised Edition. London: Longman, Hurst, Rees, Orme and Brown.

1824:

An Essay on the Geography of North-Western Africa. Paris: L.T. Cellot, 1824.

An Account of the Discoveries of the Portuguese in the Interior of Angola and Mozambique from Original Manuscripts. To which is added a note by the Author on a Geographical Error of Mungo Park in his last Journal into the Interior of Africa. London: John Booth.

Notes

1. For indicative further reading about these forgotten pioneer naturalists, see Langard (2007) on Nicolas; Péquignot (2006) on Mouton-Fontenille; Sweet (1970a) on Bullock and (1970b) on Dufresne, and Coleman (2006) on Lettsom. Manesse has received negligible attention, and is not the first writer of a taxidermy manual, as the unidentified author of the online "El Abad Manesse" claims.

2. The English translation of the French titles in this list is:

Manesse, l'Abbé. *Treaty on the manner of stuffing and conserving animals, skins and fur* (1787); Nicolas, P. F. *Method in preparing and conserving animals in all classes for cabinets of natural history* (1801); Mouton-Fontenille de la Clotte, Jacques-Marie-Philippe. *The Art of Stuffing birds (containing the new Principles of theory and Procedures for advantageous practices for the conservation of each Family, its forms and natural attitudes), being the supplement to the Elementary Treaty of ornithology* (1811); Dufresne, Louis. "Taxidermy." *New Dictionary of Natural History applied to the arts, to agriculture, to rural and domestic economy, and to medicine* (1816-19).

3. The English translation is *Instruction for travellers and employees in the colonies on how to collect, conserve and transport objects of natural history, edited by the administration of the Royal Museum of Natural History by invitation of the Ministry of the Marine and for the Colonies*. For a brief synopsis, and account of its many reprints, see Kury (85-87).

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- . *Taxidermy: or the Art of Collecting, Preparing and Mounting Objects of Natural History. For the Use of Museums and Travellers*. 3rd ed. London: Longman, et al., 1823.
- . *Taxidermy: or the Art of Collecting, Preparing and Mounting Objects of Natural History. For the Use of Museums and Travellers*. 5th ed. London: Longman, et al., 1835.
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“Only the Amblyrhynchus”: Maria Graham’s Scientific Editing of *Voyage of HMS Blonde* (1826/27)

Carl Thompson

Recent research has begun to reassess women’s role, in the eighteenth and nineteenth centuries, as translators of scientific texts (see: Martin). Less attention has been paid, however, to another ostensibly “background” task they sometimes performed in eighteenth- and nineteenth-century science, that of editor. Like translation, editorial work has traditionally been seen as a minor, somewhat inconsequential aspect of the production of scientific knowledge. It was of course precisely this subordinate status which legitimised women’s work in these roles, providing a culturally acceptable route to a public, and possibly professional, participation in science and print culture in an era when both spheres were strongly marked as masculine domains. Yet, as scholars are increasingly recognising, this dismissive attitude does not always accurately reflect the scientific acumen of the women who undertook these tasks, and the agency they were frequently able (or required) to exercise. Translators like Émilie du Châtelet and Mary Somerville – whose renderings of Newton and Laplace incorporated extensive elucidation of the difficult subject matter – are arguably not only facilitators of wider intellectual debate but also participants in that debate, helping to produce as well as mediate knowledge. One can make a similar case for the agency involved in the skilful editing of scientific papers. However, women’s activities in this regard remain under-researched, with the result that we have only a hazy idea of how many undertook such work across the period.

To shed more light on women’s editing of scientific material, I focus here on the travel writer Maria Graham, who in 1826 was commissioned by the publisher John Murray to produce an account of a recent naval expedition to Hawaii, based on journals kept by various participants in the voyage. It should be stressed that the 1824-25 voyage of *HMS Blonde* – captained by Lord Byron, cousin of the recently deceased poet – was not an exploratory mission. Since their “discovery” by James Cook in 1778, the Sandwich Islands, as the Hawaiian archipelago was then known, had been visited by several European and US ships; the *Blonde*’s mission was primarily a diplomatic one, that of carrying home the bodies of King Kamehameha II and Queen Kamamalu after both had died during a visit to England. Murray was not therefore commissioning an exploration narrative, in which scientific observations were the principal focus. Yet, like most naval voyages in this period, the *Blonde* carried a small scientific team comprising a naturalist, botanist and surveyor; part of Graham’s remit as editor was to collate and disseminate some of the new data generated by these scientifically trained travellers. This article will consider how Graham negotiated the scientific dimensions of her commission, to produce a text incorporating a wide range of natural-historical observations in its main narrative, along with two more specialist appendices summarizing key findings from Hawaii.

The scientific aspects of the published *Voyage of HMS Blonde to the Sandwich Islands* (dated 1826 on its title page, but in fact published in 1827, see: Olson, “Contribution”) eventually embroiled the volume, and Graham herself, in considerable controversy. Although there were few complaints about the volume’s science at the time of publication, in the late nineteenth century the eminent Cambridge ornithologist

Alfred Newton alleged that the findings of the *Blonde*'s naturalist, Andrew Bloxam, were presented in a clumsy and confusing fashion, and it is still generally assumed in zoological circles that Bloxam was badly served by the editor of the *Blonde* narrative. This allegation usually goes hand-in-hand with the assumption that Graham as a woman had no scientific expertise herself and so was ill-equipped to handle the scientific material in her sources. However, this was emphatically not the case. Graham had a keen interest and at least a basic competence in several branches of science, and she was well-connected in the contemporary science community. These contacts were utilized during the compilation of the published volume, making the episode interesting today for the light it sheds on the networks and geographies of metropolitan science in 1820s Britain, and also the difficulties women might face accessing key sites and institutions. Yet, if the published narrative's science was undoubtedly underpinned by such consultation, Graham was not merely a cipher in this process, or a conduit passively relaying the comments of experts. This is the assumption made by some recent commentators on the *Blonde*'s voyage, notably Storrs Olson in a series of otherwise exemplary articles on the expedition's natural history. But, as this article will show, Graham should be credited with a far more active role. Organising interviews with experts so as to corroborate and extend the scientific observations contained in her source materials, Graham arguably had to generate much of the scientific content of the published volume; certainly it fell to her to integrate multiple sources and commentaries into a final published text. This, in turn, makes Graham culpable for some of the problems undoubtedly attendant on the volume's science. Yet, later complaints on this score have generally been made without knowledge of the source materials at Graham's disposal, and predicated on anachronistic assumptions about the generic and scientific norms Graham was working to. Another interesting aspect of the episode, accordingly, is the insight it offers into the construction and organisation of travel accounts in the early nineteenth century, a period when many travelogues still sought to combine literary and scientific agendas.

Murray, Graham and the *Blonde* Commission

As well as conveying home the dead and surviving members of the Hawaiian entourage, HMS *Blonde*'s diplomatic mission was to strengthen British ties with the Sandwich Islands, at a time when both Russia and the USA were seeking to extend their influence in the region. Kamehameha had travelled to London to negotiate the establishment of a British Protectorate over Hawaii; returning Kamehameha's body, Captain Byron met with a council of chiefs and conferred this status on the islands. As official publisher to the Admiralty, John Murray's intention in producing an account of the expedition was presumably to publicise this new relationship and project a benevolent image of Britain's role on the international stage. No doubt he was also mindful of the immense popularity of the “voyages and travels” genre in this period, as well as the commercial potential of anything associated with the Byron family – the poet Byron, of course, having been one of Murray's star authors.

Murray's original plan was for Richard Bloxam, the *Blonde*'s chaplain (and Andrew Bloxam's brother), to produce a narrative based principally on his journal. However, Bloxam soon abandoned the project, departing instead for a post overseas. Murray therefore turned to his friend Maria Graham, offering her £100 to produce a publishable text.¹ Aged 41 in 1826, Graham was a well-established presence on the London literary and intellectual scene. Nominated by the *Monthly Magazine* in 1821 as one of twenty-four contemporary “women of genius,” Graham had authored a range of

publications, but she was best known at this date for four travelogues describing visits to India, Italy, Brazil and Chile. Graham's last two travelogues were co-published by Murray, who also frequently used Graham as an expert reviewer of “voyages and travels” manuscripts. At the time she was preparing the *Blonde* account, for example, Graham was assessing Dixon Denham's *Narrative of Travels and Discoveries in Northern and Central Africa* (subsequently published in 1826). If it was no doubt this general expertise in travel writing that led Murray to use Graham for the *Blonde* account, he probably also felt that the narrative would appeal to her because of its subject matter. All Graham's travelogues have a strong ethnographic and historiographic aspect, reflecting the Scottish Enlightenment ideas Graham had absorbed during a formative period spent in Edinburgh in the early 1800s. In her Chile and Brazil books, Graham depicted two nations at a key transitional juncture, as they threw off their colonial status to become independent countries. The Sandwich Islands represented another society undergoing rapid political, economic and cultural transition. This was a development of which Graham broadly approved, and she clearly envisages in the published narrative a rosy future in which Hawaii would advance into modernity under the benign tutelage of Great Britain. At the same time, however, the *Blonde* volume paints a largely sympathetic and respectful portrait of both past and present Hawaiian culture, in contrast to many contemporary missionary accounts, where the local population was often portrayed as inclined to sensuality and violence (see: *An Examination*).

In selecting Graham as editor of the *Blonde* narrative, Murray must have felt she was equipped to handle the natural historical information brought back by the *Blonde*. In voyage narratives of this type, recounting major, state-sponsored expeditions, the inclusion of scientific observations was, of course, partly a matter of disseminating and advancing knowledge. Yet this science also served a rhetorical, even propagandist purpose by seemingly demonstrating an enlightened, benevolent attitude towards the wider world. It is therefore unlikely that Murray would have entrusted the narrative to someone who might mishandle this aspect of the voyage. But as he well knew, science was another strong interest of Graham's. In Edinburgh she had mixed with figures like the geologist John Playfair and the chemist John Leslie; in the 1820s, she was closely associated with Mary Somerville and Jane Marcet, two women at the heart of London's scientific community who were themselves accomplished writers on science (Gotch 78-80, 166; and, on Somerville and Marcet, Secord). For her own part, Graham's scientific interests found expression in a variety of activities. She was, for example, a keen collector of minerals and insects throughout her travels. The accumulation of such collections was in this period an important part of serious scientific endeavour, and the entomological material Graham gathered was significant enough, and suitably preserved, to be added after her death to the British Museum's collection.² Graham's mineralogical pursuits, meanwhile, were part of a wider interest in geology which dates from her Edinburgh friendship with Playfair and which saw Graham become in 1824 the first woman to publish a report in the leading British journal in the field, the *Transactions of the Geological Society* (Graham, “An Account”).

Botany was another lifelong interest of Graham's, and from at least the time of her first Latin American travels in 1821-23 she was a conscientious collector of plants and seeds, passing samples on to both commercial nurseries and her brother-in-law Robert Graham, Professor of Botany at Edinburgh University. During a further visit to Brazil in 1824, she sent plant specimens and drawings to William Hooker, then Professor of Botany at Glasgow and subsequently Director of Kew Gardens; this

material is still archived at Kew, and Hooker acknowledged her abilities as a plant collector on several occasions in print, as well as naming two species after her (see: Hagglund; and, for the ongoing scientific significance of Graham’s samples, Lammers). She also collected zoological specimens in Brazil; one visitor to her cottage outside Rio de Janeiro recorded seeing an extensive collection of “the skins of snakes and of other species of reptile” (Geyer 14, my translation), and it was presumably during this trip that Graham acquired the Brazilian toucan she subsequently donated to the British Museum (G.R. Gray 5).

Beyond these two last details, there is no other evidence of Graham collecting reptile or bird specimens, and it is therefore difficult to gauge her expertise in herpetology or ornithology. But with regard to Graham’s botanical, geological and entomological pursuits, there is ample evidence to indicate not only a lifelong enthusiasm but also a high level of intellectual engagement and scientific competence in these fields. In print, Graham is often self-deprecating about her scientific abilities. Yet such disclaimers were well-nigh a rhetorical convention in this period for women writing on scientific matters; with Graham, as with many other women at this date, they should not always be accepted at face value. As I have argued elsewhere (“Earthquakes and Petticoats”), Graham’s 1824 earthquake report was informed by a good grasp of recent theoretical debates in geology. The association with Hooker similarly testifies to Graham’s botanical literacy, as does another important friendship established in the mid-1820s, that of Robert Brown. One of the leading botanists of the day, Brown had inherited Sir Joseph Banks’s library and herbarium on the latter’s death. This archive might be visited by anyone pursuing botanical enquiries and Graham was one such visitor. A journal entry from 1825, for example, records Graham spending “all the day at Brown’s drawing,” learning “methods of distinguishing male & female plants of the *Rafflesia* i.e. different fluting of the great centre receptacle: larger fluting male,” and discussing with “Dr Wollaston” – the chemist William Wollaston – the presence of “salts not vegetable fibre in the vine stalk on which the *Rafflesia* grows.”³ The same entry records a discussion of “Brown’s proposal for 3 names” which Graham “think[s] good & wd save the troublesome divisions of genera.” This suggests that Graham was familiar with Brown’s advocacy of the so-called “natural system” of classification devised by French botanist Antoine Laurent de Jussieu, in preference to the more rigid Linnaean system (Kelley 36-37). Although she did not use the natural system herself, this demonstrates Graham’s exposure to current theoretical debates in contemporary botany. Significantly, Brown remained a lifelong friend; even after Graham became housebound in the 1830s they continued to discuss botanical matters and exchange plant and fossil specimens. Graham, then, may not have been a great scientific authority or innovator, but several leading figures evidently credited her with at least a basic scientific competence and valued her as a co-worker, however humble, in their fields. Graham in turn was able to draw on the expertise and resources available to her through these contacts when preparing the *Blonde* volume – although she also had to negotiate the reluctance of some key institutions to help her.

Researching the *Blonde*’s Science

Graham took on the role of editor in late April or early May 1826. Her primary source was a manuscript account partially worked up by Richard Bloxam from both his own and his brother’s journals. Judging by the portion which survives, this was a chaotically organized document, with erratic page numbering, journal entries out of sequence, and many observations presented as what Bloxam terms “casual remarks” (n.p.) not yet

integrated into the main narrative.⁴ Graham also had access to the journal and drawings of the ship’s artist Robert Dampier, and to the field notes and possibly the journal of the naturalist Andrew Bloxam. Whether Graham was given these extra materials from the outset of the project, or whether they were supplied later at her request, is unclear. But Graham was evidently dissatisfied with Richard Bloxam’s text. Feeling she needed more information, she wrote to Murray in May, “Make Bloxham [*sic*] call on me – Make him go to Mr Byrons – in short urge them to collect all the materials in one point”; in June she was still requesting, “Pray let me have all & everything of the Sandwiches – for till all is collected I do but work in the dark.”⁵ Neither Richard nor Andrew Bloxam ever visited her, but Graham was able to organise interviews with several of the *Blonde*’s junior officers, as well as soliciting further information from Lord Byron and the *Blonde*’s surveyor Charles Malden. Two important documents, however, were never made available; the journal and field notes of the expedition’s botanist James Macrae were deposited with the Horticultural Society, which was evidently not disposed to help the project.

Although not engaged in an exploratory mission, the *Blonde* had visited the Galapagos Islands and Mauke in the Cook Islands and it had discovered and named Malden, now one of the Line Islands. In Hawaii, some general researches were made by Andrew Bloxam and Macrae, the latter undertook an ascent of the extinct volcano Mauna Kea, and both men participated in expeditions to the still active Kiluaea (known to the British as Mount Peli). All these scientific enquiries receive some coverage in Graham’s two principal sources, the journals of Richard Bloxam and Robert Dampier, with the former’s written-up text at these junctures often incorporating some of the more specialised observations found in his brother Andrew’s journal (a source which, as noted earlier, Graham may also have been able to access directly). Additional sources of scientific information were Andrew Bloxam’s field notes, of which Graham received one of several written-up versions, and also the various specimens and samples brought back by Bloxam, comprising a barrel of geological and mineralogical materials, and two cases containing insects, shells, “marine subjects” and “one hundred specimens of birds, a great number from Chili [*sic*], the rest from the Sandwich and other islands in the Pacific” (A. Bloxam 92-93). Macrae had similarly brought back a substantial collection of botanical specimens, but like his journal and field notes, these were deposited with the Horticultural Society and not made available to Graham.

With both written observations and physical specimens, Graham’s initial task was to identify and/or corroborate the data brought back by the *Blonde*. This required the cross-referencing of both observations and specimens with existing scholarship on the botany, zoology, geology and geography of the regions visited. Here many of the personal networks discussed above came into play, with Graham evidently going to some lengths to solicit the information she needed. The preface to the published volume, for example, thanks the “kindness and liberality of Mr Brown” for allowing access to “the books, printed and manuscript, in Sir Joseph Banks’s library” (vi). From later footnotes in the volume it seems the botanical sources consulted by Graham included Georg Forster’s *De Plantis Esculentis Insulorum Australis* (1786) and Daniel Solander’s account of the flora of the Pacific – the latter an unpublished, manuscript document only available at Brown’s.

With regard to geological and mineralogical observations, Graham could similarly draw on longstanding contacts in the contemporary scientific community. From surviving correspondence, we know that in mid-May, early in the editing process, Graham arranged for Dampier’s drawings “to be considered [...] by at least one man

of science whose opinions would be of use to a publication.”⁶ The identity of this advisor is not known, but his discussions with Graham probably centred on the depiction of the main crater of Kiluaea, this being the most scientifically interesting of Dampier’s images. Dissatisfied with Dampier’s prospect-view of the crater, Graham organised the drawing up of a plan, and insisted to Murray that this should be included as a more informative visual tool, a decision later applauded by one reviewer.⁷ Understanding the phenomena observed on Kiluaea also required reading in recent scholarly literature on volcanoes. Richard Bloxam recorded seeing “thin perfectly transparent volcanic glass – it is called the hair of the God – it is in threads” (n.p.); Andrew Bloxam’s journal describes the same material as resembling “thin transparent hairs like fine spun glass” (66). The published text seemingly merges these observations to produce “On many parts of the surface were scattered what the natives call Peli’s hair, and indeed it resembles hair or spun glass” (182). This is accompanied by a further explanatory gloss – “[it] is probably only the melted volcanic glass blown off by the wind while in a state of fusion” – and a footnote commenting that “a similar production is found on the volcano of Isle of Bourbon [modern-day Réunion in the Comoros].” The latter information was probably gleaned from Charles Daubeny’s newly published *Description of Active and Extinct Volcanoes* (1826), since Graham’s explanation of the cause of this phenomena echoes in its phrasing Daubeny’s discussion of similar volcanic activity on Réunion (Daubeny 273-74).

As well as explicating in this way the observations contained in her written sources, Graham also seems to have made her own inspection and assessment of some of the physical materials brought back by the *Blonde*. For example, the published *Blonde* narrative includes an account of Macrae’s expedition up the extinct Mauna Kea, in which neither Richard nor Andrew Bloxam participated although both report the ascent at second-hand. Graham’s rendering provides information not given in either Bloxam account; from the point-of-view frequently adopted in the narrative, she probably received this information from Lieutenant Talbot, one of the *Blonde*’s junior officers, who accompanied Macrae. The volume further specifies that “a few specimens [of lava] were brought away, and these present nothing essentially different from the porous lavas of Vesuvius; but their colour is generally blacker, though, in many instances, that of Mouna Keah [*sic*] is of a deep red” (173). None of Graham’s manuscript sources mention these specimens or make the comparison with the “porous lavas of Vesuvius”; the passage therefore probably alludes to samples brought back by Talbot which Graham then evaluated, either in discussion with her geological contacts or else by comparing them with her own mineralogical collection. (Graham, it should be noted, had visited Vesuvius in 1818).

Talbot is therefore also the likely source of a significant zoological specimen passed on to Graham. Before discussing this specimen, however, it should be noted that while Graham was never given access to the botanical specimens brought back by Macrae, she did endeavour to see for herself the various materials collected by Andrew Bloxam. A surviving letter to Charles Konig of the British Museum, sent a month into the editorial process on 9 June 1826, shows Graham requesting permission to see Bloxam’s specimens, which were now deposited at the British Museum (BM). According to the letter, John Children, Keeper of the BM’s Zoological Department, had previously called on Graham and taken from her Bloxam’s notes, promising in return that she could inspect the specimens. But, as Graham complains, when she duly visited the Museum on the appointed day “Mr Children had engaged himself elsewhere & left me with Mr Grey [i.e. John Edward Gray, Assistant Keeper] who showed me only the

Amblyrhynchus [marine iguana] & a few shells, telling me that the rest were locked up by Mr Children & I could not see them."⁸ Graham therefore requests that she might visit the Museum again to see the rest of the material.

The letter thus shows Graham actively seeking to inspect Bloxam's specimens, and indicates the effort required to achieve this. It further reveals that she managed to see many of the birds by visiting the establishment of John Leadbeater, a leading taxidermist of the day; evidently they were being mounted for display. However, Graham complains she has not seen the insects or minerals and so cannot tell "if these latter are different from what I have in my own little collection or that of the Missionary Society" – thereby giving evidence of her own entomological and mineralogical collecting, and her use of the Missionary Society's collections. The letter also shows Graham supplying zoological specimens to the BM, since she informs König that "I sent to you by Mr Grey all the rest of the Wax insect - & I left with him for the Museum eight species of snake & two birds & afterwards sent another which you had not." This cannot refer to material gathered during the *Blonde* voyage; rather, the snakes must be those seen in Graham's cottage during her 1824-25 Brazil trip. This is also presumably how the Museum acquired the Brazilian toucan donated by Graham, along with two South American species of wax insect later described by John Gray in his volume *Specilegia Zoologica* (1828), where he acknowledges that they were "found by Mrs Graham" (7). However, one item in Graham's possession definitely derived from the *Blonde*. Graham informs Children that she had "carried" to Leadbeater's "a different species of Amblyrhynchus to compare it with that of the Museum"; from a footnote in the published *Blonde* narrative it seems she acquired this iguana specimen from "one of the lieutenants" (94) – possibly Fourth Lieutenant Talbot.

As she entreats König for access to Bloxam's specimens, Graham's letter exhibits some interesting shifts in tone. Initially, Graham cuts a humble, self-deprecating figure, declaring: "I do not pretend to any knowledge on these subjects & therefore I cannot interfere with anything any of the gentlemen of the Museum may wish to publish." This disclaimer as to ignorance on natural-historical matters is belied later in the letter by the evidence of Graham's own collection of entomological, mineralogical and zoological materials; however, the promise not to pre-empt publications by Museum staff may have some bearing on how information was subsequently presented in the published narrative. After this initial self-deprecation, however, Graham immediately tells König that "it would be disgraceful if the *Blonde*'s voyage would appear & any thing wrong or ignorant should be in it merely because the editor could not see what had been brought." And she concludes:

Pray forgive this trouble. It proceeds from anxiety to have the very little it can be necessary for me to say on the subject of natural history correct. & when the French & even the Russians make such a parade of their science I should not like to see an English voyage reproachable with unnecessary ignorance.

Here the Museum staff are firmly reminded that national pride is at stake in the publication, with Graham's comments conveying the larger geo-political context to the scientific observations contained in the published account, and their rhetorical value in this context.

It is unclear whether the BM eventually granted Graham access to the rest of Bloxam's specimens. The preface to the published volume thanks the staff "for some

facts” relevant to the volume’s “notices concerning natural history,” and suggests that Graham was allowed “to inspect the specimens of natural history deposited in the Museum” (v). Yet it is impossible to ascertain, from either internal or contextual evidence, whether this alludes to anything more than the conversation with John Gray mentioned in the letter to König. Of course, even a single meeting would probably have been immensely useful for Graham. For example, in the published account’s description of the marine iguanas of the Galapagos Islands, a footnote identifies the species as “Amblyrhynchus cristatus” and adds:

described by Bell from a specimen brought to Europe by Mr Bullock among his Mexican curiosities. Mr B. did not state the spot where it was found: probably on the Pacific shore. (92)

As with the explication of the phenomenon of “Peli’s hair,” in this note we again see Graham implicitly referencing a very recent scientific text, Thomas Bell’s 1825 *Zoological Journal* article “On a New Genus of Iguanidae,” in which the name *Amblyrhynchus cristatus* was first proposed for the marine iguana. Given the general scientific competence sketched above, it is quite feasible Graham found this article herself; however, if she did not already know of it, Gray would surely have mentioned it during their meeting. How far Gray’s assistance extended beyond such general discussions, however, is debatable. Storrs Olson, assuming that Graham had no scientific expertise of her own, suggests that all the natural historical information in the published *Blonde* narrative derives directly from Gray. But this is almost certainly overstating matters. There is no reference in the correspondence with Murray of anyone else being involved in the composition process in this way (although Graham does indicate that she is being sent material for some of the appendices). The comments on natural history in the main body of the narrative are so woven into the text that it is unlikely Gray, or anyone else, supplied them verbatim for insertion; they must at the least reflect Graham’s writing up of discussions with Gray and other experts. Possibly Gray supplied some footnotes; he may also have produced the appendix which gives a more specialized summary of Andrew Bloxam’s findings. But it is equally feasible – and in the case of the footnotes, probably more likely – that Graham produced much of this material herself. Yet, even if Gray did provide more substantial assistance to the project, we should recognise the efforts made by Graham to bring this about: cajoling the BM for information, seeking to inspect the *Blonde* specimens herself, supplying the BM with new material, and not least, transporting around London a sizeable stuffed iguana, which according to the published footnote measured almost three and a half feet in length.

Editing/Authoring the Published Text

Having collated the scientific material outlined above, Graham had to decide what information to include in the published volume, and how to present it. Here she would have been mindful of the multiple agendas required of contemporary travel writing. The genre was expected in this period to serve practical and intellectual functions even as it interested and entertained more casual readers (see: Jarvis). A publication like the *Blonde* narrative would ideally assist future navigators, merchants, speculators and policy-makers in their dealings with the Sandwich Islands, whilst also providing scholars, scientists and theorists with useful observations across a range of disciplines. Yet, because of this mixed audience, its language and discourse had to remain readable

and engaging, pitched more at the general reader driven by curiosity than at specialists in the scholarly fields it touched upon. The convention had therefore emerged, even in narratives recounting voyages and expeditions of full-blown exploration, of relegating more detailed and specialized observations to appendices at the end (Thompson, *Travel Writing* 72-86). Simultaneously, it was not expected that all the data gathered by a traveller or expedition would appear in the published narrative of the journey. More extensive and detailed field notes – for example, the full set of coordinates, compass bearings and measurements generated by surveyors for cartographical purposes – were often circulated in manuscript to other specialists and key institutions, sometimes giving rise to subsequent journal articles and similar publications. Editing/authoring the *Blonde* narrative, then, required of Graham a complex juggling act, as she balanced the need to supply useful and intellectually significant information with the need to remain accessible and interesting to all readers.

With regard to her main source, Richard Bloxam’s partially worked-up manuscript, Graham evidently felt required to reduce the chaplain’s prolix style. Bloxam is fond of ponderous circumlocutions and classical allusions; birds become “the various feathered race,” falling asleep is sinking “into the silent arms of Morpheus” (n.p.). There is much detail about fairly inconsequential personal experiences, whilst landscape descriptions frequently become vague rhapsodies on the picturesque. Graham accordingly often condenses Bloxam, producing an account that is simultaneously more economical and more focused on providing information. Compare, for example, the following passages describing the *Blonde*’s arrival at Maui. Bloxam writes:

At daylight we could distantly perceive the lofty summits of Mauna Kea (Mouna Keah) topping the clouds and its heights entirely covered with snow, this majestic mountain is said to rise 16,000 feet above the level of the sea. We were also in sight of the Island of Maui and stood round it with a fresh breeze from the Eastward. To arrive at the anchorage of Lahaina it is necessary to keep to Windward of the island and thereby you are almost obliged to circumnavigate it. Throughout this day we coasted along it at the distance of 8 or 9 miles. The land is very high and appears framed by two mountains which are connected by a neck of land which gives it the appearance of two distinct islands. The Eastern peninsula is well wooded and enlivened by numerous huts. We also remarked several beautiful cascades descending precipitately in foaming torrents from the lofty rocks directly into the sea. These as we advanced produced a very novel effect and together with the high rocky and picturesque scenery and the broad valleys and deep ravines formed all together a beautiful landscape, in which the grand and [space left here for word to be added] were happily blended together. In the afternoon, having gone round three fourths of the island, when we were nearing the village of Lahaina and had rounded the last point, we were suddenly becalmed under the high land, and diminished our rate of sailing from 11 and 12 knots to two! – We are now (VI^ocl. pm): close in shore and Lahaina appears far more beautiful than any place we have hitherto seen on these islands – The whole district which stretches nearly three miles along the sea side appears covered with luxuriant groves not only of the cocoa nut and Bread tree [~~the only ones we have hitherto~~] but of the Kou (cordia Sebastiana) one of the most beautiful of ornamental trees. The Banana, Paper

Mulberry and Sugar Cane seem most abundant and extend almost to the beach against which a fine surf is constantly rolling. (n.p.)

This becomes in the published volume:

At daylight this morning, while the snowy peak of Maouna [*sic*] Keah was still visible, we discovered the double-hilled Maui, and coasted along it almost all day, that we might reach the harbour of Lahaina, which is the most populous and fertile district of the Island. The eastern part appears very beautiful; the slopes are well wooded, and there are broad valleys, and deep ravines, and lofty rocks, from which several streams fall in broken cascades directly into the sea, and the whole is enlivened by numerous huts and plantations. About six P.M. we anchored close to the shore in Lahaina bay, lat. 21° N. Long. 156° 5' W. It was very beautiful: groups of trees grow down close to the sea, and many of them, by the novelty and beauty of their foliage, delighted us: there was the bread fruit* mingled with the cocoa nut†; the elegant and useful kou‡; the banana§; the wauti ¶, of which native cloth is made; the ohia** and the sugar cane; all in gay and rich confusion, approaching very closely to the white surf which breaks constantly on the beach. (103-04)

Here Graham has halved the word count whilst retaining most of the essential information and adding further details from other informants. “Mouna” (the contemporary English variant of modern-day “Mauna”) is misspelt, but this is probably a typesetter’s error, since the right spelling is used elsewhere. More significantly in the present context, Graham uses the *Blonde*’s arrival at Maui to introduce more of the island’s key plant species than Bloxam mentions, supplementing her main text with footnotes which give their Latin names and in two cases some further information:

**Artocarpus*. †*Cocos nucifera*. ‡*Cordia Orientalis*. §*Musa Paradisaica*, several varieties; among the rest one very small, which the natives dry (there is one similar in Guzerat). ¶ *Brousonettia papyrifera*. ** *Ohia*, *Eugenia Malaccensis*, or jumbo of the East Indies.

These notes are probably not aimed at more advanced scientific readers, who would no doubt have been familiar with common Hawaiian plant species. As discussed, however, travel writing attracted a broad audience, encompassing readers with a casual interest in science, others with an ethnographic or philosophical interest in the resources available to the Hawaiians, and others again with an eye on commercial possibilities associated with those resources. Graham’s notes are pitched at these readers, yet are nevertheless informed by her own modest scientific researches, most notably in the identification of the “kou” plant. Here Bloxam’s adoption of Georg Forster’s 1786 nomenclature (“*cordia sebastiana*”) is adjusted by Graham to “*cordia orientalis*,” reflecting Robert Brown’s renaming of the species in his *Prodromus Florae Novae Hollandiae et Insulae Van Dieman* (1810).

The volume’s second main source, Robert Dampier’s journal, received similar treatment from Graham. Dampier is frequently as longwinded and meandering as Bloxam, being prone to laboured witticisms and extended classical allusions. Graham often takes the gist of these imaginative sallies but greatly condenses them. Describing the marine iguanas of the Galapagos, for example, Dampier writes: “These, of all the

animals I ever saw, strike me as the most disgusting: indeed, if ever Satan felt inclined to become a tenant of some hideous and appropriate form upon earth, I certainly would recommend one of these devilish looking Monsters to his consideration” (22). This becomes in the published narrative the observation that the “sea-guanas” are “the ugliest living creature we ever beheld. They are like the alligator, but with a more hideous head, and of a dirty sooty black colour, and sat on the black lava rocks like so many imps of darkness” (92). Here, Graham enlivens her text with Dampier’s diabolical allusion, creating in “imps of darkness” a phrase that Charles Darwin would later recall when he visited the Galapagos (Keynes 605). Yet she increases the informational content of the description, and at this juncture also inserts the footnote discussed earlier, referencing Bell’s 1825 article and identifying the species as *Amblyrhynchus cristatus*.⁹

In these passages, it is easy to assess the nature and logic of Graham’s adjustment of her sources. At other junctures, Graham follows one or other of her principal sources closely, with much less editing than in the examples above; in other passages again, she makes a more complex synthesis of the multiple sources available to her, to the extent that Graham is often better regarded as a ghost-writer rather than merely an editor. In these synoptic passages, it is sometimes impossible to determine where Graham acquired her information, since we are now lacking not only the various verbal reports she solicited but also significant portions of her manuscript sources. Consequently, it is difficult to understand why Graham made some of her editorial/authorial interventions, and to assess the accuracy of the composite text she ultimately produced. However, a few editorial agendas can be perceived. Graham certainly foregrounds more emphatically than any of her manuscript sources the supposedly baleful influence exercised in Hawaii by American missionaries – a focus that later caused controversy. Elsewhere she seems to make a point of emphasizing female agency and heroism; in comparison with her sources, for example, Graham’s account of the Kiluaea ascent allots more space to, and speaks more honorifically of, the feat performed by the Hawaiian queen Kapiolani, a Christian convert who ventured into the volcano’s crater to disprove the existence of the old pagan gods.

Beyond this, however, it is not easy to reach an overall verdict on Graham’s handling of her various source materials; a point worth stressing because the implicit allegation in some later attacks on the published volume is that Graham as editor significantly distorted the journals she was initially provided with, and so greatly diminished their value. But this is not a fair judgement on Graham’s account as a whole. The juggling of multiple informants and the rather rushed nature of the project certainly produced some slips and errors; the dating of activities in the Galapagos islands, for example, seems to be out by a day from the dating used in Dampier and Andrew Bloxam’s diaries. Yet Graham’s two main sources – Richard Bloxam’s worked-up account and Dampier’s journal – were both, by the generic standards of the day, problematic documents in need of significant revision before they were publishable. Arguably, moreover, many of the synoptic, composite sections are very effective; Graham’s rendering of the Kiluaea expedition, for example, incorporates much more ethnographic and scientific information than any of the extant source documents, yet remains coherent and highly readable. Yet, whatever judgement one passes on Graham’s final text, it is clear that her principal aim with regard to both Richard Bloxam and Dampier’s accounts was to strip out their more “literary” aspects, and their sentimental and picturesque effusions, to produce a more intellectually substantive text – an agenda that perhaps runs counter to how we might expect a female editor to handle a travelogue in this period. To this end, moreover, Graham also prefaced the narrative

of the *Blonde*'s voyage with a substantial 75-page account of Hawaiian history from first contact down to the present day. She had offered similar historical overviews prior to the travel narratives in her Brazil and Chile books; in all three cases these initial “framing” sections are wholly Graham's own work, although based on extensive reading of prior travel accounts and current historiography relating to each region.

With regard to the volume's scientific observations, Graham sought not only to foreground more emphatically but also to extend in various ways the information contained in her sources. As discussed already, Graham used a range of often very up-to-date publications to confirm and explicate the phenomena recorded by the *Blonde*: Daubeny's 1826 book on volcanoes, Bell's 1825 article on the marine iguana. The published text consequently incorporates an element of comparative commentary for the most part lacking in the source material. Thus the link is made between “Peli's hair” on Kiluaea and the same phenomenon in the Comorros Islands, while elsewhere the discussion of the ascent of Kiluaea is supplemented by observations about one of the Hawaiian volcanoes not visited during the *Blonde* voyage – information gleaned, it is acknowledged, from Vancouver's *Voyage of Discovery to the North Pacific* (1798) and the missionary William Ellis' *Narrative of an 1823 Tour through Hawai'i* (1826). If these comparisons derive from Graham's scientific reading (or from discussions with scientific experts), others seem drawn from her own experience and extensive travels. Thus the lava samples from Mauna Keah are compared with those on Vesuvius, whilst the footnotes reproduced above link the Hawaiian species of banana to that found in Gujerat, and note that the “Ohia” plant is the “jumbo of the East Indies.”

It is difficult now to gauge how far these comparisons constituted a meaningful contribution to contemporary scientific debates in geology, botany and other fields; in focusing on “Peli's hair,” for example, one suspects Graham is being drawn merely to the more “curious” and intriguing phenomena recorded by the *Blonde*. Yet, contemporary travel writing was of course meant to engage its audience with such curiosities, even as it posted notice of more significant scientific findings; moreover, many of Graham's comparisons – for example, knowing that Hawaiian Ohia was the “jumbo” plant found in Asia – probably had a practical usefulness for some readers. But whatever precise purpose they served, and to whatever extent they drew upon discussions with more expert specialists, these numerous points of comparison and connection show Graham actively coordinating and synthesizing diverse sources so as to increase the informational content of the published volume.

There is, moreover, at least one occasion where Graham seems to make her own small but not insignificant contribution to contemporary scientific knowledge and debate. As discussed earlier, the published volume's main narrative follows the generic norms of contemporary travel writing by incorporating only a modicum of scientific information and deploying specialist technical terms sparingly; a more detailed summary of Andrew Bloxam's findings in Hawaii is then presented in an appendix. However, an exception is made to this generic decorum when discussing the iguana specimen brought back by Talbot. Described in the main text as the “brown sea-guana” of Albemarle Island, a footnote contrasts this specimen with Bell's *Amblyrhynchus cristatus*, the black marine iguana of Narborough Island. Here we read that “at first the editor supposed [the brown iguana] might be the female of the black one, but on comparison the two animals appear so different as to induce the belief that they are different species” (92). The note then gives detailed measurements for the specimen and identifies its distinguishing features, which included a crest of “thick round spines, of not near the height of those on the black one, and only extending to the back of the

blade bones” (in contrast to the black marine iguana’s crest of “sharp flat scales, issuing like those of the alligator, and continuing quite to the end of the tail”); and on the head and face “thick, pentangular, [and] embossed” scales, less spiky than the equivalent on the black species.

The footnote is right to identify this brown specimen as a separate species, although it is in fact a land-based rather than marine variant of iguana. John Gray later formally named this new species *Amblyrhynchus subcristatus* (although it is now identified as *Conolophus subcristatus*). Olson has therefore recently claimed that the footnote in the *Blonde* narrative was “unquestionably written” (“Early Scientific History” 146) by Gray, who is assumed to be the source of the volume’s natural historical information. But, as Olson acknowledges, Gray’s 1831 “Description of a New Species of Amblyrhynchus,” in the *Zoological Miscellany*, records a different, much smaller specimen than that described in the *Blonde* footnote. One accordingly wonders why, if Gray was also the author of the footnote, he did not simply re-use his earlier description, or at least make reference back to it; one might also ask why different phraseology is used when describing the new species’ key distinguishing features. Given the epistolary evidence cited above, which shows that the note refers to an iguana available to Graham but not necessarily to Gray – we do not know if he ever saw Talbot’s specimen – the simplest explanation is that both the description and the proposal of a new species in the *Blonde* narrative indeed derive from “the editor” Graham, as stated in the note. Of course, her documented meeting with Gray, when the latter showed her the *Amblyrhynchus* in the possession of the BM, no doubt involved discussion of what details to observe and record. Yet it was then probably Graham herself who proposed in print a new species, revealing in the process an informed and discriminating eye as she described its distinguishing features.

Ruffled Feathers: Graham and the Ornithologists

In addition to the scientific information incorporated into the main body of the published *Blonde* narrative, two of the final volume’s four appendices offered more detailed scientific observations. Appendix 4 is an “Extract from Lieutenant Malden’s Official Account of the Sandwich Islands,” in which the *Blonde*’s surveyor provides navigational advice for ships visiting the archipelago; although written by Malden, it seems likely from surviving correspondence that this was solicited by Graham, partly to bulk out the volume.¹⁰ More significantly, Appendix 3 offers a transcription of some of Andrew Bloxam’s field notes from Hawaii, consisting principally of an identification (and sometimes description) of the bird species observed, along with more cursory remarks about the archipelago’s insects, fish and geology. It was this transcription of Bloxam’s notes which precipitated later complaints about the volume’s science. These began in 1892, when Alfred Newton scathingly reviewed the existing literature on Hawaiian ornithology. The *Blonde*’s appendix he described as “unworthy of its reputed author” (i.e. Andrew Bloxam), further adding, apparently as an explanation for the volume’s supposed inadequacies, that “the book was edited by a lady (as I have been informed) who had nothing but his notes to guide her” (Newton 466). Pronouncing the published text “a disgrace to all concerned,” Newton alleged that it “introduced so much confusion as to mislead many subsequent writers.” However, he does not elaborate on the exact nature of its errors.

Olson’s meticulous reconstruction of the *Blonde*’s natural historical researches suggests that Newton’s defence of Bloxam and castigation of Graham’s involvement in the project is misguided and chauvinistic. As Olson shows, whilst from the vantage

point of modern or indeed 1890s ornithology the appendix certainly contains several errors of identification and nomenclature, many simply represent the more provisional state of knowledge in the 1820s and the ongoing reorganisation of taxonomic categories; for example, the presentation of a supposed new species, *Fringilla sandwichensis*, when in fact the two specimens collected by Bloxam are now known to be juveniles of a species already listed in the appendix (“Contribution of the Voyage” 16). Where the appendix contains straightforward blunders – for example, by presenting the Ruddy Turnstone, a frequent visitor to British shores, as an apparently new species – Olson demonstrates that this was Bloxam’s original error, with the compiler of the appendix being at fault only insofar as they did not recognise and correct the oversight here. Similarly, the failure to recognise the juvenile specimens was again Bloxam’s original “mistake”; in this and most other regards, the appendix does not introduce errors but simply reproduces the slips of a man Olson has shown to be a somewhat half-hearted and under-informed ornithologist.

Olson does, however, suggest that the compiler of the appendix is at fault for omitting some of Bloxam’s detailed descriptions of Hawaiian bird species. This is a valid accusation, yet the appendix at least follows a consistent and comprehensible, if perhaps overly economical, procedure in this regard. The only ornithological text Bloxam had with him on the voyage was William Turton’s 1806 translation of Johann Friedrich Gmelin’s extended edition of Linnaeus’s *Systema Naturae*. When a specimen he collected seemed to correspond with a species in Gmelin, Bloxam recorded the apparent match in the headings of his field notes, before providing his own detailed description. Where a match is made in this way, the appendix cites the identification but does not reprint Bloxam’s description, presumably assuming that the Gmelin description will suffice; as stated in the preamble, “the description of most of the birds which have been described by former naturalists are omitted” (248). Correspondingly, when Bloxam could find no apparent match in the existing ornithological literature, the appendix includes his description of a seemingly new species, and does so very faithfully, with occasional small adjustments of vocabulary and diction which do not materially affect the account. The appendix, it should be noted, is clearly flagged as a somewhat provisional document; in places there are gaps in the subheadings prefaced to each species description, some indicating that a bird’s indigenous name is not known, others seeming to suggest that while the bird matches a species described in Gmelin, it now needs to be recategorised taxonomically and renamed.

It is not known who produced this transcription of Bloxam’s notes. For Olson, the author must be John Gray, supposedly the source of all the volume’s natural historical information. If this is the case, of course, any problems with the appendix cannot be blamed on Graham, but arguably indicate again that she was poorly served by the BM. However, given both the general scientific competence outlined earlier and the fact that the appendix is essentially just a copy of text supplied by Bloxam, it is feasible that Graham produced it herself. This might explain why she fails to spot that Bloxam’s *Tringa Oahuensis* is in fact the Ruddy Turnstone, a mistake that one hopes Gray would have identified, and also why Gray subsequently redescribed and renamed some of the birds in 1829 and 1831. Whoever transcribed the appendix, however, the key point in the present context is that it is by no means as disastrous as some later commentators have implied. The editorial principles on which it was compiled led to the omission of some data since deemed significant, yet there is a legitimate logic as to why this information was not passed on. Where there are outright mistakes, these are largely the fault of Bloxam rather than the copyist.

Another accusation against the published appendix is that it only focuses on Hawaiian birds and does not include detailed descriptions of several new bird species which the main narrative records as discovered on Malden Island and Mauke. These included a type of pelican “which we named *Pelicanus Candida*” and a tern “which we have called *Sterna Maldensis*” (205); and on Mauke, an “extremely beautiful” dove “which we named *Columba Byronensis*” and a kingfisher “called by us *Alcedo Mautiensis*” (213). Without a proper description of each species, however, these names are, as Olson puts it, “absolute *nomina nuda*” (“Early Account” 200), and in an early article he reprints Bloxam’s more detailed field notes on these species as testimony to “Mrs Graham’s editorial deficiencies” (“Early Account” 199). Again, however, familiarity with the materials at Graham’s disposal would suggest this is too harsh a verdict. The passages in the main narrative where these birds are mentioned are almost certainly taken from her principal source, Richard Bloxam’s worked-up manuscript, which frequently incorporates reflections on natural history that derive from Andrew. The section dealing with Mauke and Malden Island is now missing, so we cannot judge to what extent, if any, Graham is modifying Richard’s text; however, on the basis of her emendations elsewhere, it is unlikely that Graham removed substantive information from her source. As to why these new species are not properly described in Appendix 3, consultation of the Andrew Bloxam manuscript material at the Natural History Museum (NHM) suggests that Graham (or whoever transcribed the appendix) probably never saw the naturalist’s more detailed descriptions. The NHM holds multiple versions of Bloxam’s notes, evidently written for different recipients and all varying slightly in the information they provide.¹¹ Graham saw only one version, in the form of a “little book” which, according to the König letter, she passed on to the BM. There are several possible candidates for this “book” in the NHM archive, although from the way the *Blonde*’s appendix shares variations of phrasing with several of the extant documents it is likely the compiler was working from yet another transcription which now does not survive. But, in the versions which most closely match the text of the published appendix, there are no detailed descriptions of the new birds from Mauke and Malden Islands, though it is recorded that specimens were brought home. It seems likely, therefore, that these descriptions were also missing from the version of Bloxam’s notes that formed the basis of the published appendix.

The published *Blonde* volume, then, undoubtedly omits ornithological information that later specialists have deemed significant, and contains a variety of what are now known to be ornithological errors. However, Graham cannot be singled out as the principal or even major cause of these omissions and errors; if blame must be assigned, Andrew Bloxam is probably the biggest culprit. This is not to say Graham is entirely faultless. As with her handling of other aspects of the *Blonde*’s science there are certainly some slips or contradictions for which she bears responsibility. For example, in Bloxam’s notes, and consequently in the appendix, the Hawaiian “Hehivi” bird is identified as *Nectarina coccinea* and matched to Linnaeus’s *Certhia coccinis*. In the main body of the narrative, however, it is identified in a footnote (7) as *Drepanis vestiarius* and matched to *Certhia vestiarius* in John Latham’s *General Synopsis of Birds* (1781-1801). Even if it was Gray who was chiefly responsible for all the ornithological information in the volume, as Olson assumes, Graham as editor should have spotted and clarified this apparent discrepancy. Alternatively, Graham introduced the confusion – although if she was the originator of the *Drepanis* identification it is again worth noting the efforts she went to and her consultation of another important reference work as she tried to organise the *Blonde*’s science.

Whoever we regard as culpable in this and other instances, perhaps the key point is that the volume as a whole was probably not, by the standards of the day, especially sloppy or inaccurate in either its ornithology or its natural history more generally. Both Newton and Olson compile ample evidence of other texts and scientists in this period displaying what now seems a distinct lack of scholarly rigour. But it needs to be recognised that later scientific protocols about species description and the avoidance of so-called *nomina nuda* were not so powerfully in force in the early nineteenth century. As James Secord has argued, this was a scientific culture in which print publication was not yet regarded as the key means of disseminating and marking “ownership” of new discoveries. Important information often circulated in manuscript, private correspondence and even conversation; witness one of the reference works Graham consulted at Robert Brown’s, Solander’s unpublished *Florilegium*. In this context, it was more common than it would later be for new species to be announced and sometimes named in voyage narratives and similar publications without being fully described; more detailed information then circulated by other means or was published later. Graham had after all promised Charles Konig, in the letter discussed above, that she would not pre-empt any publications by BM staff. Her expectation may well have been, therefore, that Gray or others would in due course publish proper ornithological descriptions, as indeed was done for some of the species collected by Bloxam, whilst in the interim those with a more pressing interest in the Mauke and Malden specimens could contact the BM.

Conclusion

When published in 1827, *Voyage of HMS Blonde* received lukewarm reviews from the main British periodicals. The consensus was that the voyage produced some interesting observations but did not warrant a substantial quarto edition, since it did not add significantly to the information contained in William Ellis’s 1826 account of Hawaii (see: *Monthly Review*; *Quarterly Review*; *Eclectic Review*; *Literary Gazette*). In the American press, however, the response was decidedly hostile, due to the narrative’s disparaging comments about the influence of US missionaries in the islands (see: *North American Review*; *Christian Advocate*; *Christian Spectator*), and a pamphlet was swiftly published refuting the volume’s apparent allegations (see: *An Examination*). In these pro-missionary ripostes, Graham is frequently targeted as the source of the negative comments, and in a further effort to discredit the volume her editorial efforts generally are rebuked as error-strewn and over-reliant to the point of plagiarism on Ellis’s account. These attacks have since been cited by some commentators on the *Blonde*’s science, to suggest that Graham’s handling of the volume was universally criticized at the time of publication (Macrae [Editor’s Foreword] 1; Olson, “Early Account” 198). Yet, this ignores the pro-missionary agenda behind these early caricatures of Graham as an incompetent editor. It should also be stressed that if the major British journals were unimpressed with what the *Quarterly* termed the “meagre narrative” (420) arising from the voyage, they made no complaint about Graham’s role as editor; indeed, the *Monthly* and *Quarterly* praised various aspects of her contribution. And the only negative comments in these journals specifically about the volume’s science was the *Monthly*’s complaint that the ‘notices concerning natural history’ were “very scanty” (71); conversely, several of the non-partisan reviews pay an implicit compliment to the volume’s natural history by printing lengthy extracts about the Galapagos islands, the ascent of Kiluaea, and Mauke.

In widening their attack by alleging Graham's general editorial incompetence, the pro-missionary lobby was no doubt driven at one level simply by chauvinism; like Newton seventy years later, several writers clearly take it for granted that a woman would probably bungle this role. Yet, in flagging up Graham's editorial interventions, these hostile commentators were also deliberately targeting a weak spot, something that many contemporaries would undoubtedly have perceived as a problem with the published volume. After the furore surrounding the similarly synoptic narrative of the first Cook voyage, in which the editor John Hawkesworth had merged the journals of Cook, Joseph Banks and others, the generic expectation for “voyages and travels” was that these texts should provide fairly unmediated, unadulterated access to the original eye-witness account of a single, identifiable traveller; this made it easier to corroborate and contextualize observations (see: Maclaren; Rennie 95-108). In practice, such apparent first-hand immediacy was always something of an illusion, since travellers usually wrote up and reorganized their narratives retrospectively, with editors often assisting in this process (see: Maclaren; Fulford, Lee and Kitson 93-94). But the controversy over the *Blonde* narrative's depiction of missionaries threw a spotlight on what was usually an obscured part of the production of contemporary travel writing, revealing in the process an account that had received far more editorial shaping than was customary.

This disclosure evidently discomfited contemporary readers; some British journals, for example, changed their stance on the volume after learning of the extent of Graham's editorial intervention. Yet, it does not follow that Graham was herself inadequate as an editor. Faced with problematic source material and a lack of cooperation in some quarters, notably at the Horticultural Society but also possibly at the BM, Graham arguably did a conscientious and fairly competent job both of editing the *Blonde* narrative as a whole, and more specifically of organising and presenting the expedition's scientific observations. There are undoubtedly some problems with the volume's science; some (but not the majority) of these problems are introduced by Graham, in the course of what seems to have been a rather rushed project. However, these slips and contradictions need to be set against the considerable efforts Graham made to make the volume more scientifically accurate and useful. The final volume contains, in both its main text and apparatus, an abundance of interwoven glosses, explanations and comparisons not found in any of Graham's source documents. In some cases these further reflections derive from discussions with experts, but we should not ignore or understate Graham's role in generating and mediating the information thus provided. And much of this scientific apparatus was undoubtedly generated by Graham herself, who displayed in the process considerable competency across a range of disciplinary fields.

Those fields, it should further be noted, embraced more than just the scientific disciplines. Scholarly discussion of the *Voyage of the Blonde* has focused mostly on its science, yet it needs to be kept in mind that Graham's agenda in the volume was chiefly historical and ethnographic, and to some degree political, as she produced a synthesizing account of Hawaiian culture that by contemporary standards was remarkably respectful and appreciative of that society. However, the main narrative's combination of both scientific and literary discourses (understanding “literary” here to mean not “fictitious” but encompassing history, cultural analysis and the discussion of literature and art) are probably another reason why commentators from the late nineteenth century onwards have sometimes looked askance at the volume's science. By that date, the scientific disciplines had become more professionalised and

specialised, leading in turn to publications with narrower focus and more densely technical discussion (developments which also made science less accessible to women). *Voyage of the Blonde*, however, was produced in a period which did not perceive any great schism between science and what we would now class as the humanities. This is reflected in the multiple, often overlapping intellectual networks in which Graham operated, which embraced not only the scientists discussed earlier but also leading historians like James Mackintosh, Henry Hallam and John Charles Leonard de Sismondi and artists like Thomas Lawrence and Charles Eastlake – all figures Graham associated regularly with, over the course of her adult life, at key social hubs like Mary Somerville’s home, John Murray’s house in Albemarle Street and in due course the salon she herself presided over in the 1830s. And travel writing was, in the early nineteenth century, perhaps pre-eminently the genre meant to combine and integrate these diverse fields, interweaving them not only to cater to a diverse readership but also to produce a more complete picture of another society. By the late nineteenth and twentieth centuries, however, the breadth of topics covered, and the accessibility of style, arguably made the science in many of these accounts seem somewhat dilettante – especially when they were written by women, who by this later date were for the most part firmly relegated to the position of scientific “amateurs.”

Returning to Graham’s handling of the *Blonde* volume’s science, the episode as a whole demonstrates the agency and active role sometimes required of women as they edited scientific observations and papers. Such women editors – like many women translators of scientific material across the late eighteenth and nineteenth centuries – are accordingly misrepresented when dismissed merely as subsidiary “handmaidens” to male intellectual endeavour. Rather than simply facilitating the transfer of scientific knowledge, they might to some extent be collaborators and co-authors in the production of that knowledge – although the full extent to which they contributed to scientific debate in this way cannot be gauged until we have further research into the careers of Sarah Bowdich, Mary Horner Lyell, Charlotte Murchison and other women known or thought to have had a hand in editing work by male scientists and explorers.

Notes

Thanks to Kathleen L. Skinner of the University of Texas at Austin, whose excellent undergraduate dissertation on Graham and the *Blonde* greatly helped me orientate myself with regard to the extensive source material; to Professor Robert Rothman of the Rochester Institute of Technology for insights into iguanas and zoological taxonomy; and to Alison Martin for general guidance and advice.

1. For Graham’s fee, see her letter to Murray of 17 May 1826, National Library of Scotland (NLS) Acc. 12604 f. 52.
2. See the British Museum’s *List of the Specimens of Homopterous Insects* (1851) 336 and *List of the Specimens of Lepidopterous Insects* (1856) 38, for examples of insects collected by Graham and later donated to the BM by her second husband, Augustus Wall Callcott.
3. MS. Eng. d 2274. Bodleian Library.
4. Richard Bloxam’s manuscript is held at the National Library of Australia, Canberra, and is available as microfilm MFM G 1-289.
5. Acc. 12604, ff. 48, 62. NLS.
6. Acc. 12604, f. 51. NLS. Emphasis in the original.
7. Acc. 12604, ff. 63, 63a. NLS; *Eclectic Review* 300.
8. Add. 32441 f.11. Brit. Lib.
9. The portion of Richard Bloxam’s manuscript describing the Galapagos has not survived. It should be acknowledged, therefore, that the *Blonde*’s chaplain may be the source of “imps of darkness”. However, since Graham at several junctures takes the essence of Dampier’s witticisms and renders them more economically, it seems more likely that she coined the phrase.
10. For evidence of Graham receiving material for the appendices, see: Acc. 12604, f. 65. NLS.
11. The material is archived at the NHM as MSS/BLO.

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"I have no pleasure in collecting for myself alone": 1 Social Authorship, Networks of Knowledge and Etheldred Benett's *Catalogue of the Organic Remains of the County of Wiltshire* (1831)

Susan Pickford

As with many other fields of scientific endeavour, the relationship between literature and geology has proved a fruitful arena for research in recent years. Much of this research has focused on the founding decades of the earth sciences in the early- to mid-nineteenth century, with recent articles by Gowan Dawson and Laurence Talairach-Vielmas joining works such as Noah Heringman's *Romantic Rocks, Aesthetic Geology* (2003), Ralph O'Connor's *The Earth on Show: Fossils and the Poetics of Popular Science, 1802-1856* (2007), Virginia Zimmerman's *Excavating Victorians* (2008) and Adelene Buckland's *Novel Science: Fiction and the Invention of Nineteenth-Century Geology* (2013), to explore the rhetorical and narrative strategies of writings in the early earth sciences. It has long been noted that the most institutionally influential early geologists formed a cohort of eager young men who, having no tangible interests in the economic and practical applications of their chosen field, were in a position to develop a passionately Romantic engagement with nature, espousing an apocalyptic rhetoric of catastrophes past and borrowing epic imagery from Milton and Dante (Buckland 9, 14-15). However, as Buckland further notes, this argument – though persuasive as far as it goes – fails to take into account the broad social range of participants in the construction of early geological knowledge. The aim of this article, then, is to address the publishing strategies of one such participant excluded from the formal geological institutions of the nineteenth century, the early British geologist Etheldred Benett (1776-1845), drawing on Ann B. Shteir's valuable work in recovering the "literary history of women's science writing" (Shteir, "Finding Phebe"), and combining the insights it affords us with Margaret Ezell's concept of social authorship, which questions the assumption that getting into print and enjoying a wide circulation was the ambition of all writers. Ezell's work focuses on the ongoing circulation of manuscript material in the late seventeenth and early eighteenth centuries, arguing convincingly that "the geographic situation of the author or the nature of the anticipated audience" are significant factors in determining "the author's choice of 'publication' practices" (4). As she makes clear:

Our literary histories have tended to suggest that the only reasons for not embracing print were psychological and social inhibitions. Factors such as the writer's gender or class or combination of the two are prominently discussed as barriers to full participation in the new technology, in the new experience of authorship. Such psychologically based historical analysis of authorship [...] often overlooks or devalues the advantages of the older model of being an author – script texts and a controlled readership – in particular for women writers but also for any writer living outside London. (103-04)

The present article seeks to apply Ezell's model to an early-nineteenth-century context, positing that privately printed and distributed material is the nineteenth-century

equivalent of privately circulated manuscripts, the lower cost and widespread availability of print technology making it a viable, indeed more practical, alternative to manuscript for works intended for limited circulation. It presents a case study of Etheldred Benett, now hailed as "the first lady geologist" (see: Burek), as a "social author" whose venture into print was determined by her geographical location and the nature of her audience as well as her gender. In particular, the article focuses on the conditions in which Benett published her *Catalogue of the Organic Remains of the County of Wiltshire* in 1831, exploring the extent to which they both reflected and determined the gender-based marginalisation of its author in nineteenth-century geological circles, studying the publishing strategies she used to contribute to formal geological discourse from within the informal network of knowledge exchange to which her gender restricted her.

The construction of modern geological science in the early nineteenth century

It was in the following terms that Sir Roderick Murchison highlighted the importance of networks of knowledge exchange in the formation of modern geological science in his presidential address to the Geological Society of London in 1832:

Few indeed are the memoirs which have been completed without the aid of other distinguished Fellows of the Society, who, each in the branch of natural knowledge for which he stands pre-eminent, comes to the assistance of his wandering associate [...] For where is the working geologist who, unassisted, can unravel the delicate and obscure complications of fossil organic structure? [...] Surely every contributor to our *Transactions* will acknowledge with gratitude the aid he may have received from several of our most gifted members, who, unambitious of personal fame, have been contented with the delightful consciousness of being sure, though silent instruments, in urging on the advance of truth. (Murchison 385-86)

The Romantic vision of the scientist as solitary genius has been largely deconstructed by recent work in the history and sociology of science (Topham 22): much research now highlights the importance of social networks in developing modern scientific culture and thought, not only through formal institutions, but also informal groupings such as the artisan botanists who met in Lancashire pubs (see: Secord). Geology represents an interesting arena in which to investigate such networks, as it was very much an emergent field of scientific endeavour in the late eighteenth and early nineteenth centuries: the first specialist journal, the *Journal for Amateurs of Mineralogy and Conchology* [*Journal für die Liebhaber des Steinreichs und der Konchyliologie*], was published in Weimar in 1773 (Meadows 2) and there was a considerable upswing in earth science titles between 1801 and the 1860s (Topham 10). At this early stage in its institutionalisation, geology attracted a broad range of participants. Many practitioners came to it as an applied science from professional backgrounds in mining, quarrying and surveying, while others approached it as a gentlemanly "vocational" science that allowed them to indulge a taste for theorising (Porter 810). It also attracted collectors and proved popular with women, as Charles Wilton noted in 1828: "Every lady has her *Outlines of Geology* – her bag and her hammer; and no drawing room is considered complete in its furniture, which has not its little cabinet and museum" (qtd. in Turner et al. 113). As a field-based science, it allowed for amateur participation for longer than laboratory-based disciplines (O'Connor and Meadows 78), so that as late

as 1907, W. B. Woodward was writing: "It is one of the advantages of geology that it is a truly recreative science [...] It is a satisfaction to know that attractive and important work can now and ever be done, as of old, by those who [...] had no academic training" (O'Connor and Meadows 79).

Participants in the construction of geological knowledge thus ranged across the social scale. As well as eminent scientists such as Charles Lyell, Gideon Mantell and Sir Roderick Murchison, they included working quarrymen like George Warren, credited by Benett with finding fossils for her collection in her 1816 manuscript on *Alcyonia* (Torrens et al. 89), and collectors from relatively modest backgrounds such as Robert Dick, a Thurso baker (Woodward 222), and Mrs. Gent, wife of a Devizes brewer (Haycock 4). The Geological Society's founding manifesto envisioned the knowledge network in the field as one encompassing "the Miner, the Quarrier, the Surveyor, the Engineer, the Collier, the Iron Master and even the Traveller" as well as the "Philosophers" at the Society (Buckland 6). However, this idealistic vision of intellectual partnership was belied by the way access to the institutions of geological knowledge was restricted in terms of class, gender and geography. As the silk weaver Joseph Gutteridge complained in his autobiographical *Light and Shadows in the Life of an Artisan*, "[a] working man is, by force of circumstances, precluded from studying geology in a scientific manner. To study the science properly, a man must have time and means at his command, and education as well as a natural inclination" (qtd. in Woodward 249). Women were similarly discouraged from playing a full part in geological life on the grounds that field work involved visits to "spots the most lonely and desert [*sic*] [...] pits and quarries, to railway-cuttings or mines, where none but men – and not always polite men – are at work" (Woodward 265). Provinciality was a further discriminator: as the geologist Robert Bakewell, believed to have been born to a Quaker family in the Nottinghamshire wool trade, noted in 1830: "there is a certain prejudice more or less prevalent among the members of scientific societies in large cities, [...] which makes them unwilling to believe that persons residing in provincial towns or in the country can do anything important for science; and it is strangely imagined that a city geologist, who runs over a district in a few days, can make greater discoveries than anyone residing in it" (qtd. in Knell 41). Consequently, the various networks of knowledge exchange spanning the field of geology had varying degrees of agency as arbiters of scientific legitimacy, determined largely by their access to the formal institutional bodies that soon sought to structure the field, which in turn depended largely on the social capital of individual practitioners.

The Geological Society, founded in 1807, offers an interesting case study in how formal and informal networks overlapped and interacted in constructing the modern scientific field. It was one of a plethora of scholarly scientific societies to spring up in the early decades of the nineteenth century. While the bulk of these represented a "tangle of minor bodies [for] the large under-class of the scientifically inclined" (Allen 247), the Society catered solely for wealthy collectors with an amateur interest in geology. Its membership was typified by its founding president, London-born, Eton-educated George Bellas Greenough (1778-1855), heir to a patent medicine fortune. The Society was originally set up as "a little talking Geological Dinner Club" for the informal exchange of geological knowledge: a resolution passed at its first meeting stated its purpose as "making geologists acquainted with each other" (see: "History of the Geological Society"). The inaugural dinner cost fifteen shillings (Lewis and Knell 74, 439). New members were vouched for by existing ones and the calendar of events at the society's premises in Somerset House was dictated by the London social season,

while members from the provinces would treat the society as a gentleman's club when in town (Rudwick, *The Great Devonian Conspiracy* 22-24). As a result, geological authority was highly concentrated in spatial terms, occupying a handful of streets in central London that were home to both the major institutions and to leading geologists (*The Great Devonian Conspiracy* 35).

While the Society was initially planned as an informal exchange, its membership expanded rapidly to reach 341 by 1815, making the informality of its early meetings impractical. Its membership, drawn from the social and scientific elite, soon sought to elevate it to the status of a formal institution. It received a royal patent in 1825, making it the principal arbiter of geological authority in Britain, despite the *de facto* exclusion of professional geological practitioners of equal expertise but of humbler social origin, such as William Smith, the Oxfordshire-born son of a blacksmith who compiled the first geological map of Britain. As such, the society constituted a "self-sustaining, self-validating knowledge elite" (Porter 810). Perhaps understandably, this led to hostility towards the society from geologists excluded on social grounds. William Smith declared himself suspicious of its members, considering them "pilferers of information" who "considered all unpublished observations as lawful plunder" (Knell 14). Smith's nephew John Phillips, later Professor of Geology at Oxford University, memorably described them as "a band of busy, jealous, active and revengeful witlings [who] have gained and kept their ascendancy partly from contempt, partly from the indolence of others" (Knell 31).

Publishing the *Catalogue of the Organic Remains of the County of Wiltshire*

Etheldred Benett represents an interesting opportunity to study how geology drew on a broad social range of practitioners in informal networks of knowledge exchange, while excluding them from its formal institutions. Born into the Wiltshire landed gentry in 1776, she never married, which left her time to foster an interest in the fossils that abounded in the local fields. Her interest in geology was initially sparked by her brother-in-law, the botanist Aylmer Bourke Lambert, himself a founder member of the Linnean Society and member of the Geological Society. Benett was well placed to develop her hobby, as Wiltshire "features right at the dawn of scientific geology" (Delair 132). William Smith's observations on the natural position of chalk formations were based largely on observations made in the vicinity of Warminster, while his pupil Joseph Townsend, a familiar local figure thanks to his work as county commissioner of turnpike roads, made it a fashionable hobby (Delair 136-37). Benett was thus part of an informal local geological culture that dated from the late eighteenth century: she welcomed visitors to her collection from as early as 1809, when William Cunningham's daughter noted that "Papa and Mama went to see Miss Benett's collection" (Torrens et al. 62).

The significance of this unofficial local network should not be underplayed in terms of encouraging Benett's ongoing interest in geology. However, ill health and family troubles posed a constant challenge to her attempts to keep abreast of developments in the field, as she wrote ruefully to Gideon Mantell: "for the last four or five years circumstances have arisen so fast one upon the other to occupy my time and attention against my wishes and against my will that all my own pursuits and pleasures have been obliged to yield to it [...] I must not lose sight of the few opportunities now afforded me of gaining geological information for I feel that I am very much behind hand" (Benett, MS-Papers-0083-010A letter dated 24 April 1824). Likewise, her distance from the metropolis meant access to the latest research was problematic, she

complained to Mantell that her local booksellers: "do not like the trouble of inquiring for periodical publications and as they get little by them they care not whether you have them or not" (Benett, MS-Papers-0083-010A letter dated 29 August 1816). Equally, if not more significant, therefore, was Benett's extensive network of geological correspondents, which included exchanges of both letters and fossils with many of the leading experts and institutions of the day, both in Britain and abroad. However, her gender prevented her from converting such informal exchanges into access to formal scientific networks, as women were only admitted to the Geological Society in 1919. As a result, she was symbolically relegated to the subaltern status of a mere collector by more formally legitimised geologists such as James Sowerby, who drew abundantly on Benett's fossils for his multi-part *Mineral Conchology of Great Britain* but failed to acknowledge her contribution in his publication, and William Fitton, who failed to acknowledge a loan of fossil specimens (Letter dated 12 October 1831 in Cleevely, Benett's correspondence with James Sowerby). Ironically, her home country proved more reticent in granting her access to loci of scientific authority than did geological institutions abroad, where she was presumed to be a man, doubtless due largely to her first name that was regularly confused with the better-known masculine Ethelred, as she tartly noted in a letter to Mantell: "you have lately taken to spelling my Christian name *Ethelred*, whereas it is *Etheldred*" (Benett, MS-Papers-0083-010A letter dated 4 November 1842, emphasis Benett's). She was granted an honorary doctorate of civil law from St Petersburg, for example, in recognition of a donation of fossils. While she was doubtless pleased to receive such an accolade, she nonetheless felt compelled to complain to her correspondent Samuel Woodward, a Norwich-based bank clerk and amateur geologist, that: "it is provoking that no-one will believe that a Lady could write such a trifling thing – in this Diploma I am called Dominum Etheldredum Benett & Mr Lyell told me that he had been written to by foreigners to know if Miss Benett was not a gentleman... so you see that scientific people in general have a very low opinion of the abilities of my sex" (Burek 193, emphasis Benett's). Denied access to formal scientific recognition in the public sphere, she used her correspondence network to engage in geological debate and did not scruple to make the case for her own scientific authority through this informal channel, complaining in an 1822 letter to Greenough that "I have now a second instance of [Sowerby's] blundering [...] I proved the error to him by specimens, and he admitted it but never noticed it in a subsequent part of the work that I have seen, and which for his own credit for correctness he ought to have done" (Burek 192).

Benett's 1831 fossil catalogue provides further evidence of the complexity of her place within the networks of early-nineteenth-century British geology. Exploring its status as a publishing artefact reveals the strategies she used to negotiate her place in the construction of geological knowledge. Benett's earliest ventures into social authorship took the form of two contributions to the Geological Society – a stratigraphical section of Chicks Grove Quarry (1815) and her *Sketches of Fossil Alcyonia from the Green Sand Formation at Warminster Common and the Immediate Vicinity of Warminster in Wiltshire* (1816). Both were handwritten and hand-drawn, in keeping with the stance of informal knowledge exchange espoused in the Society's founding manifesto. However, by the mid-1810s, the Society had begun to establish mechanisms for attributing scientific legitimacy via peer review and publication in the *Transactions of the Geological Society*, first launched in 1811, thereby marginalising the model of social authorship that better suited Benett's geographical situation and gender. She began to think of publication in 1818, writing to Mantell that: "You will

now I fear think me bold indeed when I tell you that since that time I have undertaken to attempt the Geology of Wiltshire decidedly for publication both as a separate thing and for the County History" (Benett, MS-Papers-0083-010A letter dated 23 March 1818). However, she discontinued work on the project when her brother decided to stand for parliament in 1819. Not until 1831 was her nine-page "Slight sketch of the geology of South Wilts" included in Sir Richard Colt Hoare's *Modern History of South Wiltshire*, printed in London for John Nichols and son, who specialised in antiquarian topics. Later that year, Benett had an amended version printed as the *Catalogue of the Organic Remains of the County of Wiltshire*, with the addition of a number of lithographic plates. The work was carried out by Joshua Lambert Vardy, a jobbing printer in Warminster whose output consisted largely of religious tracts and works of purely local interest; he also printed labels for Benett's fossil specimens (Spamer et al. 125). As was commonly the case for provincial printers, he also had a number of other professional activities, as a stamp agent, patent medicine seller, lottery and insurance agent, and inspector of corn returns.

The semiotics of the material publishing artefact play a key role in claims to scientific authority. The differences between the two versions of Benett's catalogue are thus highly instructive. Colt Hoare's prestigious, multi-volume publication was readily granted a place on the mainstream London publishing and bookselling circuit, where it stood alongside works of comparable scientific content to Benett's catalogue, such as Gideon Mantell's *Descriptive Catalogue of the Objects of Geology, Natural History and Antiquity (Chiefly Discovered in Sussex) in the Museum, attached to the Sussex Scientific and Literary Institution at Brighton* (1836). Benett's stand-alone catalogue, by contrast, was the work of a humble provincial printer with little in the way of scientific – or indeed publishing – credentials, and, being privately distributed, had no place at all on recognised bookselling circuits. Its print run is unknown, but presumably low: Benett's only other published work, a family history printed by Vardy in 1833, had a private print run of 100 copies (Wake unpaginated).

Benett's preface states that "when this catalogue was first thought of, my geological friends expressed a wish that it should be published separately; but considering it a thing of mere local interest, I have preferred printing a few copies only for the acceptance of my Friends" (*Catalogue* unpaginated). This prefatory statement located the catalogue in the private sphere in three ways: spatially, since self-publishing literally kept the resulting publication out of commercial premises; thematically, as "a thing of mere local interest"; and socially, since she explicitly stated her intention to withhold the work from the broader public sphere by limiting it to an informal social circle. This raises an intriguing question: as a woman, could Benett have published the work in a manner more open to scientific legitimisation, if her "geological friends" were inviting her to do so? There was one precedent in the field of geology: the *Transactions of the Geological Society* had published Maria Graham's description of the geological impact of a major earthquake she had witnessed in Chile, in its 1824 issue – though this was filtered through a suitably masculine contributor, taking the form of a letter to Henry Warburton (Thompson 332). Benett could potentially have accessed London publishers via Aylmer Bourke Lambert, whose own botanical research was published in the metropolis, and through her other contacts: she passed Gideon Mantell's paper on fossil *Alcyonium* to Sir Joseph Banks, ensuring its publication with the Linnean Society in 1815 (Benett, MS-Papers-0083-010A letter dated 21 May 1815). A letter to Mantell reveals Benett did give some thought to publishing strategies: "I think you should advertise it [Mantell's *Catalogue*] in one London paper, but I should think

without the list of subscribers, as I believe it is desirable to make advertisements in the London Papers as short as possible, I see that all the books published at Murray's are advertised in the *Morning Herald* which I therefore conclude to be the fashionable paper for advertising the best works" (Benett, MS-Papers-0083-010A letter dated 18 May 1821). However, despite stating her intention to seek publication in 1818, she appears to have made no attempt to place her project with publishers in the metropolis, although she visited the city regularly and indeed called on a London lithographer for the illustrations.

The work's privately printed status thus appears to echo the typically feminine modesty topos in her preface, maintaining the work firmly in the private sphere despite invitations to make it public. However, the work's status is more complex than might at first appear to be the case. While many scientific authors were doubtless keen to build and maintain contacts in the mainstream publishing network as a means of achieving visibility as a route to scientific legitimacy, it is clear that this was not Benett's case. The social authorship model she espoused was an "authorial act [...] characteristic of very different physical conditions of writing and reading as well as a different self-definition of authorship" that "encouraged participation in literary life of groups of people whom print technology effectively isolated and alienated" (Ezell 12). Private printing enabled Benett to participate in the publishing world on her own terms. By controlling the diffusion of her works to a carefully restricted sphere, she was seen to respect the norms of female propriety and thus avoided becoming embroiled in an unseemly public dispute over the scientific legitimacy of her work, as Maria Graham had been (Thompson, "Earthquakes and Petticoats"; "Only the Amblyrhynchus"). Since a general commercial readership was not her goal, the success of her catalogue was not to be measured through sales, but rather in the access to loci of scientific authority it afforded her. Benett's claim to be writing for an intimate readership belies the fact that her select circle of friends included the leading geologists of the day: the catalogue is dedicated to George Bellas Greenough, by then vice-president of the Geological Society, and copies were sent to William Buckland, William Conybeare, William Fitton and Adam Sedgwick, among others. Thus, while the catalogue's print format and preface seem to restrict her contribution to the informal sphere, its pattern of distribution suggests a real ambition to contribute to formal geological debate. Unable to seek scientific legitimacy through the usual paths of institutional and / or trade publication open to her male counterparts, she made use of an alternative model of authorship more suited to her gender and geographical location. In her case, its mechanism of consecration was to prove just as effective as the public authorship model used by her male counterparts as, despite the lack of a public readership, she made her work available for judgement by her scientific peers.

One interesting aspect of Benett's catalogue, that plays a role in determining the extent of its implicit claim to scientific credibility, is the presence of a number of lithographic plates of fossils, absent from the earlier Colt Hoare version. Lithography was a relatively recent arrival in Britain: by the late 1820s, just twenty-eight lithographic printers were recorded in London, and the technique only spread to larger provincial towns in the mid-1830s. Interestingly, geology was one of the earliest fields of endeavour to adopt the technique, doubtless because geologists were in the forefront of efforts to locate suitable sources of lithographic stone in Britain to avoid significant import duties; William Smith and William Buckland both showed an interest in it, and John Phillips eventually set up his own lithographic press (Twyman, *Breaking the Mould* 21, 31). Though its proximity to handwriting made it semiotically unsuitable for

textual material that needed to look authoritative (*Breaking the Mould* 170), it was excellent for reproducing fine-grained detail in scientific illustration (Cleal et al. 42) and improved the presentation of non-linear textual material such as stratigraphical tables.

Benett's awareness of the semiotic significance of print is suggested by the changes she made to the layout of her material between the two versions of her catalogue to draw attention to the new content, including seventy-seven new species and one new genus (Pearce and Arnold 183). Her experiments with geological lithography as early as 1819 thus suggest her intention to make her catalogue a serious work of scientific communication, though she may also have been swayed by considerations of cost, lithography being twice as cheap as copper engraving (Sheets-Pyenson 28). Benett was well aware of her own shortcomings as an artist, writing to Mantell: "I must now refer to the very rough sketches that I have ventured to send you on the other half sheet of this paper, my Eye, totally unused to sketching, has not I fear kept up the just proportions" (Benett, MS-Papers-0083-010A letter dated 20 October 1815). The plates are a considerable improvement on Benett's own drawings and thus improve the work's scientific credentials (See Figures 1 and 2).

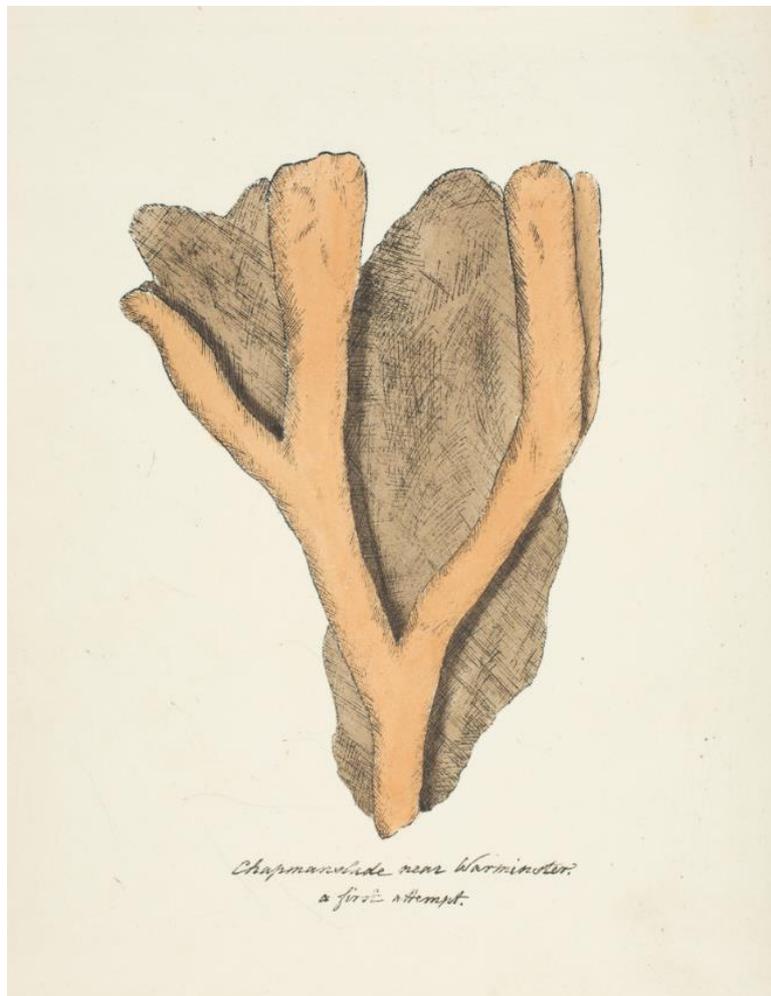
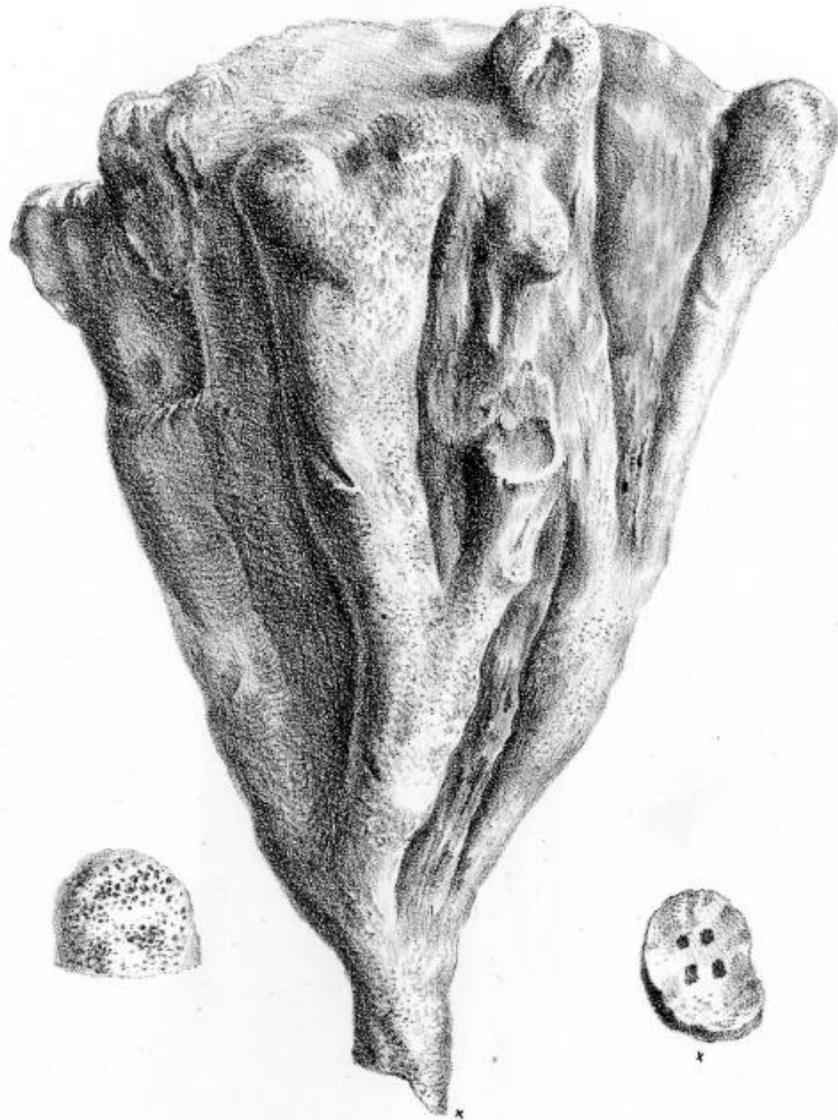


Fig. 1.

Etheldred Benett's drawing of *Polypothecia dichotoma*.

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Polypothecia dichotoma.

E.D. Smith, del.

Fig. 2. Lithographic plate of the same specimen by E.D. Smith in Etheldred Benett. *A Catalogue of the Organic Remains of the County of Wiltshire*. Warminster: J. L. Vardy, 1831. Unpaginated. Reproduced by permission of the British Geological Survey © NERC.

The engravings, by E.D. Smith of Chelsea Common, were presumably commissioned during one of Benett's annual trips to London. Although a definitive identification is impossible at this remove, the artist is likely to be Edwin Dalton Smith, a relatively

well-known botanical artist who was artist in residence at Kew Gardens and who, as a fellow of the Linnean Society, may have known Aylmer Bourke Lambert.² Benett described her experience with the technique in a letter to Mantell:

With much pleasure I will give you all the information I have in my power respecting lithography, but you have seen all that I have done of it and I am stop'd for the present, I have no doubt however that it will answer for all the coarser fossils, particularly those of the sand, but I fear you will find that your beautiful chalk specimens require finer work and that it will still be necessary for Mrs Mantell to go on engraving them; you will perhaps be surprised to hear that I have had nothing to do with the stones, nor can I reverse a drawing without so much trouble as would make it useless to me; any drawing was made in the usual manner, but on paper prepared for the purpose and with a particular kind of ink. This drawing I sent to the person who takes off the impressions; by a chemical process he transmits the drawing to the stone and this reverses it, he then repairs any injury it may receive in the transmission as well as he can [...] those drawn on the stone when well done are much the clearest, but I have seen much better than mine done the same way, and it is I believe infinitely less trouble [...] I had twelve copies only of mine not wanting more of a thing done merely for trial [...] but I am told that from 50 to 60 impressions may usually be obtained [...] Mr Moser, lithographer, No. 2 or 3 of Grosvenor Street, Hunter Street, Brunswick Square, is I am told the best person to supply the materials and take off the impressions of lithographic drawings and him I employed, he usually prepares the drawing paper in half sheets at one shilling the half sheet but he does whole sheets at two shillings each if ordered which for my purpose answered better. (Benett, MS-Papers-0083-010A letter dated 29 June 1819)

This makes Benett a very early adopter of the technique indeed: Twyman (*Directory* 4) notes that "the earliest reference to lithographers I have managed to trace in any directory appear in the *Post Office London Directory* for 1820"; these references include a Francis Moser who ran a press at his home at "4, Greenland-place, Cromer-Str. Brunswick-Square." Benett was well in advance of the *Transactions of the Geological Society*, which adopted lithography in 1824, following Charles Hullmandel's demonstration of the technique's value for the geology market in around 1820 (Rudwick, "The Emergence of a Visual Language for Geological Science" 156). As such, she was in fact at the forefront of a drive to create a "visual language of geology" which reflected the "growth of a self-conscious community of geological scientists" ("The Emergence of a Visual Language" 150-51). Benett's early uptake of lithography, her decision to use an established botanical artist, and her reorganisation of layouts between publications can all be read in terms of a desire to produce a work that shared, even adumbrated, the print characteristics of publications like the *Transactions* that represented the cutting edge of geological visual culture (see: Rudwick, "The Emergence of a Visual Language"). Her use of a male lithographer also represents an interesting reversal of the process by which illustration was deemed to be a way for women to participate in the sciences – a process used by male institutional gatekeepers to channel women's involvement into feminine accomplishments that could be carried out within the home (Shteir, "Elegant Recreations?" 241).

Recovering Benett's scientific legacy

Benett's work, like that of many other early female participants in the sciences, has been progressively rediscovered since the 1980s as part of the ongoing feminist challenge to dominant historiographies of science. Gender was, and remains, a significant frame in reading her work. An anonymous Warminster writer described her in 1872 as a "masculine and eccentric old subject" who generally wore "a drab coachman's sort of greatcoat" (Torrens et al. 64). More recently, she has been described as "magnanimous, meticulous and manly" (Burek 194). Given this gendered frame of reading, it is interesting to note that the status of her catalogue as a publishing artefact came to play a key role in determining her retrospective recognition by the scientific community in the late twentieth century.

The debate, sparked by the rediscovery in the 1980s of the bulk of her collection in the Academy of Natural Sciences in Philadelphia, turned on whether Benett's use of the nomenclature *Drepanites* for a new genus in her catalogue should take precedence over the subsequent unrelated use of the same term by Edmund Mojsisovics von Mojsvar, chief geologist at the Geological Institute at the University of Vienna, in 1893.³ Perhaps ironically, Benett had herself chosen *Drepanites* to avoid using a nomenclature already "preoccupied" by another genus, as she wrote to Samuel Woodward in 1831:

As to my genus *Drepanites* I am rather at a loss what to say about it, the late Mr. Parkinson examined the figure very minutely and said it was certainly quite a new thing and gave me the name of *Pedum* for it but that being preoccupied by a bivalve could not stand of course and I of course changed it. (qtd. in Pearce and Arnold 184)

The case turned on whether Benett's *Catalogue* was a publication according to the definition laid down by the International Commission on Zoological Nomenclature, which stipulated that publication meant that the work must be made available in "an edition containing simultaneously obtainable copies" produced using a method "that assures numerous identical copies" (Spamer et al. 131). Benett herself clearly held that the privately printed status of her work was no barrier to establishing scientific nomenclature, writing to Mantell that: "My *Nerita Tisburyensis* is named differently by Dr Fitton but my name being publish'd and his still in manuscript my name must stand Dr Sowerby says" (Benett, MS-Papers-0083-010A letter dated 20 June 1833). However, when the International Commission invited opinions from interested parties in 1990, Claud William Wright (1917-2010), a senior civil servant and leading amateur geologist, argued that Benett's use of *Drepanites* was taxonomically a *nomen nudum* (i.e. a designation that follows standard scientific taxonomy but fails to meet the requirement of being published with an adequate description) ("Comments" 187-88, 218-19). He cited Benett's preface to make the case that since the catalogue was privately printed and distributed, it could not be said to be publicly available in the manner dictated by the International Commission for establishing precedence in matters of nomenclature. The ambiguous status of the *Catalogue* as a print artefact, resulting from Benett's adherence to gendered norms of participation in nineteenth-century science, was thus to have a long shadow, as her decision to print privately with Joshua Lambert Vardy of Warminster nearly determined her ongoing exclusion from official scientific nomenclature late in the twentieth century. Ironically, as Benett herself made

clear in her preface, she only came up with new names herself due to the failure of her male correspondents to fulfil their promises to her, itself a sign of the subaltern status afforded to her as a participant in the construction of geological knowledge:

If it should be objected to my new names in the genus Polypothechia, that they are all derived from external form; I beg to state, that three scientific gentlemen undertook, at different times, to describe and name this class of fossils, and to each I offered all the assistance which my very large collection afforded; that all have disappointed me; and that having waited fifteen years, [...] I have done the best I could. (*Catalogue* unpaginated)

Wright's argument was ultimately rejected by the International Commission's secretary P. K. Tubbs on the grounds that "pragmatic considerations should outweigh Miss Benett's statement of her modest plans for the distribution of her catalogue" ("Comments" 188). These pragmatic considerations were largely that Benett's work, while ostensibly seeking to remain within the private, informal sphere, had in fact circulated far beyond it in terms of reception. Tubbs argued that "despite Benett's evident pre-printing intention or expectation, it would appear that more than a 'few' copies of the catalogue may have been circulated" ("Comments" 188). Indeed, while Benett could be claiming to remain within the private sphere of her informal network when sending copies of her work to her "geological friends", she also stepped into the public sphere by depositing copies with a formal network of scientific institutions including the Woodwardian Museum in Cambridge, the Bristol Institution, the Société Géologique in Paris (who recorded the work as a donation by "M. Ethelred Bennett" [*sic*]), and the British Museum, thereby fulfilling its legal deposit requirement ("Comments" 188, 219). This suggests a strategy on Benett's part of exploiting the overlap in membership between the two geological networks: while her gender meant she could only play an active role in the informal network, she could certainly exploit her place in it to bring her work to the attention of formal geological institutions. If the *Catalogue's* pattern of distribution was indeed the result of a deliberate strategy to shape formal geological debate from within an informal network, it proved successful: several of her nomenclatures became standard in nineteenth-century geological literature. As a result, the International Commission ultimately considered that Benett's stated espousal of the modesty topos was outweighed by the work's distribution and reception. Her contribution to early English geology was accordingly formally acknowledged by the International Commission, who placed her *Catalogue* on the official list of works approved as available for zoological nomenclature, thereby granting her a degree of the scientific legitimacy that her gender-based restriction to informal knowledge networks had largely denied her in her own lifetime.

Where the socially authored manuscript works studied by Margaret Ezell overtly signalled their difference from published works through the semiotics of handwriting vs. print, such visual differentiation was far less flagrant in the case of Benett's privately printed *Catalogue*, which mimicked – and even anticipated – the semiotics of mainstream geological publications. This ambiguity is what enabled her to play astutely with the expectation that women would limit their participation in the literary field to social authorship, claiming limited circulation for her work and thereby escaping potential censure for overstepping her gender boundaries, while in fact ensuring a significant, albeit numerically limited, pattern of distribution that brought

her *Catalogue* to the attention of the key instances of legitimisation in the field of geology.

Notes

1. Etheldred Benett, letter to James Sowerby, 27 February 1814. Sowerby correspondence transcribed by R.J. Cleevely. Eyles Collection, Special Collections, Bristol University Library.
2. My thanks to Alison E. Martin for helping to identify the artist.
3. This section draws largely on Spamer et al. for an account of the controversy.

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"My Little Readers": Catharine Parr Traill's Natural Histories for Children

Angela Byrne

Catharine Parr Traill (1802-99) was a prolific publisher of children's books, emigrants' guides, and popular natural histories. As Catharine Parr Strickland, she published at least 15 moral tales and natural histories for children from 1818 to 1831. She married the Scottish Lieutenant Thomas Traill and the pair emigrated from England to Upper Canada in 1832. To support her large family and assist with her husband's debts, she published at least nine books for adults and children, and several series of articles in British and Canadian periodicals, in 1836-95.¹ While her writings have often been dismissed in favour of those of her sister, Susanna Moodie (1803-85), a place has been argued for Traill within "an eighteenth-century tradition of nature writing, which itself was a unique hybrid of both literary and scientific concerns" (Raglon 5). She occupied a noteworthy position within nineteenth-century Canadian natural history publishing and children's writing, receiving praiseworthy book reviews and letters from readers up to the time of her death in 1899.

However, Traill continues to be considered a conservative writer (Peterman and Ballstadt 1), in Janet Floyd's words, "the very pattern of middle-class emigrant domesticity" and an author whose texts were "apparently out of step with contemporary science on either sides of the Atlantic" (95). This article re-examines Traill's participation in and dissemination of Canadian natural history through her use of children's publishing as an interface between "amateur" and "professional" science. I argue that Traill's popular natural histories must be understood within the contexts of her correspondence with scientists, laypeople, settlers, and indigenous informants. Her natural histories for children are a form of cross-genre nature writing that present a holistic vision of Canadian ecology, interweaving as they do the scientific, settler, and indigenous forms of knowledge to which Traill had access. Her negotiation of these approaches and epistemologies is mirrored in the portrayal of Canada in various editions of her most popular books, as variously friendly and tame, or as wild and potentially dangerous. This article pays particular attention to the changing use of footnotes and illustrations through these editions as embodying Traill's loss of authorial control through unfavourable publishing contracts, and an alteration in the register of her original works that influenced later perceptions of Traill as less scientific than other writers.

Scholarly ambivalence about the scientific value of Traill's work (Peterman 173-74) may, to some extent, stem from the financial imperative behind her publishing career. Writing provided a means of supporting her large family, in light of their relative poverty and her early widowhood and, it has been suggested, her and her husband's lack of the skills necessary for settler life (Hopkins 117, 119; Traill, *Pearls and Pebbles* xxix). Traill's financial hardship was such that in December 1838 Susanna Moodie wrote to lieutenant governor of Upper Canada (present-day Ontario), Sir George Arthur, highlighting the predicament of "the poor author" (Hopkins 119). A devastating house fire in 1857 left the family homeless. By December 1860, a widowed Traill decided to take in a boarder to earn £30 per annum (Traill, MS, MG 29 D81, 2: 2856).

Despite having a career that spanned nine decades, and the popularity of her

books among a general audience, Traill never achieved financial security. This appears to have been partially due to poor publishers' terms. *The Backwoods of Canada* was first published by Charles Knight in London as part of the "Library of Entertaining Knowledge" series and was very successful – the British Colonial Office and shipping companies purchased large numbers of copies, and it was reprinted several times between 1836 and 1846 – but Traill received only £110 in payment (Hopkins 117). Nor did the success of *The Female Emigrant's Guide* (1854; reprinted as *The Canadian Settlers' Guide*, 1855) bring much relief: the publisher, Revd Henry Hope, appears to have sold the publication rights without Traill's permission (Hopkins 121) and payments owed to her for the work remained outstanding (Peterman and Ballstadt 9). Agnes Dunbar Fitzgibbon, botanical illustrator and daughter of Susanna Moodie, referred to the "mismanagement of her [Traill's] editor and publisher" (*Pearls and Pebbles* xxx). However, it was the norm among Canadian publishers in the late nineteenth century for titles to be published at the author's expense, to ensure the publisher's financial security (Peterman and Friskney 63-64). Such problems dogged Traill's publishing career, leading her later successes to be attributed in large part to the efforts and determination of Agnes Fitzgibbon (Peterman and Ballstadt 9-10).² Fitzgibbon provided botanical illustrations for some of Traill's publications and edited the miscellany of stories and observations, *Cot and Cradle Stories* (1895). She highlighted Traill's poor treatment at the hands of publishers in her biographical introduction to *Pearls and Pebbles*, stating that her aunt had received only £50 for the copyright to *Canadian Crusoes* and *Lady Mary and her Nurse* (*Pearls and Pebbles* xxix-xxx) – both books appeared in several editions under different names. However, Traill's close friend, Frances Stewart, thought in July 1867 that Fitzgibbon was "treating her very shabbily in only allowing her £50. If she gets a thousand copies of the Flower Book sold, a thousand copies will fetch £1250 & surely dear Mrs. Traill had the half of the work I think but I believe Mrs. Fitzg. has had some expense with it" (Stewart 225). Fitzgibbon's primary role was as a friend of Edward S. Caswell, book publishing manager at the Toronto-based Methodist Book and Publishing House (1892-1909) – the publisher of Traill's final two books, *Pearls and Pebbles* and *Cot and Cradle Stories* (Peterman and Friskney 66). Traill was asked to secure 200 subscribers to affray publishing expenses for *Pearls and Pebbles* in 1894 (Traill, MS. MG 29 D81, 1: 978-1127), and its success led Caswell to agree to publish *Cot and Cradle Stories* the following year. However, the latter work did not achieve the same success (MacLaren 106; Peterman and Ballstadt 9-10), selling only 390 copies in the first four months of its publication (Peterman and Friskney 63-64), possibly due to its standing as a miscellany of moral tales and personal observations, some of which had been penned decades earlier (e.g. 215-39, "The Swiss Herd-Boy and the Alpine Mouse") and some of which had been published previously as part of the "Forest Gleanings" series in 1852. The difficulties Traill experienced in having her work published, particularly from the 1860s onwards, have been understood as an indication of a decreasing appetite for works of the kind she authored and a lightening of the moral tone in children's natural histories (Peterman and Ballstadt 9; Ritvo 89). However, contemporary responses to her publications indicate that she remained popular for the duration of her publishing career.

Traill's role in Canadian natural history and its dissemination in the second half of the nineteenth century must be understood in terms of the scientific context within which she operated. She occupies an important place within the tradition of a popular mode of natural history, which traces its roots to the Enlightenment. While she included

some of her own observations of bird and animal behaviour in *Pearls and Pebbles* (59), for example, she clearly stated that *Studies of Plant Life in Canada* was "not a book for the learned" (i). She portrayed herself as a "forest gleaner" who coped with her "want of other objects of interest" by learning about Canadian natural history: "books I had none to assist me, all I could do was note facts, ask questions, and store up any information that I chanced to obtain" ("Forest Gleanings" VI: 183). Her engagement with the sciences has been understood as an extension of the Enlightenment tradition of "both literary and scientific concerns" (Raglon 5). While Traill's means did not permit her to purchase equipment like a microscope, or to amass an extensive library (evident in her book-borrowing, discussed below), her interest in botany extended beyond "a genteel taste for floral beauty" to include "every aspect of the plant: its appearance, its medicinal and nutritional value, its life cycle and its relation to other flora and fauna" (Elizabeth MacCallum qtd. in Peterman 173). Within the context of late-nineteenth-century Canadian science, however, Traill's approach has been argued to have rendered her "a distant and small player" (Peterman 173). A review article on nineteenth-century Canadian botany published in *Proceedings and Transactions of the Royal Society of Canada* in 1897 made no mention of Traill among over 100 name citations and 500 pieces of writing (Peterman 174-75). From early in her career she publicly emphasised her distance from centres of learning, complaining that her access to information was limited by her location and education: "The only botanical work I have at my command is Pursh's North American Flora, from which I have obtained some information; but must confess it is tiresome blundering out Latin descriptions to one who knows nothing of Latin beyond what she derives through a knowledge of Italian" (*The Backwoods of Canada* 233).

Despite her employment of the modesty topos, Traill was securely located within the epistemology of the British naturalist tradition. Traill did not blunder into natural history publishing – she knew the market for such works and recognised the opportunities presented by the vast new repository of information that was Canada. Given the education Traill received, and her father's library, she must have been aware of her place in the genealogy of scientific and natural history texts for children. The first English language zoological book for children, Thomas Boreman's *A Description of Three Hundred Animals*, was published in 1730; by 1800, at least 50 such books for children had been published (Ritvo 72). Traill's ambitions were not too modest to prevent her from expressing the hope that *Studies of Plant Life* would "not prove an unacceptable addition to the literature of Canada, and that it may become a household book, as Gilbert White's *Natural History of Selborne* is to this day among English readers" (*Studies of Plant Life* 3) – or from publishing over a dozen natural history articles in the form of tales and sketches in a series entitled "Forest Gleanings" in the *Anglo-American Magazine* in 1852-53 (Floyd 93-104).³ She also published articles in *The Horticulturalist* based on her observations near her home at Rice Lake (Ainley 86).

Traill's books self-consciously disseminated information on Canada internationally. When she arrived in Upper Canada in 1832, botanical knowledge of the region was relatively poor. There were no botany manuals for the general reader, a situation she attempted to remedy with her emigrants' guides, and later with *Canadian Wild Flowers* (1868) and *Studies of Plant Life in Canada* (1885). Her books emphasised the necessity of practical household skills (*Canadian Settlers' Guide* 2), and that such knowledge should be founded upon a working knowledge and appreciation for natural history. The preface to *The Female Emigrant's Guide* stated that "the females have everything to learn, with few opportunities of acquiring the requisite knowledge," and

the book set about "instructing and advising" in a "simple useful" way (ix, x). Traill herself recalled in 1884 that when she first arrived in Canada and longed to learn more about the plants and trees of the forest, she "experienced the need of some familiar work, giving the information respecting the names and habits and the uses of the native plants" and that the only book to which she had access was "an old edition of a 'North American Flora' by that good and interesting botanist Frederick Pursh [*sic*]" lent to her by her close friend, Frances Stewart⁴ (*Studies of Plant Life* 2-3). The first comprehensive botany of Canada was William Jackson Hooker's *Flora Boreali-Americana*, published a year after Traill's arrival in Canada (1833). A signal moment in the record of Canadian natural history, compiled from observations made by Sir John Richardson (during Sir John Franklin's Arctic expedition, 1819-22) and Thomas Drummond (during Franklin's Arctic expedition of 1825-27), it was a compendium of existing knowledge of Canadian botany and acknowledged the collections and observations of hundreds of others, many of whom can be located alongside Traill within the strong British "amateur" natural history tradition in British North America in which fur traders, missionaries and explorers had participated since the early eighteenth century. The Hudson's Bay Company, for example, gave orders for botanical inventories by their servants from 1730 (but Zeller (192) cautions that these orders had to be reiterated in 1760 and that responses were poor).⁵ "Amateur" botanists were active in Canada from the early nineteenth century (including the collectors acknowledged in Hooker's *Flora Boreali-Americana*) and the period saw the foundation of natural history societies like the Literary and Historical Society of Quebec (1820) and the Natural History Society of Montreal (1827) (Zeller 193-94). Despite this picture of activity, the Botanical Club of Canada was not founded until 1892, and in 1897 the Canadian-American botanist David P. Penhallow lamented: "Our universities are yet doing in large measure what more properly belongs to the high schools" (qtd. in Peterman 175) – although this serves more to demonstrate his prejudice against the work of "amateur" and female botanists (Peterman 175). Zeller notes the "relative lateness of botany's emergence as a modern science" and the lack of international prestige in Canadian botany, as compared to Canadian geology or astronomy, even in the latter decades of the nineteenth century (Zeller 184-85).

After Pursh – the only reference book to which Traill had access when she emigrated to Canada in 1832 – Traill's next teachers were "old settlers' wives, and choppers and Indians" (*Studies of Plant Life* 2-3). Her position as an "amateur" allowed her to reference traditional knowledge without inhibition, from both settlers and First Nations. She recorded in her journal her regard for the "valuable knowledge" possessed by the "simplers and herbalists among the old settlers" and noted that: "It was from such sources that I myself learned the common names of most of our natural plants and some of their sanitary virtues" (Traill, MS, MG 29 D81, 2: 2924).⁶ Indigenous knowledge and a list of 28 "Indian words" mostly relating to plants and birds are provided for child readers of *Afar in the Forest* (206-07). *Pearls and Pebbles* also provides "Indian" names for birds (67, 78) and an "Indian friend" named Peter acts as the source of much of the narrator's information (79-80). Indeed, Traill considered "Indian name[s]" as "descriptive of some natural quality of the plant – its growth or habits" (*Studies of Plant Life* 19). Many references to traditional knowledge relate to the medicinal qualities of certain plants (*Canadian Wild Flowers* 10, 41, 54; *Studies of Plant Life* 37-38, 48, 59). For instance, Traill notes the use of the juice of the blood-root (*Sanguinaria Canadensis*) as a red and orange dye, and for medicinal purposes – noting that its medicinal use was acknowledged by the American Eclectic School of

Pharmacy (*Studies of Plant Life* 11) – and First Nations' use of the "Indian Turnip" (*Arisaema triphyllum*) as a treatment for colic (*Studies of Plant Life* 21). Traill not only demonstrates her own exchanges of information with settlers and First Nations, but also exchanges between those groups, such as settlers learning the medicinal value of the "butterfly weed" (*Asclepias tuberosa*) from "Indian herb doctors" (*Studies of Plant Life* 66). Traill repackaged and disseminated the natural historical knowledge she received from settlers, First Nations and "men of science," as well as her own observations made during lakeside camping trips in present-day Northern Ontario, and in her own garden. In *Lady Mary and Her Nurse* (1856), the nanny character, Mrs Frazer, delivers this range of knowledge in an easy, accessible manner. The hybridity of style employed by Traill in her presentation of Canadian natural history, then, mirrored the variety of her sources as she negotiated "amateur" and "professional" forms of science through children's publishing.

As if to cement her position within the "amateur" tradition, Traill employed the modesty topos all too common in nineteenth-century women's scientific writing (Carl Thompson 339). Her earliest publishing success, *The Backwoods of Canada* (1836) included a number of letters between Traill and her family in England, in one of which she confided: "I [...] have hardly confidence in my scanty stock of knowledge to venture on scientific descriptions, when I feel conscious that a blunder would be easily detected, and expose me to ridicule and contempt, for an assumption of knowledge that I did not possess" (233). In the same letter, Traill bemoans her lack of skill in making botanical drawings, yet goes on to supply observations on resinous trees, the popular names and habitats of common Canadian plants, and Latin names from Pursh (233-54); she also cites Pursh throughout *Studies of Plant Life*. She reiterates her disclaimer in *Studies of Plant Life*: "I cannot venture to treat the subject of the Grasses as a botanist" (102) – and in 1894, continues to claim a limited knowledge: "I am afraid my very unscientific mode of description may offend the learned entomologist. If so, I crave pardon and plead limited knowledge as my sufficient excuse." (*Pearls and Pebbles* 106). Despite this, her books cite some important botanical reference works, provide both the common and Linnaean names for plants, and use botanical terminology – but not so frequently as to discourage the general or young reader. References in *Studies of Plant Life* alone include the noted botanist John Lindley's 1836 work, *A Natural System of Botany* (14, 59, 70, 137); general references to the work of English botanist and founder of the Linnaean Society, Sir James Edward Smith (19); the American Professor, Charles Lee's, work on medicinal plants (22, 120); Asa Gray's seminal *Manual of the Botany of the Northern United States* (23, 49); Richardson's *Flora Boreali-Americana* (56); and John Evelyn's early (1664) but influential work on forest trees (*Studies of Plant Life* 151). These references not only ground Traill's knowledge firmly within canonical Enlightenment and recent nineteenth-century botanical traditions, but also serve to locate Traill more closely to centres of Anglophone learning, closing the epistemological gap between her rural settler life and limited resources, and her authority as a botanical writer. This process was cemented by Traill's iteration and reiteration in her books of the geographically and socially diverse networks of which she was a part.

Traill's early bibliography featured mostly fictional, didactic works for children, but later included some of the most important popular and accessible natural histories of Canada. The style established in her early years as an author of popular natural histories remained a central aspect of the charm her works possessed for contemporaries. The respect she gained for her work is only thinly veiled in her

publications. By the time of her marriage and a subsequent tour of Scotland with her new husband, Thomas Traill, in 1832, she possessed an understanding and appreciation of natural history sufficient to prompt a request from a professor of botany at the University of Edinburgh – probably Robert Graham – that she collect plants in Canada (*Backwoods of Canada* 240). By 1868, and her publication of *Canadian Wild Flowers*, Traill's Canadian learned circle included professors of botany and natural history, such as Revd William Hincks (1794-1871) at Toronto who kept a sizeable herbarium and to whom Traill sent "queries about plants" (Peterman 181) and Professor George Lawson (1827-95) at Kingston (*Canadian Wild Flowers* 8). In July 1869, Frances Stewart forwarded to Traill some "queries about plants" from Michael Pakenham Edgeworth (1812-81), Irish botanist and stepbrother of Maria Edgeworth:

which I think you can answer better than I can & also a commission to procure some seeds of the Pitcher Plant (*Sarracenia Purpurea*) and also seeds of the Sugar Maple. He has written all his questions & directions on a separate paper [...] they are for his friend Dr. Aitcheson who is anxious to introduce them to the Himalaya District for cultivation & who is to leave England in Oct'r for India [...] I look to you dear Friend for all necessary information as well as the best way to pack them up secure from damp &c &c. They want such a large quantity that I don't know where it can be procured or found in such abundance but you or dear Kate I am sure will let me know all particulars as soon as you can as I wish to answer his letter & enquiries as soon as possible. Any expense there may be I shall pay so let me know. [...] you are much more accustomed & more capable of such business than I am. (Stewart 239, 241)

While it is unclear whether Traill did supply the seeds to Edgeworth, the directing of the query to her is in itself a signal of her standing as an expert in North American botany by the 1860s. By the time of the publication of *Studies of Plant Life in Canada* (1885), her network had expanded greatly and her international renown was evident in her acknowledgements of receiving specimens from named and unnamed naturalists, professors and laypeople all over North America (*Studies of Plant Life in Canada* 31, 232, 245). She established a herbarium at her home, and made some money in the early years of her widowhood by selling specimens to English botanical collectors (*Pearls and Pebbles* xxxi).

Perhaps Traill's most important correspondent (and friend) in her later life was James Fletcher (1852-1910) – naturalist, Canadian Parliamentary librarian, and first Dominion Entomologist of Canada. As a favour to Traill he edited *Studies of Plant Life in Canada* (1885), which Traill acknowledged in the preface to the book along with acknowledgement of John Macoun's "opinion of the usefulness of [Traill's] work on the vegetable productions of the country" (*Studies of Plant Life* ii-iii).⁷ Fletcher and Traill's correspondence (1883-98) includes evidence of their exchanges of information, books, traditional ecological knowledge, and specimens. It was also jovial, friendly, and mutually-supportive; he often praised her work, as in the following reaction to a draft of *Studies of Plant Life* in March 1883:

I am charmed with your style & find it so very attractive after the irreverent materialistic philosophy, falsely so called, of too many of our own modern naturalists. It is very charming to me to see such love for our beneficent

creator & reverence for his perfect works. In all my instructions in botany I have always endeavoured to draw attention to the marvellous & beautiful adaptations of all objects presented to us in the study of nature, to their required ends and to show how much we have in this lovely world to make us happy. (Traill, MS, MG 29 D81, 1: 478-81)

When Fletcher finished reading the first part of Traill's manuscript of *Studies of Plant Life* in June 1883, he sent further praise: "Allow me to say I have seldom enjoyed any 'communing with nature' more than I have the perusal of your thoroughly & patently original notes on her loveliest treasures 'the flowers of the field'" (Traill, MS, MG 29 D81, 1: 482-89). What Fletcher's reviews reveal is an appreciation for a holistic view of the study of nature, appearing "romantic" in its subjectivity, and running counter to the professionalization of the sciences. While including scientific information such as Latin names and conditions for growth, Traill's information is also highly subjective, as she assesses the "prettiness" of plants (*Studies of Plant Life* passim). The emphasis rests on a marriage of the practical and the pleasurable, endorsed by one of Canada's leading contemporary "professional" scientists. It may be this very subjectivity and reverence for nature that has earned Traill the reputation of representing an archaic form of science, but Traill's popularity was derived in part from this very characteristic. She achieved mass appeal by allowing what she saw as the beauty and perfection of nature to speak alongside straightforward explanations of its mysteries, and detailed catalogues specific to Canadian natural history. Her work therefore made a significant contribution not only to the corpus of natural-historical or scientific knowledge of Canada, but also to the development of nature as an essential component in Canadian national identity formation (see: Baldwin et al.).

While, by the late nineteenth century, "professional" scientists were turning to specialised textbooks, the natural-historical tradition of which Traill was part remained the domain of the amateur (Raglon 6). This tradition had the advantage of appealing to a wide readership. *Canadian Wild Flowers* (1868) has been referred to as "the first Canadian botany book with easily accessible scientific text" (Ainley 88). Within ten years of its initial publication, *The Backwoods of Canada* (1836) had gone through five reprints and two editions (Ainley 83). A review of a new edition of *Canadian Wild Flowers* in 1907 referred to Traill as "among the leaders in popularizing a knowledge of American wild flowers by presenting them untechnically and attractively to those who could or would not make their acquaintance through keys and manuals" and asserted that the new edition would "stimulate in many people of the present day that love for plants and their ways which comes through knowing what they are, and toward which the first edition did such good service two decades ago" ("A Popular Book" 197-98). Edward Caswell's concerns about the market for Canadian books in 1894 proved unfounded with the placing of an order for 250 copies of *Pearls and Pebbles* from the London (UK) publisher, Sampson Low, Marston and Co. (Peterman and Friskney 67).

Letters Traill received from a cross-section of colonial Canadian and British society demonstrate the popularity of her works among a wider audience. Lord Dufferin wrote in April 1895 in praise of *Pearls and Pebbles*: "The freshness and beauty of nature breathes through them all [the chapters of the book]," and in March 1896 Lady Aberdeen informed Traill of letters received from indigenous and settler children from all over Canada in response to the publication of adaptations of some of Traill's children's stories in a magazine (unspecified) in which Aberdeen was involved (Traill, MS, MG 29 D81, 1: 343-46, 389-90). However, it is worth bearing in mind the role of

Caswell's marketing acumen in gaining widespread praise for *Pearls and Pebbles*; he proposed soliciting half-page summaries of the book for publicity purposes from the historian and journalist Professor Goldwin Smith, principal of McGill Sir John William Dawson, principal of Queen's College George Monro Grant, and the philanthropist and reformer Lady Aberdeen, by sending them complimentary copies (Peterman and Friskney 67).

It is not unreasonable to suggest that generations of Anglophone Canadians grew up with Traill's books. In her later years, her position as Canada's foremost popular science writer was evident in a subscription collected for her assistance in June 1898:

Some of your many friends and admirers, having learned that you have recently sustained a severe financial loss, desire to express their sympathy with you and they embrace the opportunity of recording their appreciation of your long and honourable life of literary and scientific labours, two thirds of a century of which have been devoted to Canada. [...] Three years after your arrival the publication in London of your 'Backwoods of Canada' began to attract the attention of the British people to the character and advantages of life in this portion of the Empire. Since then a series of writings of great literary merit [...] have issued from your pen. They manifest a keen interest in your Canadian surroundings; a pure love of nature, an appreciation of her beauties, and a reverent insight into her mysteries, as well as a loving sympathy with your fellow creatures of every race. You have been instrumental, under Divine Providence, in leading many to love the treasures of Nature, and to read the lessons that are patent in the beauty, symmetry, and grace which you have so faithfully portrayed in the Flora and Fauna of our woods and forests. We cannot forget the courage with which you endured the privations and trials of the backwoods in the early settlement of Ontario, and we rejoice to know that your useful life has been prolonged in health and vigor until you are now the oldest living author in Her Majesty's Dominions. Nearing the close of the century we desire to pay tribute to your personal worth, and we ask your acceptance of this testimonial as a slight token of the esteem and regard in which you are universally held. (Traill, MS, MG 29 D81, 1: 1234-36)

This letter reiterates the value James Fletcher placed on Traill's work, as resting in both her evident love for the natural world, her obvious sentiment for childhood, and her settler sentiment for the old country. It also further demonstrates the popularity of her books and the significance of settler experience of nature in Canadian identity. Discussion will now turn to one of her most popular children's books and what it reveals about Traill's strategies for communicating Canadian natural history.

One of her most popular children's books was *Lady Mary and Her Nurse*. First published in 1856, it was republished in 1857 as *Stories of the Canadian Forest; or, Little Mary and Her Nurse*; in 1869 as *Afar in the Forest; or, Pictures of Life and Scenery in the Wilds of Canada* (the title by which it would become best known); and finally in 1881 as *In the Forest; or, Pictures of Life and Scenery in the Woods of Canada*. *Afar in the Forest* was, according to its preface, "considerably improved, so as to increase its attractions for the young." The book was to provide "anecdotes respecting the plants and animals of our great Canadian Colony, and not a few lively

details of the habits and customs of the Indians, now fast disappearing before the encroachments of European civilisation." It was also anticipated that "Both girl and boy may find amusement and instruction in these pages" (*Afar in the Forest* v). Reflecting on her own childhood, Traill referred to the study of botany as "a practical and useful part of our education" (Traill, MS, MG 29 D81, 2: 2947). Traill's desire to both amuse and instruct permeated not only her natural-historical writings, but also her fiction (Thompson, *The Pioneer Woman* 9-29), and has been linked to the influence of her deeply held religious beliefs on her vision of, and relationship with, the natural world (see: Thompson, "Catharine Traill's Ecological Vision"). *Studies of Plant Life in Canada* contained a special message addressed to the "Mothers of Canada" – that they should teach their children to "know and love the wild flowers springing in their path, to love the soil in which God's hand has planted them, and in all their after wanderings through the world their hearts will turn back with loving reverence to the land of their birth: to that dear country, endeared to them by the remembrance of the wild flowers which they plucked in the happy days of childhood" (*Studies of Plant Life* ii).

The many reprints and new editions arising from what was originally published as *Lady Mary and Her Nurse* may appear as an easy way for an author or publisher to earn additional commissions. Aside from the fact that Traill's publishers did not make her the beneficiary of the strong sales of these works, the evolution of the series represents much more than a commercial enterprise – in it can be traced a process of wilding of the Canadian environment. The change in title is just one of the ways in which *Afar in the Forest* offers an image of a wilder Canada than *Lady Mary and Her Nurse*. In *Afar in the Forest*, Canada appears as a dark, remote, forested place inhabited by potentially threatening "Indians" and presenting such dangers to children as bears, snakes, and getting lost. This process of wilding is continued in the second edition of *Afar in the Forest* (1873), in which the forest and First Nations are given prominent positions in attractive full-colour frontispieces. This process, removed from the author's hands and controlled by editors, sits in opposition to the authorial intention of domesticating the Canadian landscape.

The illustrations form the greatest point of difference between these books, with *Afar in the Forest* achieving a more unified conversation between the text and the images, but also providing more representational balance between images of domesticity and images of wilderness and danger. The six illustrations in *Lady Mary and Her Nurse* all portray animals in the wild, save the frontispiece of the child being presented with a pet squirrel. *Afar in the Forest*, on the other hand, includes an equal number of domestic and "wild" images (six of each), as well as seven images of First Nations. Four of the total 23 images in *Afar in the Forest* depict European settlers within the Canadian landscape, displaying varying degrees of comfort within it. This explains the role of the increased number of "domestic" images in the book. In juxtaposition with the safety of little Lady Mary's home, operated another Canada – one darkened by the threat of bears, snakes, and getting lost in the woods. The frightening image of a lost child hiding from ravenous bears in *Lady Mary and Her Nurse* is counteracted in *Afar in the Forest* with the inclusion of other, more comforting scenes – and, indeed, by an image of armed settlers ready to protect their community from bear attacks. Canada is at once domesticated and exoticised, the dangerous wild animals and First Nations providing a counterpoint to the cosy homeliness of little Mary's home life which is securely situated within British cultural contexts, despite its geographical remove.

Indeed, these texts are familiarly situated not only in their physical setting (the respectable Anglo home), but also in the modes of learning employed within them. Traill's natural histories for children, including *Afar in the Forest*, perpetuate the Enlightenment motif of learning through conversation. *Afar in the Forest* is arranged around a series of conversations and anecdotes pertaining to different birds, animals, indigenous customs, or natural phenomena. Prompts elicit educational conversations; for example, when Mary is made a present of a flying squirrel by (her nanny) Mrs Frazer's brother, the creature's habits and antics provide the basis for the child's learning (*Afar in the Forest* 9-16). Mrs Frazer's anecdotes perform the same function, with the child interrupting with questions and points of clarification. A view of the *aurora borealis* is used as an opportunity to counter myths about the phenomenon itself and to teach the child about electricity (156-62). Traill demonstrates the effectiveness of this pedagogical method halfway through the book, by voicing the child's desire to reverse the educational process by telling a story to her nurse. Little Mary asks Mrs Frazer to guess what the story will be:

Mrs Frazer: "Is it 'Little Red Riding Hood,' or 'Old Mother Hubbard,' or 'Jack the Giant-Killer'?"

Mary: "Oh, nurse, to guess such silly stories!" said the little girl, stopping her ears. "Those are too silly for me even to tell baby! My story is a nice story about a darling beaver. Major Pickford took me on his knee and told me the story last night." (132)

Mary proceeds to relate the story, demonstrating the progress of her learning and her understanding of the natural world.

The figure of Mrs Frazer herself merits some consideration. The daughter of Scottish settlers, she is unlike little Mary in being Canadian born. She is an excellent intermediary – the reader learns that she was born in a log-shanty near Rice Lake (where the Traill family had resided for several years until the house fire of 1857), "among woods, and valleys, and hills covered with flowers, and groves of pine, and white and black oaks" (*Afar in the Forest* 16). Mrs Frazer debunks the myths with which little Mary has come to Canada and assuages some of the child's fears about the "backwoods," countering the reputed viciousness of the Canadian wolf, for example (*Afar* 17). Indeed, Mrs Frazer may have been modelled to some degree on Traill herself. Mrs Frazer refers to her botanist father teaching her plant names as a child (*Afar* 155-56), mirroring Traill's gratitude to her own father for "early implanting in my sisters and myself a love for flowers [...] his teaching on the subject of botany and the excellence of Gods [*sic*] works" (Traill, MS, MG 29 D81, 2: 2947). Not only demonstrating nostalgia for her English childhood, Traill elevates her father's fireside method of education as an effective one.

The extent to which Traill's natural histories for children can be considered scientific, then, lies in the multifaceted forms of knowledge communicated within them and the ways in which it was intended that the "little readers" should engage with them. The ways in which Traill interwove understandings of nature – both traditional and "scientific" – into her didactic and fictional texts can be usefully considered within the context of what Anne Secord has identified as "the ways in which scientific authors – especially botanists – adopted and adapted such practices [interleaving and marginalia] in order to promote specific practical skills." Secord considers botanists as guides "by drawing attention to an awareness of a large lay audience that the compilers of these

texts wished to prompt into action in specific ways" (283). Traill, in this sense, effectively sought to train her readers to think botanically, but expressed that intention in terms that could be understood by readers with a range of educational experience. Her interpolations of calls to moral action – asking her readers to consider their interactions with Canadian nature – are amalgamated with natural historical epistemologies by at once intricately connecting both forms of understanding and expressing to children a natural link between Christian morality and appreciating nature through intimacy (knowledge). Her natural histories for children encapsulate her simultaneous concerns for the settlement and Christianisation of Canada and its ecological consequences (such as deforestation). From her earliest publications, she encouraged her young readers to adopt a caring attitude towards animals in particular, advocating the keeping of pets as fostering kindness and responsibility, offering “useful lessons of morality and industry” (*Sketches from Nature* vi) and introducing them to the study of nature. Furthermore, keeping pets and taming wild animals formed part of the process of familiarization of Canadian nature occurring throughout her publications. Sixty-five years after the publication of *Sketches from Nature* (1830), Traill’s *Cot and Cradle Stories* (1895) continued in a similar vein. Rather than simply teaching natural history, the book encourages children to appreciate, respect and enjoy the natural world, and is to that end full of examples of children paying close attention to the birds and animals living in their gardens and around their homes, learning by observation. Furthermore, Traill’s intertwining of morality and natural history perpetuates the Romantic ideal of the natural world as morally and physically healthful for children, and Traill’s idealization of her own childhood educational experiences.

The extent to which her texts can be considered scientific is also illustrated by comparing *Lady Mary and Her Nurse* and *Afar in the Forest*. Four substantial footnotes were removed in the preparation of *Afar in the Forest*. These notes provided detail on appearances of the *aurora borealis*, the diet of bears, and an account of the beaver quoted from the Ojibwa missionary Pahtahsega’s (also Peter Jacobs, 1807-90) account of a journey to Hudson Bay (1853). The children who came to *Afar in the Forest*, then, missed out on this greater detail and broader perspective, and on the opportunity to mediate second- or third-hand information for themselves. *Afar in the Forest* retained a small number of footnotes providing Latin names for plants and additional information about the diets of some animals (115, 117), and the main text contains some references to settler and First Nations’ traditional knowledge. The most notable addition to *Afar in the Forest* is an appendix listing 28 “Indian words,” mostly relating to plants and birds (206-07). The knowledge of Canada presented in the text, then, is a form of cross-genre nature writing distanced from Western science and located more closely to the operations of knowledge on the ground in the backwoods.

What Traill offered her “little readers” (*Afar* 36), then, was not an academic knowledge of Canada – the opening words of *Studies of Plant Life*, “this little work [...] is not a book for the learned” (i), confirm her intention – but rather a “friendly” and deep knowledge of Canadian ecology, an overview presented with the detail and appreciative tone of one intimately familiar with it. Her vision of nature as one interconnected system was informed both by the science current in her early career – in the publications of Humboldt, for example – and by her innate curiosity. Agnes Fitzgibbon’s biographical introduction to *Pearls and Pebbles* reveals that Traill and her sisters were, as children, fascinated by the books in their father’s library, particularly atlases and geographies (xi). These sources operated in complement with Traill’s explorations of nature in their childhood garden and the surrounding fields. Traill’s

books, therefore, offer the possibility of knowing "something beyond the mere name" and encourage the reader to "seek for higher knowledge, which may be found in works of a class far above what the writer of the present book can aspire to offer" (*Studies of Plant Life* i). She offers a deeply personalized and experiential account of Canadian nature, with books like *Pearls and Pebbles* (1894) comprising a series of reminiscences from her own life, her fondest memories of learning about nature and natural history, and her experiences of nature in England and in Canada. These were her responses to the need of "some familiar work" on Canadian plant life.

The final chapter of *Pearls and Pebbles* is entitled "Something Gathers up the Fragments" (235-41). Traill references the French chemist, Comte de Fourcroy (1755-1809) as having stated, "something gathers up the fragments, and nothing is lost," and draws a connection between this and the biblical phrase: "Gather up the broken pieces which remain over and above, that nothing be lost" (John vi:13) (*Pearls and Pebbles* 235). *Pearls and Pebbles*, Traill's penultimate published work, itself set out to gather up the fragments of her reminiscences and observations made over six decades. Elizabeth Thompson has considered this chapter in terms of Traill's cyclical vision of nature and her internal conflict about the destructive place of the settler in that cycle. It is also Traill's reflection on, and consideration of, the position or role of her work as a whole. Walking the reader through the Canadian forest, Traill demonstrates how nature (or God, in her worldview) ensures that nothing is lost or wasted. Just as pine needles and other detritus feed the soil in a continuous process of renewal, Traill saw a role for her work in the generation and dissemination of knowledge, and its transmission to the next generation. That knowledge was to be a synthesis, like the trees in the forests she so admired, of traditional indigenous, settler, "amateur" and "professional" epistemologies and understandings to create an economy of Canadian nature that not only justifies settler destruction of the forest (see: Thompson, "Catharine Traill's Ecological Vision") but also places the amalgamation of knowledges of Canada into one systematic whole, for communication to the Empire's youngest subjects and its future guardians.

Notes

1. For a complete bibliography of Traill's works, see: www.collectionscanada.gc.ca/moodie-trail/027013-2203-e.html. Web. 28 May 2015.
2. Fitzgibbon provided botanical illustrations for *Canadian Wild Flowers* (1868) and *Studies of Plant Life in Canada* (1885); the six colour illustrations in *Studies of Plant Life* were made from specimens, some of which Fitzgibbon had collected herself (*Studies of Plant Life* 62). Her watercolours can be viewed online at: chamberlin.library.utoronto.ca
3. Five of these pieces had been previously published in *Sharpe's London Journal* in 1848-52, and, in all, the pieces were originally intended as a sequel to *Backwoods*, only sold as articles when no publisher could be found for the volume (Floyd 93). Floyd suggests that "the process and outcomes of gleanings may provide a useful framework within which to understand the ways in which emigrant experience may be written and represented" and that this series of articles "were gleanings indeed: the scraps and left-overs gathered up after the first and best harvesting of writerly experience; fragments recycled in search of much-needed cash" (Floyd 93).
4. Frances Stewart (1794-1872), Irish immigrant to Canada (from 1822), was related to the Anglo-Irish writer, Maria Edgeworth.
5. Zeller's work includes a fascinating and detailed account of botany in early Victorian Canada (183-268) and paints a picture of a lively Victorian botanical scene in eastern Canada in particular. Indeed, Traill made use of the HBC network through her sons, Walter (1847-1932) and William Edward (1844-1917), both of whom were HBC traders, and *Pearls and Pebbles* refers to information gathered from fur-trade sources, for example (86). Editions of their letters were published respectively by Mae Atwood (*In Rupert's Land*) and K. Douglas Munro (*Fur Trade Letters of Willie Traill*).
6. The MS note quoted here is the basis for Traill's thoughts on traditional remedies in *Studies of Plant Life* (84).
7. John Macoun (1832-1920) was a member of the Geological Survey of Canada and author of botanical treatises, and Traill studied a copy of his *Catalogue of Canadian Plants. Part I: Polypetalae* (1883) which he had gifted to her, in her preparation of *Studies of Plant Life in Canada*; he also helped her to find a publisher for the volume (Peterman 175).

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Ruth Heholt, "Science, Ghosts and Vision: Catherine Crowe's Bodies of Evidence and the Critique of Masculinity." *Victoriographies* 4.1 (2014): 46-61.

Ruth Heholt's convincing article on Catherine Crowe, the nineteenth-century spiritualist and novelist, builds on current academic interest concerning the Victorian supernatural and its transcendence of nineteenth-century gender roles. Heholt's argument further justifies the assertion – made by critics such as Jenny Uglow, Vanessa Dickerson and Andrew Smith – that Victorian ghost stories served as literary tools through which to radically destabilise and re-examine contemporary gender binaries. Heholt proposes that Crowe used works, such as *The Night Side of Nature* (1848) and *Spiritualism and the Age We Live In* (1859), as a means of destabilising the masculine body and the domain of "objective" science, by instead introducing a feminine, more accessible, subjective method of "perceiving" where female "weakness" allowed access into the spirit world.

Heholt successfully establishes Crowe as one of the British pioneers of Spiritualism, her works pre-dating the Fox Sisters' international fame, and showing, in Heholt's words, "independence of thought and a clear feeling for the spiritual needs of her time" (48). Crowe believed that "biased skepticism" within the masculine, Victorian sciences prevented Spiritualism from being considered as a serious scientific practice (49). Despite frequent attacks by critics such as Caldwell and Dickens, she attempted to bridge the gap between science and spiritualism, presenting "real" supernatural experiences as scientific evidence. Heholt proposes that "Crowe saw it as science's duty to investigate ghostly and supernatural phenomena [...] by refusing to investigate, scientists were invalidating the scientific method and indeed science itself" (49). By reacting against oppressive scientific doctrines, Crowe, Heholt argues, "questioned, challenged and interrogated the bastions of Victorian masculinity: science, rationality, vision and the male body" (47-48).

Heholt begins by proposing that Crowe not only prefigured the emergence of British Spiritualism, but prefaced late-Victorian research groups, such as the Society for Psychical Research, who believed ghostly sightings had scientific grounding (48). Crowe's fragmented, unconventional narrative style, Heholt asserts, was adopted from folklore, while the stories were "gleaned from talk or gossip about ghosts" (49). These informal snippets were then supported by "mass" witnessing: "there is an overlying sense that they are also 'known to many' and that these ghosts have been witnessed by more than one person. This underscores the idea of 'evidence'" (50). Heholt moves on to say that Crowe's attempt to establish ghost sightings as "evidence" is not all that she sets out to achieve. Rather than adopt women writers' methods of using a female ghost to subvert doctrines of the domestic, invisible housewife, Crowe, Heholt argues, makes "men and their ghosts" visible (53), and by doing so she attempts to destabilise the scientific, objective male gaze, either by allowing women to see male ghosts or by silencing and "feminizing" the male ghost. Heholt uses Crowe's "The Swiss Lady's Story," "The Italian's Story" and "Round the Fire" in *Ghosts and Family Legends* (1859) to demonstrate this. In "The Swiss Lady's Story," Heholt notes how the male gaze is reversed, and the male body feminised, as a silent apparition of a soldier is only visible to females and servants: "This is the visible body of a white, middle-class man that is so feminised, so scrutinised and that is referred to as 'it'" (55). In the latter two

tales, Heholt suggests that Crowe's other male characters are reduced to lesser forms of manhood either through becoming, or coming into contact with, a ghost. In "The Italian Story," a murdered nephew returns as a disempowered, silent ghost to haunt his uncle. In "Round the Fire," the "manly" Captain S witnesses the ghost of a "beautiful naked boy"; an experience Heholt suggests "deconstructs the power and violence of the more conventional masculinity of the ghost-seer himself" (56). A similar event occurs to Count P in the same tale, his manliness "rendered passive and blind" after "his manly body is penetrated by an apparition" (57). Heholt argues that Crowe's "radical (re)vision" of the male ghost body and their ghost-seers under the guise of scientific evaluation "undermines the dominant certainties of empirical vision and masculinity" (59). It is through Crowe's pursuit of supernatural knowledge through scientific means that Victorian masculinity can, in turn, be re-envisioned and reassessed.

Heholt provides an innovative and highly persuasive study of Victorian feminised manhood, blending this well with other cultural contexts, such as nineteenth-century spirituality, science and sensual experience. By emphasising the importance of a little known Victorian female figure and her early feminist and scientific achievements, Heholt provides an opening for scholars specialising in gender, the supernatural and scientific studies to explore her work in greater depth. Although Heholt does touch on the evolution of the Spiritualist movement and other fictionalised ghost-tales, it would be interesting to see Crowe's work in context with other Victorian spiritualist or radical female writers, her narratives' gendered subtext representing an important addition to feminist discussion. Nonetheless, Heholt's article pinpoints a historically significant discourse that raises important questions for current scholars regarding nineteenth-century science and gender, the inclusion of women in scientific spheres and the attempt to merge scientific reasoning with speculation on the supernatural.

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Cian Duffy, “My purpose was humbler, but also higher’: Thomas De Quincey’s ‘System of the Heavens’, Popular Science and the Sublime.” *Romanticism* 20. 1 (2014): 1-14.

“Come, and I will show what is sublime!” writes Thomas De Quincey in his essay “System of the Heavens as Revealed by Lord Rosse’s Telescopes,” first published in *Tait’s Edinburgh Magazine* in 1846. De Quincey composed his essay following the observation of the Orion nebula by William Parsons, third Earl of Rosse, using his massive newly-built telescope, the “Leviathan of Parsonstown.” Rosse’s investigation resolved the nebula into individual stars rather than gaseous mass, thus refuting the most important nineteenth-century theory of the development of the solar system, the nebular hypothesis. However, Cian Duffy skilfully demonstrates that De Quincey’s primary concern is not with Rosse’s finding, nor indeed with his professed scientific source, the popular astronomy book, John Pringle Nichol’s *Thoughts on Some Important Points Relating to the System of the World* (1846). Instead, Duffy astutely argues, De Quincey’s essay “remediates in non-specialist language” the “impressive effect” of the “natural sublime,” widely employed in astronomical and cosmological writing (2). Duffy claims that in “System of the Heavens,” De Quincey’s long-standing personal fascination with the science is relegated to his and *Tait’s* financial concerns, the “natural sublime,” inherited from Romantic science, having proven marketability. This leads Duffy to propose that De Quincey offers his readers a “vicarious” knowledge of the “natural sublime” as experienced by the astronomer looking through the telescope remediated through “rhetorical effect,” rather than the actual spectacle of astronomical phenomena, thus rendering it a commodity for the readership of *Tait’s* (3).

According to Duffy, De Quincey’s use of “impressive effect” reflects his concern with the “power” infusing the genre of astronomical writing, rather than an intention to communicate astronomical knowledge (3). Duffy explicates the late eighteenth- and early nineteenth-century excitement at the second astronomical renaissance started by William Herschel, continued by his son John Herschel, and occasioned by the development of telescopes with greater optical power. This exhilaration Duffy reads as evidenced in the heightened language of the “natural sublime” employed in popular astronomy texts such as Nichol’s *Thoughts* – “depths apparently fathomless,” “a boundless ocean of space,” “the idea [...] of infinity in its true awfulness” – and which Duffy finds sustained in De Quincey’s description of Rosse’s findings (5). Invoking William Wordsworth’s poem “Star-Gazers” (1807) which describes those who gathered round the popular street telescope exhibitors in London’s Leicester Square – “spectators rude, / Poor in estate, of manners base, men of the multitude” – Duffy sees De Quincey’s use of the intensified language of the “natural sublime” as placing him as a “show”-man of the same “tradition,” appealing to the “multitude” with profitability in mind, rather than the “men and women of science” (2, 4).

Particularly interesting is Duffy’s focus on the core section of De Quincey’s essay, his reimagining of the Orion nebula in an illustration taken from Nichol’s *Thoughts* as an “abominable apparition” (7). Rather than transmitting scientific knowledge about the Orion nebula and its verification or disproving of the nebular hypothesis, De Quincey creates a spectacle of the nebula formed from a “composite” of empirical observations of the Herschels and Rosse, and “culturally-determined responses” including well-known lines from John Milton’s *Paradise Lost*. Here, Duffy stresses

how De Quincey creates a “spectacular *product* specifically designed for sale and consummation,” with little resemblance to the nebula itself (8). Pointing out the vehement criticism De Quincey’s nebula received, Duffy gives an informative analysis of De Quincey’s footnotes to the republished “System of the Heavens” written for his *Selections Grave and Gay* in 1853. Reinforcing his thesis, Duffy argues De Quincey rejects criticism of his description of the nebula in Orion as “fanciful” and “unscientific,” by stating that it did not need to resemble the “*actual nebula*” as “modified” by more recent observations (10-12). For De Quincey it is “enough that once, in a single stage” it appeared as he describes: “momentary glimpses of objects vast and awful” more successfully conveying “impressive effect” than “any amount of scientific discussion” (11, 10). Duffy suggests De Quincey’s rejection of empirical truth signals the “dilemma” popular science writing still faces today: how to achieve an equilibrium between making science accessible, accurate and commercially valuable (12).

Cian Duffy contributes a unique perspective to an already impressive body of scholarship on De Quincey’s “System of the Heavens,” by John Barrell, Joseph Hillis-Miller, Alex Murray, Robert Platzner, Jonathan Smith, and Robert Lance Snyder. While the majority have focussed on the essay’s representations of De Quincey’s autobiographical concerns, Duffy pays heed to Smith’s appeal for critics to underscore the connections between De Quincey’s essay and existing astronomical and cosmological genres. The risk here is that the rich interplay of discourses – personal, literary and scientific – that characterise De Quincey’s essay become subsumed to one cause. Providing the reader keeps this in mind they will find much of interest in Duffy’s article, not just with reference to De Quincey’s essay, but also regarding the wider rhetorical strategies of nineteenth-century popular scientific writing.

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Jay A. Hamm, Bethany L. Leonhardt, Rebecca L. Fogley and Paul H. Lysaker, "Literature as an Exploration of the Phenomenology of Schizophrenia: Disorder and Recovery in Denis Johnson's *Jesus' Son*." *Medical Humanities* 40. 2 (2014): 84-89.

Jay A. Hamm and his co-authors argue that Denis Johnson's 1992 short-story cycle *Jesus' Son* offers "a rich, nuanced first-person view into schizophrenia that is not accessible through quantitative research" (84). Justifying their method by citing a number of studies which suggest that fiction may enable readers to develop "empathy" and "skills in ethical reflection" (84), the authors aim to show that *Jesus' Son* "adds depth to our understanding of the phenomenology of schizophrenia" (84). The article details three "deeply intertwined" aspects of the "phenomenology of psychosis," which are represented in Johnson's stories, before arguing that they can together be conceptualised as a "partial collapse" of the processes which constitute "synthetic metacognition"; that is, the "mental processes" which enable a person to "form complex mental representations of him- or herself and others, to think about his or her own mind and those of others and to use this information to adaptively deal with life's challenges" (87).

The first aspect of this "interruption of self," or "interruption of being," is *fragmentation* (87). Hamm and his co-authors argue that both the structure of *Jesus' Son* – comprising "disjointed short stories rather than a single coherent narrative" (85) – and its representation of the protagonist's experience and self-perception contribute to the sense of fragmentation the book conveys. The textual evidence they cite tends to focus on the disruption of linear chronology, for example, in the opening lines of the first story, "Car Crash While Hitchhiking." The authors then argue that the protagonist's "subjective interpersonal field" is represented as "ever-changing, comprising poorly understood, amorphous others" (85). Johnson makes it difficult, they suggest, for the reader to discern characters' roles and relationships, and this creates the sense of the narrator's "amorphous interpersonal field" (85). Incidentally, Hamm and his co-authors choose to refer to "a single unnamed narrator-protagonist" (84), rather than acknowledging that in the story "Emergency" the narrator acquires the soubriquet "Fuckhead," which another character, Georgie, tells him is "a name that's going to stick" (Johnson. *Jesus' Son: Stories*. New York: Harper Perennial, 1993. 84).

The final component of the "interruption of self" or "interruption of being" represented in *Jesus' Son*, which the article argues can be conceptualised as a failure of "synthetic metacognition" (Hamm, et al. 87), is "loss of agency" (86). In the story "Dirty Wedding," the authors contend, the protagonist's "motives and decisions remain outside of his awareness" (87). They cite lines from "Work" to illustrate how "*Jesus' Son* positions the reader in the vantage point of the protagonist who is moved through life without agency" (86). The focus on point of view in this section of the article suggests the possibility of deeper narratological or stylistic analysis than that actually undertaken by the authors.

The article argues that the "collapse of metacognitive functioning [...] culminates in the third to last story" (87), and that the final two stories "offer a glimpse of what the process of recovery from schizophrenia might look like." The narrator shows "evidence of higher forms of metacognitive processes," consistent with the fact that "growth in metacognition is linked with subjective and objective elements of

recovery” (88). There is a risk that the type of argument advanced in this article becomes circular. The text is said to offer an insight into schizophrenia (and recovery) because it represents symptoms which are documented in scientific literature as belonging to that condition. But what if the narrator’s perceptions only conform to the actual phenomena experienced by people with schizophrenia in those specific respects, and depart from it into fictional invention in every other? We can only grant the text authority to tell us about schizophrenia to the extent that it conforms to established knowledge.

The answer to such a criticism, of course, lies in the article’s methodological assumption that fiction offers a “rich, nuanced first-person view” unavailable to “quantitative research,” without the reader having to establish its “truth-value” (84). Humanities scholars will welcome this recognition of the power of narrative fiction; but in seeking to emphasise ways in which *Jesus’ Son* might enlist the reader’s empathy for its protagonist, and by extension for others who share his symptoms, the authors make very particular and tendentious selections of which passages to read and which to overlook. There is no mention, for example, of the closing paragraphs of “Two Men,” in which the narrator holds a gun to a woman’s head: “You’re going to be sorry,” he tells her (Johnson 31). The reader is not told what happens next.

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Will Abberley, “His father’s voice’: Phonographs and Heredity in the Fiction of Samuel Butler.” *19: Interdisciplinary Studies in the Long Nineteenth Century* 18 (2014): 1-22.

This article forms part of a special issue of *19*, themed “Orality and Literacy” and edited by James Emmott and Tom F. Wright, which explores interactions between voice and text through the nineteenth century, including “the phonographic dimensions of literary culture” (Matt Rubery’s and Will Abberley’s articles). Abberley reveals how Edison’s phonograph provided a useful analogy in conceptualisations of heredity. Heredity seemed to record and transmit vibrations through generations much as the phonograph did sound waves; children echo their parents, becoming passive sound reproduction devices. Abberley illustrates how these ideas circulate through Butler’s autobiographical *The Way of All Flesh* (1903) and, crucially, explores how children could resist the forces of ancestral and especially parental inheritance through writing, which seemed to promise a means of expressing individuality, as opposed to speech, as voice was a “bodily index of heredity.” Less bound up with the body than voice, literature is rendered the “best vehicle for individualistic expression” (2).

Abberley brilliantly weaves together two areas in the history of science, namely theories of evolution and sound technologies, showing how these areas fed into each other. He first discusses Victorian ideas of heredity and disputes around Darwin’s theory of natural selection in opposition to Lamarck’s model of the inheritance of acquired characteristics. It was through the lens of Lamarck’s theories that reproduction could be imaginable as reincarnation: parents survive or even become immortal through their offspring. Through articulations of Lamarckian ideas such as Henry Maudsley’s notions of degeneration, people seemed to lose individuality, becoming composites of ancestral stock. Despite the prominence of ideas of Darwinian natural selection, which in contrast suggested how change could take place without hereditary transmission (random variations and environmental pressures instead driving the evolution of species), Lamarckism persisted, and Butler firmly supported it. Heredity, for Butler, was a form of ancestral “memory,” expressed through organisms’ bodily forms and behaviours.

Running parallel with theories of heredity, nineteenth-century discussions of sound recording and reproduction were similarly concerned with the persistence of previous generations. In Edison’s vision of the uses of his phonograph, the “great men” of previous generations will be preserved for the younger generations to passively listen to. Both theories of heredity and sound recording technologies suggested ways in which ancestors could survive after death, haunting their children. Further, as Abberley puts it, “developments in voice recording coincided with emergent views of heredity as a form of inscription” (7). The popular idea that mental states consist of material vibrations fed into Lamarckian accounts of hereditary memory: the vibrations of ancestral experience are recorded and transmitted through generations.

Butler’s novel enacts his ideas of heredity, the son becoming a passive “living phonograph,” echoing his father’s dominant voice (14). Abberley convincingly argues that in Butler’s work we see a convergence of Lamarckian theory and phonographic discourse, and that it is mainly through writing that Butler envisaged a way to escape the ancestral “grooves” (14). The essay deftly contributes both to literary-historical understandings of nineteenth-century theories of heredity - demonstrating the

persistence of Lamarck's own theory in a battle against Darwinian ideas – and to the field of sound studies with its strand of focus on voice recording technologies. As primarily a sound studies scholar in this respect, I am likely to think Abberley could have spent a little longer unpacking and connecting his references to Babbage and Edison among other theorists of sound conservation and reproduction, but the value of his article is in great part in straddling the two fields and thereby demonstrating the crucial valorisation of writing - imagined as a kind of freedom, a means of escape from the dictates of an inscribed, ancestral past.

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Nikolai Duffy, “Against Metaphor: Samuel Beckett and the Influence of Science.” *Diacritics* 41.4 (2013): 36-58.

How can “mess” be turned into a structural principle? According to Nikolai Duffy the attempt to answer such a question informs much of Samuel Beckett’s late writings from *The Unnamable* until the end of his life. Language is an ordering device, and metaphors and analogies have always been considered its most efficient agents. They establish relations between distant signifiers and generate meaning within a conventional shared code. How then can language “stage the ‘mess’ in language” (44)? “Shall we escape analogy” (49)?

Duffy suggests that an understanding of the influence of modern physics on Beckett’s experimental poetics could reveal “interesting ways for thinking about new and innovative methods of writing that both reflect and structurally incorporate some of the central ideas that define the contemporary period” (44).

The very structure of the article seems to represent a creative attempt to constantly avoid the idea of a system: the unitary structure of a classic paper is shattered into a collection of fragmentary reflections – possibly a representation of Beckett’s “egregious gaps” (48) – that allude to meaning through contiguity rather than continuity.

In the first six fragments, Duffy introduces the classic nodes of Beckett’s poetics (rhetoric of impotence, limits of empiricism and the influence of Arnold Geulincx) as interpreted by previous studies of Beckett in juxtaposition (but without any explicit explanation) with Emmanuel Levinas’ ideas on skepticism and Nietzsche’s reflections on the philosophical implications of fragmentary forms. While previous scholarship focused on establishing textual and thematic correspondences between Beckett’s work and modern physics, Duffy seems to argue that the new philosophical implications of quantum mechanics shape the very form of Beckett’s writing more than acting simply at the level of content.

Quantum physics reveals a fundamental linguistic divergence between the new subatomic reality and the classical means of representation, while paradoxically depending on those same classical concepts for an unambiguous communication of the experiment. It is a “fundamental paradox” (40), as Werner Heisenberg defines it, and it cannot be avoided. The same paradox, Duffy seems to suggest, lurks in Beckett’s resistance to analogy through grammatical and syntactical experimentations. Language is, for Beckett, something a writer has to drill into in order to release the something or nothing that lies behind the word, but the drill is language itself. As Niels Bohr, one of the fathers of quantum physics and an egregious absence in this article, famously claimed: “We are suspended in language in such a way that we cannot say what is up and what is down. The word ‘reality’ is also a word, a word which we must learn to use correctly” (Aage Petersen. “The Philosophy of Niels Bohr.” *Niels Bohr. A Centenary Volume*. Ed. A.P.French and P.J.Kennedy. Harvard UP, 1985. 302).

Beckett’s writing, from *Echo’s Bones* to the “third zone of Murphy’s mind” (47) to *Worstward Ho*, “screens a spacing of movement that, like the incoherent continuum, excepts analogy, metaphor, that turns inside out the common structures of reference and designation and leaves them hanging” (48). According to Duffy, there is no closure in Beckett’s last works, but a multiplication of gaps and tears in the surface that turn the common relations between written and non-written world into non-relations.

The paper seems to obey a sort of self-referential logic: it explores atomistic, anti-metaphorical forms of expressions while being fragmented itself. Meaning is evoked by association, suggested through quotes from other authors rather than stated. From Royet-Journoud's interest in "minimal units of meaning" and "avoidance of assonance, alliteration, metaphor" (50), to Rosmarie Waldrop's preference for a "horizontal axis of combination, context, contiguity, syntax and metonymy" (50).

The impossible epistemological unity staged in Beckett's narrative as a constant tension between the presence of the signifier and the perpetually differed signified, is reflected in the open ending of the article, which enacts a process of "atomization" that breaks down the system into its most elementary parts. In the concluding fragments, every vestige of linear logic crumbles apart culminating in a series of quotes on the possibility of "silence" and the limits of language from Beckett himself, Lacan, Deleuze, Heidegger, Susan Howe and Blanchot. Nothing holds together in the never-ending drift of meaning.

The form of the fragment, being simultaneously a broken part of a whole and a semi-autonomous entity, is an interesting device that alludes to knowledge *in absentia*, calling for an unusual mode of perception and reception that defies the common univocal association of meaning and representation. The article usefully points to the significance of science for the form, as opposed to the content, of Beckett's work. However, the reader is left with a sense of frustrated expectation that mirrors the famous concluding line of *Waiting for Godot*: "'Yes. Let's go.' *They do not move*," but at the same time with a surplus of literary knowledge accumulated in the process of filling in the gaps in Duffy's argument.

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Bill Bell, “Authors in an Industrial Economy: The Case of John Murray’s Travel Writers.” *Romantic Textualities: Literature and Print Culture, 1780-1840* 21 (2013): 9-29.

The title of Bill Bell’s article does not immediately suggest rich pickings for the literature and science scholar, yet as so many of Murray’s travel writers were scientists and explorers this is as much an article about the writing of scientific exploration as it is travel narratives. Indeed, Bell offers a very rich account of the processes that led to the publication and dissemination of science within the confines of a specific genre (the travel narrative) that had particular practices which mediated its content. Having said that, Bell’s focus remains stoutly on the industrial processes themselves so that much of the meaning of these processes for scholars wishing to consider scientific writing remains implicit. Nevertheless, the article has such fresh insight and detail to offer that uncovering those meanings is a hugely worthwhile project. It is worth noting, too, that interested readers can do this work for free: *Romantic Textualities* is a high quality open access journal which can be found online at <http://www.romtext.org.uk>.

Bell begins by noting that the House of Murray was among the most influential publishing venues of the nineteenth century and boasted a considerable number of Britain’s eminent scientific travel writers as its authors. These included Charles Darwin, John Franklin, Austen Henry Layard, Maria Graham, Joseph Hooker and Isabella Bird. As Bell shows, these and other writers, far from being individual authors sharing their scientific insights with a glad receiving public, were in fact entirely enmeshed in numerous editorial, printing and advertising activities that influenced the final published product. As Bell succinctly writes, the work of these scientist-explorers was subject to “a regime of regulatory practices” (9) that calls into question any abiding sense of the authenticity of the individual authorial voice or text.

Bell finds three processes of the publishing industry most disruptive to the myth of the single author: the role of the literary advisor, printing interventions and technologies, and advertising decisions. The literary advisor, or publisher’s reader, was employed by Murray to give expert testimony on a submitted manuscript – verifying the accuracy of its claims and providing an opinion on its qualities as a saleable commodity. At times, Murray used his own scientist authors for such tasks: Maria Graham, for example, was one of the “literary friends” that Murray relied upon for advice on exploration and naturalist narratives. Indeed, one of the most prominent ways in which a narrative’s scientific knowledge might undergo some kind of alteration was on the advice of the expert advisor who often countered the scientific authority of the narrative with their own authority in the same field. Although Bell does not make this point, there is something of peer review about the actions of the literary advisor who comments both on veracity and style from a standpoint of expertise.

Such interventions were commonly accepted by writers keen to see their work into print. There were, however, exceptions. Bell gives the example of the geographer and zoologist Sir John Richardson, who had submitted to Murray the manuscript of his narrative recollections of his voyage in search of Franklin. This narrative included some new geographical knowledge as well as a section that would now be called anthropology, detailing encounters with peoples as yet unknown in Britain. Murray’s desired changes to the manuscript – given on the advice of a literary advisor – were so

extensive, and so reduced the scientific sections, that Richardson demanded the return of all his papers and published his work with Longman the following year.

Joseph Hooker was also unimpressed with Murray's meddling with the manuscript of his *Himalayan Journals* (1854), although not so much that he left for another publisher. Hooker's complaint concerned the printing procedures for his illustrations, which so altered the images he had submitted (which he had drawn himself in order to maintain their accuracy) as to make them entirely without foundation in fact. As Bell argues, Hooker was caught in the complex relationship between the received modes for print illustration (the picturesque or sublime) and the emerging realist mode more in tune with an "age of science" (18). Perhaps most interesting in this example is that Hooker feared that the public would find his own faithful illustrations "tame" (19) and would become indifferent to scientific accuracy. Murray aimed, therefore, for a "combination of accuracy and aesthetic appeal" (19) in the illustrations to works of travel and exploration. A decision like this seems important in the context of literature and science scholarship: it reveals the interplay, at every level, of literary or artistic concerns with scientific methodologies.

Bell brings his arguments to a conclusion by focussing, briefly, on advertising. In marketing works of scientific travel to the public, the scientific credibility of any promoter was vital. Murray was at pains to secure ideal scientific supporters for his volumes; often eschewing existing, and fulsome, public praise in favour of advertising a more sober scientific endorsement of a particular work's veracity and usefulness. At the same time, Murray was quite ready to make certain of a favourable review of his books in his own periodical, the influential *Critical Quarterly*.

Overall, Bell claims that his meticulous research reveals the myth of single authorship at the same time as authors, in their prefatory remarks and elsewhere, continued to claim sole responsibility for the work produced for public audiences. Such "disavowal of the very trade mechanisms that governed their presentation to the public," Bell argues, was an attempt to evade the truth of the multiple industrial interventions in each and every text. Although not turning to the question of scientific authority and accuracy in his concluding remarks, Bell's article has exciting repercussions for literature and science research. There is surely much more to be learned, as a scholar like Jonathan Topham has shown us before, of the narrative interventions, of the interplay of aesthetics and accuracy, in nineteenth- and twentieth-century science publishing.

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