

John Ray, Martin Lister and taxonomic publication, 1675-91

I

On 8 February, 1675/6, Martin Lister wrote to thank his friend John Ray for a gift copy of an edition of Francis Willughby's *Ornithologiae*, published posthumously on Willughby's behalf by Ray. 'I received the kind token of your Ornithologie with much joy', writes Lister, 'I pray for the continuance of your health, that you may with the same diligence & accuratness putt forth the remaining [Willughby] Papers'.¹

After making this conventional gesture of appreciation, however, Lister's letter effects a curious turn. Rather than praising the book, or wishing it well, or turning his attention to other matters, he launches into a protracted sequence of ideas, theories, hearsay and sketched anecdotes on birds. The gifted book is not used as a discrete, completed artefact to be mined for avian information, but as the occasion for an epistolary article on the subject of birds, in which Lister congratulates Ray on his decision to 'augment' the Latin publication for a translated English-language edition, and proceeds to offer further augmentation. Much of this additional information is anecdotal and experiential, offering a small window onto Lister's quotidian interest in natural history. We glimpse him taming wild birds with spiders, feeding smooth caterpillars to 'robbing red breast' (who declines hairy ones), watching his pet buntings 'most dextrously' hulling oats in their cages, and in one vignette, taking the measure of a broody swallow's fecundity:

The ^same^ Swallow I have known, by the subtracting daily of ^her^ eggs, to have laied 19 successively, and then to have given over.²

The anecdotes in Lister's letter show how private correspondence between the two friends affords an insight into their lives as practitioners of early modern science, in which we sight the enthusiastic doctor clambering daily up to the rafters in order to filch the swallow's eggs. The advantages of such an insight are self-evident - they

¹ Natural History Museum (hereafter NHM) Ray MS fol.27r, letter 73(a)r. Letters are pasted onto the recto side of folios in this volume. Two-page letters are comprised of a single leaf roughly 290mm x 205mm (Lister), and 280mm x 195mm (Ray), folded in half lengthwise to form folios a and b. Foliation and letter numbers to be given hereafter: MS folio.letter (letter folio). For those letters comprised of a single folio, no letter folio is given. Most are endorsed and sealed on the initial or final leaf, and show signs of folding for postage. Transcriptions semi-diplomatic throughout. Spelling, superscripts and capitalisation retained; some common contractions silently expanded.

² NHM Ray MS fol.27r l.73(a)v.

demonstrate the practices and prejudices of their authors. Lister relates an attempt to measure the limits of nature's propensity for generation and proliferation, and the letter shows him sharing this with Ray. Book publication is not so much the final manifestation of their shared task, as the termination of one phase of it- the authors, like the poor swallow, irrepressibly putting out the fruit of their labours to the limits of their capacities.

Lister's gift copy of the first edition of the *Ornithologiae*, therefore, is attended by a commentary letter accounting for some of the research which went on to obtain the information that would be put into the book. The archival documents are coincident with, rather than precedent to – or more precisely, this letter interposes between – the two published editions of the book (of 1676 and 1678).³ Lister receives his gift copy, and by return post he offers contributions towards a more compendious revision of Ray's book of birds.

Several months later, another letter from Lister explicitly recommends taxonomic practice as an ongoing process of augmentation:

I have only this to object to you, & my self against the speedy publication [of your drafts], that the longer they lye by you, if still you prosecute the same studies & inquiries, the more perfect & full they will be, every day almost adding or correcting, or illustrating somewhat; but if you have quite given over these researches, deferre not to put them out.⁴

According to this characterisation, the 'end' of the taxonomist's work is not publication; conversely, publication occurs when the enquirer drops his research. This eventuality excepted, Ray's taxonomic work is potentially infinitely extensible, Lister's conception of perfection or fullness coming not from completion, but from the continuation or even repetition of 'the same studies and enquiries'.

³ The first edition was the Latin *Ornithologiae libri tres* (London: John Martyn, 1676), the second, 'enlarged with many additions', in English: *The ornithology of Francis Willughby* (London: Andrew Clarke for John Martyn, 1678). A later edition, conflated with the Ray/Willughby *De historia piscium* (Oxford: Royal Society, 1686), was published posthumously (but prepared by Ray) in 1713: *Synopsis methodica avium & piscium; Opus Posthumum* (London: William Innys, 1713). Charles Raven's *John Ray: A Life* (Cambridge: Cambridge University Press, 1950), 311ff. gives a fuller description of the publication.

⁴ NHM Ray MS fol.30r,l.80(b)v, 15 July 1676.

Drawing on practical and intellectual contexts for taxonomic publications which have been established by recent critical treatments of Lister, Ray and their peers,⁵ this article gathers some instances in which we see the two men preparing and revising their taxonomies: the *Ornithologiae* and Lister's *Historiae conchyliorum*, published between 1685 and 1697.⁶ I follow the friends' correspondence through an examination of dispersed archival holdings, contextualised with reference to printed material.⁷ Specifically, the exchange of 'the kind token' – gift copies – and the circulation of intellectual concept and artefact can contribute to the building of a picture of some processes by which taxonomic publications were prepared and revised. As evidenced by

⁵ Michael Hunter and Harriet Knight have examined the acquisitive procedures which shaped the cabinets, museums and catalogues that Lister, Ray and their coevals used as resources for taxonomies, and recognised as projects in their own right. See Hunter, 'The Cabinet Institutionalized: The Royal Society's "Repository" and its Background', in *Science and the Shape of Orthodoxy: Intellectual Change in Late Seventeenth-Century Britain* (Woodbridge: Boydell, 1995), 134-147; and Hunter, 'Between Cabinet of Curiosities and Research Collection', in *Establishing the New Science: The Experience of the Early Royal Society* (Woodbridge: Boydell, 1989), 123-155; and Knight, 'The Epistemological Significance of Ordering Knowledge', in 'Organising Knowledge in the Seventeenth Century: the Works of Robert Boyle', (PhD, University of London, 2003) 25-87. Sachiko Kusukawa's essay, 'The *Historia Piscium* (1686)', *Notes and Records of the Royal Society of London*, 54:2 (2000), 179-197, gives a detailed account of how these procedures worked within personal and social spheres, and of how this particular publication was given financial and intellectual backing by the Royal Society. These papers have informed my understanding of the processes involved in preparing Royal Society taxonomic publications.

⁶ *Historiæ sive synopsis methodicæ Conchyliorum quorum omnium picturæ* (London: For the author, 1685-92). Guy L. Wilkins, 'Notes on the *Historia Conchyliorum* of Martin Lister (1638-1712)', *Society For the Bibliography of Natural History* 3 (1953-60), 196-205, and Geoffrey Keynes, *Dr Martin Lister: A Bibliography* (St Paul's Bibliographies: Bury St Edmunds, 1981), relate the development of Lister's conchological activities into various publications.

⁷ Ray and Lister were so closely associated with one another during their lives that mutual acquaintances such as Francis Aston and Edward Lhwyd would enquire through Ray when they sought news of Lister, and vice versa. In 1760, Lister's nephew Edward Gregory advised a would-be biographer of his late uncle to study Ray's correspondence, to find out about Lister: 'Mr Ray's Philosophical Letters published by Dr Derham furnish several lights respecting Dr Lister', British Library (hereafter BL) Additional MS 22596, fol.88v, letter from Edward Gregory to William Huddesford, n.d. (1760?). The pair publicly acknowledged a philosophical or intellectual relationship, for example in Ray's prefatory praise of Lister's contributions to the *Historia piscium* ([1686.Sig.¶r] where ¶ is the first folio of a three-page unsigned preface, followed by Sig.A.). In light of these significant personal and professional associations, it seems worthwhile to consider some specific instances of their taxonomic publications with reference to the foregoing manuscript correspondence. The bulk of the correspondence is currently held in the Natural History Museum (MS Ray), an edited version has been printed in Edwin Lankester (ed.), *The Correspondence of John Ray*, (London: Ray Society 1848).

manuscript ephemera from different stages in the taxonomic project (preparatory, inter-edition and post-publication), I argue that we need to think outside a conventional bibliographic chronology from preparation to publication if we are to understand the processes of augmentation, revision and exchange within which Lister and Ray sought to sift and summarize species of life. These processes existed within concentric spheres or networks, from direct personal correspondence between the two men, to wider communities associated with the Royal Society, and beyond.

Both the *Ornithologiae* and the *Conchyliorum* were engraved from original and copied drawings, many of which are archived in the Bodleian Library (Lister MS 9) and at Nottingham University Library (Middleton MS LM 24). These holdings consist of Ray's collections of Willughby's pictures of birds,⁸ and Lister's scrapbook filled with images of molluscs drawn by his two daughters, Susanna and Anna.⁹ As Nick Grindle has pointed out, the storage of Willughby's collections is curious.¹⁰ Sketches and drawings are pinned into the archive as onto a notice-board or scrapbook, some with multiple pin-holes indicating different placements within the volume. Bodleian Lister MS 9 replicates this methodology: while some of the drawings are pasted, many are backed and pinned into the volume, allowing for the ordering principles to be reconceived and the pictures reshuffled. Both Nottingham Middleton MS LM 24 and Bodleian Lister MS 9 show incomplete or partial groupings of families of birds and molluscs. Sometimes small groups are placed in neat, numbered order according to taxonomic principles. Elsewhere, images have clearly been moved, or new ones are pasted in. There seems to be a process of trial and error, with pin-holes and glue marks belying the history of re-ordering, and the occasional placement of discrete consecutive images signifying more work to be done.

⁸ Nick Grindle gives a detailed description of these holdings in his article, Nick Grindle, "No other sign or note than the very order", Francis Willughby, John Ray and the importance of collecting pictures', *Journal of the History of Collections* 17:1 (2005), 15-22.

⁹ J.D. Woodley, 'Anne Lister, illustrator of Martin Lister's *Historiae Conchyliorum* (1685-1692)', *Archives of Natural History* 21:2 (1994), 225-229, gives a considered speculative account of the illustrators and their work.

¹⁰ Grindle, "No other sign or note", 16ff.

The presentation of these two image archives as managed by Ray and Lister suggests firstly, a working practice that was shared by the two men, and secondly, a means of arrangement set up specifically to allow room for re-arrangement. Like the letter Lister wrote in response to his friend's book, this archival paraphernalia indicates an expectation of revision and augmentation.

A decade after receiving the *Ornithologiae*, Lister gifted an early two-volume copy of his *Historiae conchyliorum*, entitled *De cochleis*, to Ray. The copy is held today in the British Library,¹¹ with an inscription on the flyleaf in Lister's hand reading, 'For his Honoured friend Mr John Wray'.¹² The same hand annotates every single plate in the volume, in ink and pencil, sometimes with multiple notations. The bulk of these annotations are concerned with ordering, and often re-ordering, the images of the shells in anticipation of later more encompassing versions of the work. It is possible to say this with confidence, because the manuscript annotations are realised precisely in the 1692 edition of the *Conchyliorum*. For example, Lister annotates one image in his second book (no references or page-numbers are printed), in ink, '*Trochus pyramidalis, fuscus, striatus, ualde productas*', and pencils in the number 624.¹³ In the 1692 edition, the plate is placed as plate 624, with the number engraved directly onto the plate and text, also engraved directly onto the plate, reading '*trochus. P. fuscus, clauicula ualdè producta*'.¹⁴ The later engraving is clearly a product of the thinking in the earlier annotation, although the same engraved image is used throughout.

Not only are the verbal descriptions of the molluscs augmented, but the visual arrangement or taxonomy of the edition is also re-conceived. A whelk that is placed in

¹¹ Lister, *De cochleis, tam terrestribus, quam fluuiatilibus, exoticis, seu, quæ non omnino in Anglia inueniantur* (London: for the author, 1685) British Library shelf-mark 435.

¹² Inscription on flyleaf, Vol. I. The gift implies a continuation of contact between Lister and Ray into the 1680s, over a decade after the end of the correspondence held in the Natural History Museum. However, a nineteenth-century insert into the NHM Ray correspondence explains its route, and gives an earlier date for the gift than may be expected. In an unpublished appendix (copied into NHM Ray MS fol..37,l.94[b]r) letter to Tancred Robinson, of 16 June 1684. Ray informs Robinson that he cannot pass any news of Lister because he has not heard from him for some time, and that he received Lister's gift via their mutual friend William Faithorne.

¹³ Lister, *De cochleis*, (1685) BL shelf-mark 435, fol.18, Volume II, annotated: Book IV, Sect. 8 Cap I, fig. 624.

¹⁴ Lister, *De cochleis*, (1692), Book IV Section 8, mollusc 10 [plate 624, page unsigned].

De cochleis as the eleventh plate in Volume I, Book I, Part I, has '582, 35a, Lib. 4, Sect.5', pencilled next to it. In the 1692 edition, the plate appears in the Book 4, Section 5, as the five hundred and eighty-second plate – again, the number pencilled into Ray's edition has been set into the engraving in the 1692 edition. This time, instead of appearing alone on the page, the mollusc has been re-classified and assimilated to a table of whelks that Lister has decided belong to its kind. In order to accommodate it into the system, Lister has had to insert it as mollusc 35a, thereby avoiding the renumeration of every subsequent mollusc that would have been necessary had he inserted it in place as number 36.¹⁵ Lister's pencilled marks give a neat annotative re-ordering that meticulously anticipates the format of the next edition of the book. But he does not wait for its publication before sending it to Ray for examination, thereby giving his friend insight into the interstices of the project.

Ray's personal copy of the first edition of Lister's *De cochleis*, then, is visibly unfinished – a work-in-progress. In another sense, however, this copy can be seen as perfect, complete: it is a record of Lister developing his taxonomy. In his *Journey to Paris*, Lister states that the first edition of the work was 'but a very imperfect trial of the Plates, which I had disposed of to some few Friends only, till I should be able to close and finish the Design'.¹⁶ The publication of *De cochleis* seems amateurish, as Guy Wilkins has argued,¹⁷ with skewed, hefty printing leaving plate-marks and bleeding ink. This suggests that its printing may have been done at home by Lister and his family, an impression corroborated by Lister's use of isolated plates as rough paper, as can be found amongst his manuscripts in the Bodleian Library.¹⁸ However, Ray's copy was not of the few plates of the *De cochleis*, but a neat, professionally printed two-volume early edition of the *Historiae conchyliorum*, flawlessly bound and well preserved. The presence of pencilled and ink annotations to Ray's copy of the *Conchyliorum* seems to imply that Lister went through the edition carefully, at least twice, with fastidious attention to the ordering and theory of ordering the book. Whilst the different ordering methods

¹⁵ Lister, *De cochleis*, (1692) Book I, Section 5, Mollusc 35a, [Plate 582], page unsigned.

¹⁶ Lister, *A Journey to Paris in the year 1698*, (London: Jacob Tonson at the Judge's Head near Inner-Temple Gate, 1699), 105.

¹⁷ Wilkins, 'Notes on the *Historia Conchyliorum*', 196.

¹⁸ For instance, Bodleian MS Lister 39, fols.164r-165v, an engraving of a shell used as rough paper onto which apparently unconnected notes on the human lymphatic system are scribbled.

have specific ramifications with regards to taxonomic criteria, in this first archival investigation into extant documentation of the process of composition, it is worth noting that Lister sent Ray this prolifically annotated proof before its publication in the new print edition, despite the fact that his improved ordering scheme seems to have been settled. This suggests that Lister sought deliberately to involve Ray in an intermediary inter-edition process. It also suggests that Lister's revision was undertaken piecemeal over a period of time – the annotations, when compared with the arrangements in later publication, give a chronology to the process by which each shell was procured, engraved, considered, assigned attributes, assimilated into a new order, and finally, in a sense, peer-reviewed. Draft copies were distributed within an intimate circle as a gift or token of that intimacy; in return, those 'some few Friends' offered additional information or advice for the continuation of the 'Design'.

As a final instance of this community circulation of taxonomic paraphernalia, I turn now to a unique Royal Society copy of the 1678 *Ornithology*,¹⁹ which has had an insertion interleaved between pages twelve and thirteen, onto which six seventeenth-century pencil diagrams of foetal development within birds' eggs have been pasted. These illustrations may well be those mentioned in a letter to Lister of 4 April 1676. Ray writes: 'Mr Willughby himself hath left the myotome of a swan, and some other birds, which I thought not fit to cumber the book with'.²⁰ Inserted after publication, these manuscript additions to the book seem have passed through a network of individuals -from Willughby to Ray, and subsequently (presumably through gifting or bequest) into the corporate holdings of the Society.²¹ If the physical artefact is pasted into the volume as

¹⁹ J. Ray, *Ornithology* (1678) Shelf-mark RS 005482/Early FRS-large.

²⁰ NHM Ray MS fol.29r,l.76(a)r (4 April 1676).

²¹ The progress of Lister's earliest published conchological study may provide another instance of how such materials passed in amongst individuals to reach increasingly wide communities, as Royal Society holdings elegantly trace its passage through the documentary apparatus which had been established for just such a purpose. His initial letter to Ray (an account of 'the odd turning of some snail shells', and some observations on the darting of spiders) was undated, but Ray forwarded it to Henry Oldenburg, Secretary of the Royal Society, in August 1669, Royal Society (hereafter RS) MS Classified Papers Vol I.15i.fol.23r-v. The letter was read aloud at a meeting of 19 February 1669/70 (as recorded RS MS Journal Book Original Vol IV.fols.54-60), and subsequently printed: John Ray and Martin Lister, 'Concerning the odd Turn of some Shell-snailles, and the darting of Spiders, made by an Ingenious Cantabrigian and by way of Letter communicated to Mr. I Wray, who transmitted them to the Publisher for the

the product of movement through these networks, the insertion is figuratively underpinned by those same ideas about ongoing data-gathering and augmentation voiced by Lister and Ray, which can be seen here carried out within a wider community in the Society's holdings.

Whatsoever the origin of the images, the insertion of detailed and precise manuscript diagrams into the printed volume indicates that the publication of the 1678 *Ornithology* did not mark the end of the process of addition and augmentation involved in its composition. Indeed, Ray continued to edit the *Ornithology* for a further *Synopsis methodica avium et piscium*, which was eventually published posthumously in 1713. Finally, in the letter, which gives a narrative account of this interplay of materials between print and manuscript, we may return to the authority of the intellectual friendship, as Ray sounds his friend through the process of editorial selection.

II

Three years after Martin Lister wrote his letter describing his study of the broody swallow, these archived passages finally found their way into the new edition of the book: the 1678 English-language *Ornithology*. An augmentation to this edition is 'thrust' into the preface: 'Observations communicated by Mr. Martin Lister of York, my honoured Friend, being through forgetfulness omitted in their proper places in the Book'.²² Observation 2 reads thus:

2. One and the same Swallow I have known by the subtracting daily of her Eggs to have laid nineteen successively, and then to have given over.²³

That Lister's observations found their way, belatedly and word-for-word, into the next edition of Ray's work is symptomatic of the way in which Lister and Ray drew on their private correspondence when assembling publications, and shows how archival holdings

R.S.', Philosophical Transactions IV (1 January 1669) 1011-1016. Finally, another letter from Ray to Oldenburg corroborates the account of findings given in Lister's letter, RS MS Early Letters Vol I.fol.11r-v.

²² Ray, Ornithology (1678), Sig.(a2)r.

²³ Ray, Ornithology (1678), Sig.(a2)r.

can pursue a narrative from research to the assimilation of a multitude of findings to a published work. The process of ‘reading’ the swallow anecdote (whose method probably seems cruel – not to say illegal – to the modern reader) draws the attention to certain differences between modern and seventeenth-century scientific practices, and the manuscript correspondence facilitates a finer understanding of this scientific research in its context. The exchange of gift copies seems to bond and particularise friendship, while reciprocally, those friendships are used to resource contributions to the publications. Finally, this correspondence also shows the partial, provisional and ongoing nature of Ray’s collaborative undertaking, with apparently random observations ‘thrust’ into the book at the last minute. The anecdote is a miniature of a process by which Lister and Ray exchanged, augmented and understood information; how they represented this information in language; and finally, how the scope of their work was characterised not by a sense of finishing or totality, but by its proliferation, continuing to an unknown – and possibly non-existent – end point.

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