The Interactive Notebook:

How Students Learned to Keep Notes during the Scottish Enlightenment

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Studies on early modern student notetaking have gained momentum in recent decades.[1] Some practices were elaborate. Students in German universities, for example, used a technique called *Schreibechor*, or "writing chorus," in which teams attempted to capture every word spoken by a preacher or professor.[2] Students pencilled notes in their pockets in Holland, copied Newtonian notations in Cambridge, replicated manuscript notebooks at Harvard, scribbled marginalia in St. Andrews, implemented notetaking procedures in Rome, and employed commonplacing in Paris.[3] Rather than using the same routines, students developed varied techniques in relation to the kinds of information that they needed to learn. Thus, whereas notes of some Cambridge students were influenced by what they were taught by elite coaches in small tutorials, the *Schreibechor* technique was developed and honed by students taking notes in sermons.

In Scottish universities the process surrounding the lecture notes taken by students was similarly tailored. It existed within a system of education in which lectures increasingly constituted the main (and sometimes only) form of formal instruction before students were examined at the end of their degree. At present we lack a clear picture of the scale or scope of this student notetaking process in Scotland as it played out on a material or graphic level in such settings—this is in

spite of the fact that some of the most revered scholars of the Scottish Enlightenment were shaped profoundly by their education at the universities of Edinburgh, Glasgow, St. Andrews, and Aberdeen.

How did students use their notes to keep track of the information they learned? I address this question by examining the lecture notebooks kept by students who attended Scottish universities during the long eighteenth century. These notebooks, along with their associated ephemera, are housed in collections across Europe, Britain and its former colonies, and beyond. Since the largest number of extant notebooks were made after the 1745 Jacobite Rebellion, and since the Scottish Enlightenment has traditionally been seen as ending shortly after the Napoleonic Wars, I give special attention to notebooks made between 1745 and 1820.[4] I begin by explaining why the lecture notebook is an important object of enquiry and I move on to discuss the nature and meaning of the skills and routines that were employed to make and use one. In the end we will see that student notebooks were papertools, that is, "productive tools for work on paper," which required and instilled a host of graphic (particularly scribal) practices.[5] As such, they served as interactive platforms of information management for both students and professors.

Excavating the graphic skills employed to use and make notes and notebooks will require us to showcase the lives of students whom time has forgotten. My method is influenced by the work of Michel De Certeau, Richard Sennett, Donald A. Norman, and Tim Ingold, all of whom place great value on the materially-embedded routines of everyday life, and who consequently concentrate on the shared practices that shape and guide how we make and circulate knowledge.[6] As we will see, such

an approach complements the research of leading cultural historians of print and manuscript culture, particularly the work of Ann Blair and Anke te Heesen. Following in their footsteps, I seek to transform hitherto nameless students and teachers into significant historical actors and to underscore the importance of treating seemingly ordinary educational objects as extraordinary artefacts which offer new and refreshing insight into the factors that underpinned the success of early modern forms of graphic representation.[7]

The Lecture Notebook as an Object of Enquiry

Historians of Enlightenment notetaking now routinely distinguish between different kinds of manuscript genres. Those who work on the history of geography, for example, point out that oceanic voyagers did not keep mere "notebooks," they kept "logbooks" and "journals," each of which required specific kinds of graphic, conceptual and compositional skills.[8] The same point can be made about student notebooks. There were, in fact, several different kinds, each being made to fit the educational needs of the student who made it.

Since it was common for adolescents as young as fourteen to matriculate in Enlightenment universities, their notebooks were made while they were still learning how to organize knowledge on paper in a manner that extended the elementary writing techniques taught in schools.[9] This means that university notebooks can be used to unravel the historical emergence of the mental, manual, and material routines that shaped the cognitive development of young notetakers. That said, we must be clear on what kind of student notebook we are about to examine. There

were at least three student notebook genres used by early modern university students, each of which required different kinds of notetaking and notebook-making techniques. Here I want to differentiate the purpose and usage of each genre with a view to introducing the kind of notebook that was most prevalent in Scottish university contexts.

Some Enlightenment university students made a manuscript textbook. This was a notebook made directly from dictation, or indirectly through transcribing texts. Often it was a mandatory component of a university course. The practice of dictating notes to students to make such manuscript notebooks was called "dyting" in seventeenth-century Scotland.[10] While there is evidence of this kind of notetaking in eighteenth-century Scottish academies and, further afield, in colonial Harvard College,[11] this practice was dying out by the late seventeenth century. A second kind of student notebook was the commonplace book. It was made while students attended university and it functioned as a storage and organisational device for quotations, bibliographies, and personal observations.[12] Such notebooks were not obligatory. Instead, they were information management tools which preserved facts and ideas relevant to the subjects that students were studying (or wanted to study).[13] They were generally not used, however, to record knowledge gleaned directly from lectures.

A third genre was the lecture notebook. It contained the notes taken by students attending the lectures of a professor or demonstrator. In Scotland, the content of these notebooks was linked to a student's notetaking abilities and to the manner in which the course was delivered. Most Scottish lectures usually did not focus on one set text per se; rather, each course was a commentary on the

categories that the professor used to systematise the subject matter under discussion. Scottish student lecture notebooks were based on these commentaries but they were not an official requirement for a university degree. Nevertheless, students often used them to prepare for the oral and written exams that occurred at the end of their studies. Late Enlightenment Scottish university students made this kind of notebook and, consequently, it will be the focus of the rest of this essay.

By the eighteenth century the graphic skills and routines used by students in Scotland's universities to make lecture notebooks had evolved into a robust enterprise, rivalling the complexity and organization of similar inscription practices in other European universities where Scottish students frequently studied.[14] A set for one course usually contained several handwritten volumes, but some sets ran to more than ten volumes. In my research I have discovered over one hundred sets preserved in British, North American, Australian, and European universities. When these specimens are considered in tandem they amount to possibly the largest extant corpus of pre-nineteenth-century student manuscripts in existence.

Scottish students tried to record as much as they could in lectures and then consulted with each other to fill any gaps. This means that student notes functioned as a core educational technology that utilised personal and collective forms of observation. The process of writing and rewriting university lecture notes involved hours of concentration and served to reinforce the content of the lectures through scribal iteration. Such work was demanding, and perhaps this explains why there are remarkably few doodles in the margins.[15]

Historians normally use student lecture notes to investigate the disciplinary content of a course and, as a result, most studies seek primarily to catalogue extant

notebooks,[16] or to gain insight into the ideas or personal characteristics of the professors who gave the lectures.[17] This approach sheds light on the facts recorded in lecture notes (or in subsequent publications based on their notes),[18] but it offers limited insight into the skills students were learning through the acts of writing and drawing, thereby leaving a number of provoking questions about what the process of notetaking can tell us about knowledge formation.

Student notebooks are hard to find for many early modern university contexts. When they do exist, it is often difficult to find more than a few that were (firstly) made at the same time in the same institution or (secondly) made by the same student for different subjects. This often forces historians to focus on the notebook of one student. In rare cases historians may have access to the notes of a handful of university students who studied in a single location with a specific professor or who studied the same subject. In these cases it is possible to treat the notes as a collective object of study that can be used to reconstruct and research a community of notetakers.[19] Fortunately, the hundreds of extant notebooks taken by students attending the universities of Edinburgh, Glasgow, Aberdeen, and St. Andrews make it possible to reconstruct such a community. The Scottish corpus not only has notebooks made by the same student in different courses, it also contains multiple sets of notebooks that were made at relatively the same time in the same course. Accordingly, in what follows, I treat these notebooks as a collective object of enquiry and I use them to reconstruct the materials and skills of a notetaking community.

Recent studies on the history of manuscript culture have emphasised the fact that even the most common forms of inscription, letters for instance, were made

over a series of stages.[20] Likewise, scholars have emphasised that taking notes was an active enterprise, a form of "knowledge in the making."[21] At the simplest level the process of notetaking consisted of two stages. In the first stage students took rough notes, or what German notetaking scholars call *Mitschriften*.[22] The second stage yielded copied notes, that is, a neater and expanded copy of the rough notes called *Reinschriften*.[23] Although both kinds of notes overlapped in content, each provides insight into a distinct set of skills, particularly in educational contexts.

Though both rough and copied notes were made with writing techniques (underscoring, annotation, marginalising) and drawing techniques (tabling, schematising, sketching), their materials, orthography, paper size, and layout were different. Rough notes were often written on loose-leaf paper and less attention was paid to orthography or the graphic layout of the information. Copied notes, on the other hand, were often written on larger sheets of paper in neat handwriting; students also laid out the sentences on a graphite grid, and the paper was either bound in a blank book or it was collected together as loose-leaf sheets that were later bound together. Additionally, the process of notetaking occurred in different places, with rough notes being made quickly in the classroom and copied notes being made slowly when students returned to their rooms.

Drawing from her extensive work on early modern student notetaking, Ann Blair has suggested that rough notes and copied notes should be seen as primary and secondary stages of notetaking.[24] Based on his research on Jesuit colleges, Paul Nelles has extended these two categories. He offers a six-part editorial process of student notebook production and usage which included stages of "pre-reading" material, lecture notetaking, review exercises, extending lecture notes (with library

books), using lecture notes in disputations and compositions, and finally compiling a course summary.[25] The stages offered by Blair and Nelles correspond to the evidence available from the German, French, Spanish, and Italian contexts examined in their work. Using their approach as a guide, it seems that there was a five-stage process of lecture notebook composition and usage in Scotland.

The first stage was the preliminary acquisition of materials. The second stage involved taking rough notes. In the third stage, students copied out their notes and in the fourth stage they edited them by adding annotations and paratexts. Finally, in the fifth stage, students and professors used and circulated notebooks outside the university in ways that, ironically, both elevated and problematized their status as authoritative reference works. The various elements of the five stages were most likely used in many early modern European and American university settings, but the large number of extant manuscripts from Scottish universities allows us to examine the process in greater detail.[26]

Preliminary Notetaking Skills

Lecture notes, as well as other forms of writing such as letters, commonplace books, and diaries, were part of a larger early modern manuscript world which treated inscription as an active force that shaped the mind.[27] Indeed, ordered acts of inscription were core graphic skills that cultural commentators in Scotland associated with the rise of modernity in Europe. The lectures of many Scottish professors presented a progressive view of human history that treated graphic devices and modes of inscription as the core mechanism of change that produced a "civilised"

society.[28] This view built on the older notion that language was divine in origin and was, in the words of the Scottish pedagogue William Mavor, a "capital blessing, and eminently distinguishes its Possessors from the unpolished Part of the human race."[29] Yet alongside this moral view, many students saw notetaking as a key to their future success in business or a profession. This link between notetaking and utility became increasingly important from the 1750s onward as the percentage of elite students fell and the number of students from less privileged families rapidly increased.[30]

Overall notetaking was valued not only as an act that improved the content of the mind, but also as a mode of ordering that allowed notetakers to sort and organise the world around them in a useful and moral manner. Most students possessed this belief before they entered university. Alexander Coventrie, who came from the Clyde Valley to study medicine at the University of Edinburgh during the 1780s, even felt disappointed when a professor printed lecture outlines or "any part of his discourse" because it "deprived" students of hearing "the charm of novelty" and rendered them "less attentive."[31]

Yet the routine of writing and rewriting notes, or even keeping an informal notebook, was something that university students did not practise blindly. Many professors explicitly encouraged notetaking via the emphasis they placed upon the value of inscription as a knowledge-making practice. Dugald Stewart (1753–1828) used his lectures on moral philosophy to highlight the link between scribal tactility, visuality, and learning, going so far as to point out the benefits of the preparatory books made by the ancient Greeks and to underscore the impact that writing and drawing had upon cognitive development.[32]

Professors such as Stewart encouraged notetaking because they firmly believed in the fundamental mnemonic power of writing and reading imparted by an ordered set of notes. John Anderson (1726–96), Glasgow's professor of natural philosophy, explicitly made this point in reference to the benefits of using a syllabus of lecture headings as a guide to notetaking:

> In this manner [of using the syllabus to take notes], it seems proper to guard against the inaccuracies into which young Students are apt to fall, while the publication of more than such Outlines might lead them to lay aside the custom of taking notes, a custom, by which their attention and ingenuity are constantly exercised, and the Lectures and Experiments become, as it were, their own.[33]

Even if they did not offer explicit scribal instructions, most professors worked very hard to provide lecture headings that were designed to help students take notes in an organised fashion. Stewart even went so far as to say that "heads or outlines" assisted students "in tracing the trains of thought."[34]

Other Scottish professors such as Aberdeen's James Beattie (1735–1803) used their publications to promote the cognitive value of copying quotes from books, thereby treating the act of transcription as a proactive form of learning that positively impacted the development of the enlightened mind.[35] It is this kind of positive commitment to the mnemonic utility of rewriting information that possibly explains why students did not treat copying as a mindless act of replication. While many of them complained about the time this activity required, I have found no one

who questioned the cognitive efficacy that their teachers attached to the act of copying.

Notetaking functioned not only as a mnemonic aid for students. In an age before audio recording devices, some professors bought copies of students' notes so that they had a fuller record of what they had said in their own lectures. Alexander Monro Secundus (1733–1817), Edinburgh's professor of anatomy, paid a steep five guineas for the notes taken in his lectures by medical student John Thorburn.[36] Many professors purchased a set of their own lectures in this manner, especially if they were thinking about publishing them as a book.[37] Consequently, in addition to learning facts and mnemonic routines, some students kept notebooks with a view to making money.

It is difficult to discern precisely the manner in which students were trained to take notes within a university setting. It seems that many learned through trial and error. Many, however, were exposed to more technical forms of copying prior to their matriculation. They had made manuscript textbooks at school, or (like artist Robert Strange) they had been hired as legal copyists. The young James Finlayson, Edinburgh's future professor of logic, spent some of his time as a student during the 1780s serving as an amanuensis to Glasgow's Professor John Anderson.[38] Additionally, the library register of the University of Edinburgh shows that students checked out books on behalf of professors. This indicates that professors used students as research assistants, a situation that no doubt affected how students utilised printed sources to gain background knowledge before or while they took lecture notes.[39]

Regardless of their prior experience, before university students could take notes, they needed to acquire pens (quills), ink, glue, and paper. Some probably made their own ink and cut their own quills from local feathers.[40] They usually bought paper from a printer or stationer, or used irregular pieces of scrap paper. As the ledgers of the Edinburgh bookseller and stationer Charles Elliot reveal, eighteenth-century notetakers wrote on several kinds of blank paper. The most popular kinds used by students were loose sheets called "quires," folded sheets called "paper books," and leatherbound "note books."

Since making a notebook required students to shuffle and reassemble different kinds of paper, they had to learn how to select the appropriate kind of paper that matched the kinds of notes that they wanted to take. They also had to understand the size, quality, and cost of writing materials. The prices of note paper in the 1770s can be gleaned from Elliot's ledgers.[41]

Student	**Date**	**Number**	**Price**
Alexander Bartram	17 Nov 1776	1 Paper book	2 shillings
	2 August 1777	4 Quires of Scrap Paper	4 shillings
	15 August 1777	2 Paper books	2 shillings
John Harsky	2 October 1776	2 Quires of Paper	1 shilling
	2 October 1776	2 Paper books	2 shillings
	23 October 1776	3 Paper books	3 shillings
	15 December 1776	6 Memorandum books	2 shillings 6 pence

Mr Piggot	17 June 1777	Thick Note book	2 shillings
Joseph Faux	29 August 1777	Folio book for Plants	2 shillings 6 pence

Table 1. Kinds of notepaper.

Elliot's shop was situated in Edinburgh's Parliament Close and was a short walk from the university. His ledger entries show that paper books sold for around one or two shillings (depending on their thickness) and quires of scrap paper sold for one shilling per gathering. Since a thorough set of notes could fill several volumes, students had to buy numerous quires of paper or, based on their preferences, paper books. When both of these costs are considered, it can be seen that, even barring other essentials like ink, pens, and graphite pencils, the most basic cost of keeping an organised notebook was not inconsiderable. In the words of American student William Quynn, "there are many other expenses that accrue from Purchasing Book[s and] Paper."[42]

Rough Notetaking

Once students acquired their writing materials, they were ready for stage two, going to a lecture and taking rough notes. Prior to the twenty-first century, historians often treated rough notes as a substandard manuscript genre that paled in comparison to complete notebooks or even printed texts. In recent years cultural historians of scholarly and literary traditions have slowly changed this view with work on rough notes written in a variety of communities.[43] As shown in recent work on

the notetaking techniques of early modern scribblers such as Robert Boyle and Carolus Linnaeus, rough notes give a snapshot of the everyday forms of graphic intelligence required to interactively formulate ideas on paper. This means that, though extant rough notes of ordinary Scottish university students are rare, historians can use those that exist to fruitfully investigate the rush of the learning process as it occurred in the classroom.

The act of writing rough notes instilled graphic skills that allowed students to remember and preserve oral and written information. Over time their experience with rough notetaking improved their observational skills and their ability to simplify or epitomise complex ideas through the act of writing. Since many endeavored to neatly copy their rough notes after the lecture, classroom notetaking was often a propaedeutic exercise in which the skills of concentration and inscription were implicitly directed towards the creation of a permanently bound notebook. Rough notetaking, therefore, was a crucial form of observation learned by Scottish students that allowed them to order knowledge given to them by professors. It also initiated the transfer of knowledge from one generation to another and it required many interlinked manual and conceptual abilities, especially the skills of writing fast, epitomising the lecture, typographically demarking key terms, and navigating the lecture headings listed in the syllabus.

Although many students diligently took rough notes in all the lectures given in a course, extant copies are fragmentary, usually consisting of notes or drawings taken in only a few lectures.[44] Old notes were simply thrown away after they were recopied. But sometimes they were preserved accidentally in a collection of loose papers that were then bound either when they were donated to a library or after the

writer died.[45] Rough notes were also preserved as makeshift bookmarkers in sets of bound recopied notes. An informative example of this practice can be seen in a quire of rough notes preserved in the recopied notes taken by George Sligo on the law lectures of Professor David Hume (1757–1838). Though the content of the recopied text replicates that of the rough notes, Sligo extended or trimmed the original content in the copying process.[46]

As explained in the diary of Sylas Neville (1741–1840), a medical student who attended the University of Edinburgh during the 1770s, there were at least four strategies for taking rough notes. These strategies were not mutually exclusive and students combined them as they saw fit. The first approach, used by Neville, was to "take a good deal of the principal observations, but not near the whole lecture."[47] Such notetaking required an attuned ear, one that could use the syllabus alongside the verbal cues of the professor to determine the key points and then to epitomise them on paper. The second approach, used by Neville's friend and fellow medical student Richard Dennison, was to use prior knowledge of the subject, gained through personal experience or advanced reading, to identify and note key points in the lecture. A third approach, also used by Dennison, was to attend the lectures several times over a period of years and make notes each time.[48] A fourth strategy, unmentioned by Neville, was to take notes directly on the printed copy of the course's syllabus. Using the headings as a guide, students were able to discern which ideas and terms needed to be noted or ignored.[49]

Rough notes were taken in lectures and had to be written quickly—a difficult task, since professors barraged students with countless examples, definitions, illustrations, and citations. Add to this other distractions, like running out of paper

and ink, or the fact that many professors used a variety of printed and manuscript teaching aids like lecture headings, posters, and handouts.[50] Students taking rough notes in medicine, natural history, and natural philosophy lectures also had to contend with a host of diagrams, tables, and figures.[51] Overall, writing rough notes required a great deal of skill and concentration.

The fastest way to write notes was to use shorthand, a skill that was taught in some Scottish secondary schools. Motivated students could also learn it through books like Rev. W. Graham's *Stenography; or, An Easy System of Short-Hand Writing*, which was dedicated to university "students of divinity, or law, and of physic."[52] The strategy pursued by student stenographers was to capture as much as possible. This goal, however, was often defeated in courses that covered complex topics which required a good deal of background knowledge.

Rough notes are sometimes difficult to identify because the notetaker is unknown or they have been included in a library's large collection of manuscripts associated with a person or institution. Perhaps the best-preserved complete set of rough notes was taken by the eighteen-year-old Sir Charles Blagden (1748–1820) in the Edinburgh chemistry lectures given by Joseph Black (1728–99) during the 1760s.[53] He kept his rough notes in octavo-sized paper books (Figure 1). Like most notes of this nature, his inscriptions are cramped and the handwriting is rushed and, consequently, hard to read in places (Figure 2). All the pages are crammed with as much information as possible, eliminating most of the open space of the page. Despite writing them quickly, he still managed to fit in a few freestanding headings that state the lecture numbers. Other students taking rough notes in Black's lectures managed to fit in centred headings as well.[54] Although rough notes of this nature

take some skill to decipher, they are of great value because they shed light on how students learned to store information quickly.

Rough notes taken by students like Blagden and Sligo oftentimes exhibit a number of telltale characteristics. The text usually was laid out as one large narrative column that took up the entire page. Some students included freestanding headings to help them find information at a later date, however, the speed at which they needed to take rough notes often prevented this graphic luxury.[55] The sentences inside the narrative column usually were written in relatively straight lines and, though pressed close together, the spaces between the sentences varied slightly from line to line, indicating that students probably did not draw a graphic grid to guide their writing. Students also tended not to differentiate key words in the narrative with underscoring or altered typographic changes in capitalisation, italicising, or font size. Rough notes also had hardly any paratextual material like a full title page, index, or table of contents.

As their dense layout might suggest, the written component of rough notes is virtually devoid of figural illustrations or other lexical visualisations like tables. There are, of course, exceptions: Blagden's notes, for instance, contain a number of affinity tables and diagrams. The lack of this kind of material might at first seem strange, especially since some Scottish professors used numerous diagrams, figures, and tables in their teaching.[56] Additionally, some printed syllabi contained illustrations like maps.[57] Why did students not attempt to replicate these valuable learning tools? One answer is that they spent so much time trying to capture a professor's words in the classroom that they simply did not have time to copy or draw extra material.

The lack of figures in rough notes attracted the attention of professors and their assessment of the issue is instructive. After reading John Thorburn's shorthand notes of his lectures, Monro Secundus noted with regret that they lacked all of the diagrams that he used to teach anatomy. Monro rationalised this omission in the following manner: 'Mr THORBURN, who had no knowledge of Anatomy when he began to write my Lectures … had not attempted to copy any of those figures which, in this and in many other parts of the Course, I have been in the custom of drawing with chalk upon the black board, in order to render my lectures more intelligible to students.'[58] Monro's assessment reveals that, in addition to the time required to make drawings, his figures also necessitated a certain familiarity with the subject matter that many young students taking his course did not possess.

Students usually used their rough notes to create a neater recopied notebook. The presence of figures, diagrams, and even pictograms in these secondary notes indicates that students were somehow acquiring visualisations during the rough notetaking stage. One form of acquiring such tables and figures was to memorise it during the lectures and then to recreate it when the notes were recopied. In an age when figural images were just beginning to be used frequently in Scottish classrooms, it is likely that visualisations and objects made a stronger impression than they might today. Some students, Carmichael Smyth (1742–1821), for example, could still recall Monro Secundus's anatomy figures nearly six decades after they had seen them in the classroom.[59]

A more likely option, however, is that students somehow found a way to make a basic sketch of a figure and then redrew a fuller version of it when they recopied their notes. This practice of making a preliminary sketch can be seen in the

process that students used to make likenesses of their professors in the flyleaves of their copied notebooks. A good example is found in the three-volume set made by an anonymous student attending the 1798 universal history lectures given by Edinburgh's Alexander Fraser Tytler (1747–1813).[60] The student first tried to draw a graphite profile of Tytler on the verso side of the blank flyleaf at the end of the first volume. This attempt was unsuccessful and he scribbled it out. He then made a second attempt on the recto side of the facing page. Since he did not scribble this out, he was most likely more satisfied with it.[61] He confirmed this satisfaction at the end of the second volume of his notebooks by using the rough sketch as the template for a pen and ink drawing of Tytler in the final flyleaves.[62] The process of drawing and redrawing shows that some students first made images in graphite and then recreated them in ink. This feat is noteworthy because professors covered a lot of material and many students struggled to even write basic epitomisations of what they had heard. In other words, whether using graphite or ink, it would have been very difficult for some to draw lecture figures or likenesses in addition to taking written notes. Students, especially those studying medical subjects, most likely solved this problem when they took the same course several times, allowing them to make composite graphite sketches of figural posters and handouts over a period of years.

Once the new figures were created from the sketches, the old ones were discarded, making the sketching process hard to trace. Some specimens, however, do survive. An excellent example is tucked inside a 1780 set of notes taken by Francis Hamilton Buchanan (1762–1829) in John Hope's Edinburgh botany lectures. Drawn in pen, it depicts a roughly executed diagram of a tree with numbers placed

along its branches that probably signify the flow of tree sap.[63] Buchanan most likely kept it there because he was not able to copy it into his notes, or perhaps because he felt it would be easier to use as a freestanding reference tool. It is also possible that he acquired it from another student who had attended Hope's lectures.

(Re)Copying Notes

A third stage in student notetaking was copying rough notes into blank bound notebooks, or into blank paper books that were later bound or sewn together at the end of a course or later in a student's career. Copied notebooks were usually bound in octavo or quarto formats, but irregular formats and folio editions do exist.[64] To avoid forgetting information, students "filled out" their notes in the evening that followed the lecture. In addition to using their rough notes, they employed the course syllabus, handouts (distributed by professors), and the notes of other students.[65]

As intimated above, professors organised their courses according to a list of topical lectures headings. These were called "heads," "outlines," or a "syllabus." Printed copies were sold in local bookshops where students bought them for a few shillings. The syllabus was a particularly helpful organisational tool and students used it to order their notes. Some even resorted to copying the headings of the syllabus into their notebooks when they missed a lecture. An anonymous student attending Alexander Fraser Tytler's universal history lectures wrote the following at the start of his notebooks: "For the six preceding heads of this Lecture, see the Outlines."[66] Likewise, an anonymous student attending William Cullen's Edinburgh

lectures on chemistry cross-referenced a section of his notes to the lecture headings by writing "Vide Syllabus Page 9."[67]

The use of rough notes to write recopied notes was effectively a mode of information transfer. The movement of manuscript material from one notebook to another was of course not a practice unique to universities. It had been a core information management technique used in commonplace books since the Renaissance. By the late Enlightenment even travelling botanists copied excerpts from their field notebooks into a "register" notebook in a process that has been called "writing after the fact."[68] Since students taking their own notes in Scottish universities used observational skills to hear new facts and to see new objects in lectures (especially in medical courses), they were also writing after the fact when they copied their rough notes.[69] The fact that this copying often involved the insertion of more information from their own memories and the notes of others meant that they were learning scribal routines that treated copied notebooks as expandable files that could be extended to fit their intellectual or educational needs.

Learning to treat notes as expandable files through copying techniques was time-consuming. In 1785 Coventrie wrote, "I took notes from all the lectures, generally the leading topics, which I filled up at my lodging, which kept me from bed till two in the morning." Looking back on his studies near the end of his first year at university, he wrote in his diary that "my late hours revising my notes taken at the lectures, wore on my constitution, and I longed for the approach of May and the end of the lectures."[70] A similar account of painstakingly "filling out" notes is given in the diary of Sylas Neville. After attending a 1771 anatomy lecture of professor Monro

Secundus, he returned to his rented room, recopied his notes, and then wrote the following reflection in his diary:

> Tues. Nov. 12. Allowed R. Byam, a gent. from Antigua who lodges in our house, my notes from [Professor Alexander] Monro's 4th lecture to copy. Dennison says it is almost a full copy—sincerely or not I do not know. After Dinner he waited upon Monro with him. Did not get to bed till 1/2 past 12 o'clock. Extending my notes taken at the Chemical and Anatomical lectures employs my whole time and prevents my doing any thing else. Tired, uneasy & low-spirited.[71]

As indicated throughout Neville's diary, students lent each other their rough and copied notes, especially in cases where a lecture had been missed or was difficult to understand. Students also copied the notes of courses that they had not attended. The medical student John Bacon succinctly summed up this routine at the front of his copied notes taken in John Gregory's lectures on medical practice: "N.B. These lectures were written at Edinburgh in the years 1772 and 1773. The Manuscripts from which I copied them, were lent to me by my ingenious and worthy Friend Doctor Remmet of Exeter."[72] The weekly effort required by the notetaking regime was demanding. To lighten their load, some students created notetaking consortiums, a form of collective observation evinced by the inscription "Thomas Parke and Co." which appears throughout the eleven hundred pages of notes taken by Edinburgh medical student Thomas Parke in one year of study during the mid-1770s.[73]

For students of means, there were professional transcribers who could be hired to rewrite rough or copied notes neatly. Little research has been done on these skilled copyists, but Neville's diary suggests that, in addition to transcribing students' notes, dissertation essays, and research papers, transcribers were also employed as clerks in the various societies and law courts of Edinburgh. This meant that students, particularly those who waited until the last minute, sometimes struggled to get a transcriber at short notice. Neville was one such student and in his diary laments the difficulty of finding transcribers. When he finally found one, he was disappointed: "When he came he said he was clerk to a certain society which meets for business on Tuesdays and that he should be fined if he was absent."[74] Neville offered to pay the fine and the transcriber then agreed to do the work for him.

One of the hallmarks of professionally transcribed lecture notebooks is neat handwriting. The natural history and logic lecture notebooks of the future jurist Sir David Pollock (1780–1847) bear all the signs of this kind of copying.[75] But even this superior penmanship could have been carried out by a student who had studied orthography with a writing master before entering university. A case in point is the neatly written 1788 diary of George Sandy of Edinburgh that was penned after he had finished school and was waiting to become a legal apprentice. The neatness of his notebook, which was written when he was fifteen years old, easily could be taken as the work of a professional transcriber.[76]

There is hardly any further evidence regarding the relationship between students and transcribers, though a rare but telling glimpse is offered in Neville's diary. He employed a servant while he was in Edinburgh but only mentions a

transcriber on a few occasions, suggesting that the latter was more a luxury than a commonly-used service.[77] This was despite the fact that he spent a great deal of time copying rough notes, transcribing another student's notes of Professor John Gregory's clinical reports "line by line," and writing (and rewriting) papers, commentaries, and aphorisms for the student medical society. Even when he used a transcriber, he was dissatisfied with the final result and ended up recopying the material himself.[78]

For notebooks that were most likely copied by professionals, it is difficult to determine with any certainty the identities of the transcribers who carried out the task. Neville's diary does not even mention their names. Although the handwriting and graphic flourishes of several copied notebooks, especially the aforementioned set of David Pollock, indicate that the same person might have made them, the names of the copyists remain unknown.[79] The only solid identity that I have found is that of the copyist who duplicated the set of anatomy notes taken by John Thorburn and then bought by Monro Secundus during the 1770s. Reflecting on the purchase, Monro noted that, "On the 8th of November 1774, I purchased a copy of Mr THORBURN'S manuscript, written in ten volumes, by Mr JOHN WILSON, who, being lame, had the conceit of calling himself *Claudero*."[80] Even though Monro gave the name "John Wilson," it is possible that he was actually referring to the discredited poet *James* Wilson.[81] However, aside from this confusion, it is important to note that, whether made by a student copyist or professional transcriber, Monro read many manuscript editions of student lecture notes taken in his course and judged them, on the whole, to be accurate. He even went so far as to state that the many transcriptions made from Thorburn's notes over two decades had been "handed

down to this time, with fewer corrections and additions than might have been expected."[82]

Like rough notes, the main layout used for the pages of copied notes was a singular column of narrative on the recto side of the page. Since students had more time to write their copied notes, the handwriting is usually neater and easier to read. Likewise, to make their notes even neater, many students pre-drew a graphite grid on the paper. This was a skill that was also practised by students taking notes in Scottish schools and academies. The presence of the grid effectively allowed students to inscribe their notes into a rectilinear column of information. Notably, they usually erased the grid after they had written their notes in ink. Additionally, in some sets, the top, side, and bottom edges of the grid were cut off when the notes were rebound.[83] There are, however, a number of notebooks in which a grid is still present in some form.[84]

The linear form of the narrative column was complemented by the use of headings to visually demarcate a new section, part, or chapter. Headings were terms or phrases that were usually imported from the syllabus, although some students chose to make their own. As can be seen in the anonymous notes taken in the course on rhetoric given by the economist and philosopher Adam Smith (1723–90) during the 1760s, some simply used the number of the lecture and the date as a heading.[85] Although this might seem confusing to modern eyes, the lecture numbers often corresponded to a professor's syllabus of lecture headings. Some professors printed their headings in local newspapers (which of course acted as an advertisement as well). John Millar, professor of law at Glasgow University, printed his headings in local papers in the weeks that preceded his courses. Some students

even attached the list of lecture headings from his syllabus to the front of their notes for reference.[86]

Building on the layouts of the syllabi distributed by professors, students structured their notebook pages with graphic elements that occurred in most eighteenth-century printed books, namely, a column of text that contained 1) main headings, 2) subheadings, 3) running heads, and 4) paragraphs.[87] Figure 3 is a heuristic representation of all four of the elements, all of which were also used by printers to structure school textbooks and by students to structure the copied notebooks they kept when they attended grammar schools or academies. But, as I've shown elsewhere, knowing how to transmute these elements into a notebook was something that schoolchildren had to learn to do and value. They required a steady hand, tools of inscription, and (crucially) time.[88] When students selected all or some of the four elements, they effectively became compositors because they were creating a layout pattern that ran across all the pages of their notebooks. In most cases, the elements seldom appeared at the same time, but the pattern ensured that the elements would be plotted in relatively the same place on every page. Students selected a combination of the elements that best suited their visual needs and strengths. This mode of spatial modification came in three varieties: replication, simplification, and innovation.

A few students attempted to replicate all of the elements featured in the layout of a professor's syllabus. An excellent advanced example of this practice can be seen in Sir David Pollock's ten-volume set of the lectures given by Professor John Walker in his Edinburgh natural history course (Figure 4).[89] Though beautifully inscribed, these notes force us to consider the extent to which a notetaker or

transcriber could "replicate" the layout of the printed syllabus. More specifically, even in this set of neatly written notes, the fluid connected letters of cursive writing styles could never produce a mimetic copy of the independent disconnected letters used in printing. Thus, even though most students used simple typographic and spacing techniques to lay out their recopied notes, they did not attempt to fully replicate the advanced graphic design elements used in the printed lecture headings of some professors (Professor John Walker for example).[90] This situation might at first glance suggest that some students were not being diligent notetakers. Copying notes, however, was laborious and it is likely that the graphic economy of student notebooks was more a matter of strategic time management and less a matter of indolence.

The majority of students simplified the layout of their notes by omitting graphic elements employed in their professor's syllabus. The anonymous student (or possibly a transcriber) who copied John Millar's Glasgow 1771 law course, for example, opted to eliminate the headings and subheadings featured in Millar's printed syllabus altogether.[91] Other students practised small but important acts of scribal innovation by supplementing, augmenting, or rearranging the graphic elements of the syllabus. John Lee's 1797 copied notes from John Hill's Edinburgh course on philosophy are a particularly good example of this practice. When compared to the syllabus printed by Hill in 1792 it can be seen that Lee adapted the layout of his notebook so that it worked with the page and handwriting sizes that he used for his notes (Figure 5). He also selected and then recombined headings and subheadings that occurred on different pages of the syllabus. The first page of Lee's notes, for example, combines centred headings and subheadings that are featured

on different pages of Hill's syllabus.[92] These adaptations show that students selected graphic elements that worked best for their personal approach to managing information on paper.

For a number of courses, especially those addressing medical or legal topics, professors used visual teaching aids that were drawn, written, or printed on loose-leaf handouts and posters. Some also inscribed figures or diagrams on a chalkboard at the front of the classroom. As mentioned earlier, students rarely copied such visualisations into their rough notes. Instead, they probably made rough sketches and collected the handouts so that they could be redrawn into their copied notebooks. It is these visualisations, the ones that students saw fit to replicate, that shed insight into how they used notetaking to learn and manage tabular and figural information on paper.

As the graphite traces in copied lecture notebooks reveal, students made preliminary sketches there and then traced over them with pen, for example the aforementioned likeness of James Fraser Tytler. Another striking remnant of a graphite sketch can be seen in a 1760 depiction of a furnace featured in a recopied set of notes taken by an anonymous student in William Cullen's Edinburgh chemistry lectures. Whereas the original sketch was erased, the student left a graphite wisp of smoke shooting out of the kettle (Figure 6).[93] Likewise, the graphite traces of gridding can sometimes be seen below and around sentences and margins.

Aside from the likenesses that students drew of their professors,[94] there are three kinds of figures that appeared frequently in copied lecture notebooks. First, there are diagrams which depict some sort of process. Perhaps the most well-known diagram of this nature is the chiasm, an x-shaped figure, used by William Cullen and

Joseph Black in their chemistry lectures to represent the attractions between substances in compounds. Black's rendition of the chiasm is particularly significant to historians of science because it is often taken to be the first modern-day chemical equation.[95] Black and Cullen also used schematic diagrams to represent how furnaces[96] and mine shafts[97] worked**.**

Second, there are figures of objects, such as chemical instruments. Based on the similarity of the customised retorts, Florentine flasks, funnels, and other specialised "vessels" exhibited in notebooks based on the Edinburgh lectures of Black and Cullen, it is likely that students developed a stylised way of depicting the instruments on their own or with the help of draughtsmen.[98] Likewise, John Hope employed diagrams to depict physiological experiments on plants.[99] Pictograms also occur in some notebooks as schematic figures of objects or as sidecuts of objects such as tree trunks or the human eye.[100] At other times students used silhouettes to represent medical instruments or chemical apparatus (see again Figure 6).[101]

Finally, there are word tables that served as visual mnemotechnic devices. Like the graphic layout of the page, they clumped words into recognisable patterns of information. Students encountered these word images in the lists given to them by their professors. They regularly copied lists of keywords, definitions, book titles, experiments, and dates,[102] as well as word tables laid out as boxes and Ramistic tree diagrams (also known as braces, digrams, dendrograms, and branching diagrams). There is also evidence that Black's chemistry students attempted to replicate his tabularised thermometric scales.[103] Sometimes the tables used by professors proved too long to copy, and this led them to print tabular lists of terms and other kinds of information that students could buy alongside lecture heads in bookstores. It is

likely that students used these lists alongside their notebooks. Evidence of this practice comes from Blagden's notebooks where he tucked away a loose-leaf copy of a chemistry preparation list that had been printed by Black.[104]

Editing Notebooks

After students recopied their notes, they edited them in a manner that made them easier to access. The first step in this process was the creation of paratexts. Students usually made a title page for each of their recopied notebooks. Since it appeared at the front, it was often damaged or lost over time. It usually stated the name of the course or an abbreviation, epitome, or emendation of what the student thought the course should be named, as well as the name of the professor and the year(s) the notes were taken.[105] It was normally handwritten, but law student David Johnstone went so far as to have the title page of his recopied notes printed as *Notes on the Law of Scotland, Taken from the Lectures of David Hume, Esq. Advocate*.[106] Save for the absence of the printer's name, Johnstone conveyed the basic information one would find featured on the title page of a printed book.

As in a printed book, the title page was often followed by a table of contents. The content and layout of this paratextual apparatus was relatively easy to conceptualise because students could use the professor's lecture headings as a guide.[107] But the skills used to read the headings as a useful template were a bit different to the skills required to write them out on the page. Put another way, writing out the headings as a table of contents at the beginning of a notebook required a range of scribal skills, particularly those which allowed students to

geometrically lay out the words on the page. The presence of different graphic factors explains why students laid out their tables of contents in different ways which incorporated various features of the professor's lecture headings. Some numbered their lecture headings but did not include page numbers, others did not number headings but listed page numbers.[108] Additionally, when students rewrote their notes, they also used the lecture headings in tandem with their rough notes to organise what they were rewriting, thereby transforming the headings into crossreferential reading aids that allowed them to interact with handwritten and printed forms of information at the same time.[109]

A good number of Scottish student notes also had an index. Since a set of copied notes could run to more than ten volumes, some students made the index in the last volume, while others put one at the end of each volume. Most indices in lecture notebooks list key terms alphabetically.[110] The absence of savvy indexical systems, such as John Locke's commonplace method based on the vowels of entries, suggests that students found straightforward alphabetical listings more useful.[111] Making a notebook index was time-consuming because it involved listing, alphabetising, numbering, sorting, and repeatedly shuffling through an entire set of copied notes. Students had to select the terms that they wanted to order before reading and rereading their notes so that they could collect the folio numbers where the terms occurred. They also had to use plotting, indenting, and other alignment skills to create a personalised and (hence) useful graphic layout for the index. The personalised nature of this practice explains why some students laid out their index in columns while others used different arrangements such as tiled boxes (Figure 7).[112]

Needless to say, the additional time and effort required to design and collate an index explains why many notebook indices made by students and professional transcribers are incomplete (see again Figure 7). An anonymous transcriber of Adam Smith's 1760s *Lectures on Justice* even went so far as to replicate the exact pagination of the original manuscript so that the page numbers in the index would not have to be changed when it was copied. To achieve this goal he wrote in a smaller hand and had to sometimes simply stop writing even if he had not reached the end of the page. The end result was that one page might contain twenty-six lines while another contained only twenty. It seems that whoever commissioned the transcriber felt that having an index was more important than filling every line on every page with narrative.[113]

Students used their notebooks to study for examinations or as reference works long after they left university. Their presence in the book lists of catalogues of Edinburgh's auctioneers also shows that they were bought by others as well.[114] Historians of print and manuscript culture, or even historians of education, seldom consider this aspect, individual or collective, of university notebook usage. Since most sets of recopied notes were inscribed on the recto page only, the verso page was available for future annotations, observations, or corrections. Some added notes to the blank pages at the beginning and end,[115] while others used this space as scrap paper for financial calculations.[116]

Many sets contain annotations that might be called "sidenotes" written on the blank verso page. They functioned like footnotes, supplementing the main narrative with further information or bibliographic references gained from sources that were read after the course had been taken. The superscripts used to label such

notes could be Roman letters, Greek letters, crosses, asterisks, or occasionally hashtags, inserted in the narrative of the recto page and then written again on the facing verso page alongside the new note.[117]

David Johnstone even made corrections by pasting new law notes over old notes.[118] But the most common way of correcting information was through crossing out incorrect terms or sentences and writing the correct information, if space permitted, above the line that had been crossed out or on the verso side of the facing page (which was usually blank). Such corrections ranged from fixing misspelled words to adding new material like the dates that the lectures were given. Originally Johnstone had not recorded the dates and numbers of lectures, so he later went back and pencilled this information in the margins.[119]

We have already learned that students practised several kinds of communal inscription when they rewrote their rough notes. This collective writing continued long after they left university, particularly when lecture notebooks became part of a personal or professional library. Bound lecture notes bear many traditional marks of book ownership and donation, most commonly signatures (sometimes of multiple owners), donor statements like "Presented by John Grant, Esq.,"[120] and library stamps on the flyleaves. Occasionally, but not infrequently, there are bookplates or embossed insignias that bear the names of students and institutions that kept them as library reference works. Bookplates such as those featured in the lecture notebooks of John Borthwick of Crookston (1787–1845) and John Waldie of Hendersyde (b. 1781) bear family crests that shed light on the identity of students and, accordingly, on how students used notes after they were taken.[121]

As a member of a wealthy family of Scottish industrialists based in Newcastle-upon-Tyne, John Waldie made his own library after his studies in Edinburgh. The library was organised via a system of call numbers written on bookplates affixed to the inside cover of his books. The bookplates of his universal history notebooks, which were taken in the lectures of Edinburgh's Alexander Fraser Tytler, read "History. No. 95," with the "History. No." printed and the numeral handwritten. This kind of bookplate shows how other notetakers might have classified their own notes after they finished university. When the bookplate is considered alongside other examples of provenance featured in the Waldie and Borthwick notebooks it can be seen that, aside from the immediate annotations and corrections added in the days and months following a lecture course, there were longstanding opportunities for students to use or amend notebooks in institutional or familial communities that existed outside the corridors of universities.

As shown in the work of Mark Towsey, communal inscription was practised in libraries across eighteenth-century Scotland.[122] The annotations made in a seven-volume bound set of lecture notebooks housed in the old library of the Faculty of Procurators in Glasgow shows how this process worked in a professional context. The notebooks were made by an anonymous student who attended the Edinburgh law lectures of David Hume during the 1810–11 academic year.[123] Its provenance is clearly indicated by the "Faculty of Procurators in Glasgow" lexigram embossed on the front of every volume. All the volumes contain graphite and ink annotations made in different hands, some of which bear dates several years after the notes were taken (1813 for example). These inscriptions show that each volume was a

living document that was changed and emended to fit the needs of the library's users.

Another form of communal inscription involved professors annotating the lecture notebooks that they bought from students, which created a symbiotic relationship between faculty and students. Hugh Cleghorn (1752–1827), the professor of civil history at St. Andrews University, annotated student lecture notes taken in the government course offered by John Millar at the University of Glasgow.[124] Alexander Monro Secundus's use of John Thorburn's notes is an equally revealing example. As Monro's cross through marks and inserted corrections in Thornburn's notes indicate, it is likely that he read his former students' notebooks to gain insight into what he had said in his own lectures, to see what his students had found noteworthy, and to reclaim examples or illustrations that he might have said extemporaneously.[125] Monro, like most Scottish professors, had been a member of Edinburgh's student notetaking community during his own university studies. In many ways his use of his students' notebooks shows that he still benefitted from the community even after he had become a professor.

Circulating Notebooks

In addition to functioning as interactive tools, lecture notebooks transmitted knowledge as well. Again, this situation was by no means unique to Scotland. As shown by Ann Blair, student notetaking played an important role in circulating scholarly knowledge in other European centres of learning during the early modern period. In her words, "Note taking constitutes a central but often hidden phase in

the transmission of knowledge."[126] This being the case, it is worth exploring the ways in which notebooks circulated inside Scotland's universities and throughout Britain and its colonies.

As noted earlier, rough and recopied notes circulated among students and professors. Indeed, in the 1790s Monro Secundus estimated that there were over four hundred copies of his lectures in circulation.[127] This is probably well above average, as Monro was a popular lecturer and his course was required for all students taking a medical degree. But the large number of extant lecture notebooks indicates that students were taking notes in just about every professor's course. And like any material object, the notebooks continued to have life outside the geographic location in which they were created.

After finishing their university courses, students often transported their lecture notebooks to places where they could be used, sometimes to other sites of learning to aid with further studies.[128] Others went to the furthest reaches of the British Empire, as revealed in the inscription that Francis Hamilton Buchanan wrote on the front flyleaf of his botanical notebooks in 1806.

> These notes were taken by me at the Botanical Garden Edinburgh in summer 1780. In a voyage to India in 1785 M^{r} Boswell, then my mate and who remained in the country, had by mistake put them up in his trunk and lost them at the affair near Satimangulum, where they were taken by Tippoo, and by him bound up in their present form. At the taking of Seringapatam they fell into the hands of Major Ogg who has restored them to me.[129]

Often students took their notes home to be used as reference books, serving their personal or professional interests. John Thornburn took his shorthand set of 1769–70 anatomy notes home to Cambridgeshire when he finished his studies, but their use did not end there. Thorburn died in the 1780s and his son, John Thorburn Jr., inherited them. Following in his father's footsteps, Thorburn Jr. studied medicine in Edinburgh during the early 1790s and he brought his father's shorthand notes with him. Then, like his father, he took Monro Secundus's anatomy course. Monro, who was touched by this episode (most likely because he too had used his own father's lecture notes when he studied medicine),[130] recounted this form of intergenerational manuscript circulation in 1794: "Thorburn, who is studying Physic, and has attended my Lectures this and last winter, is in possession of his father's original manuscript, written in short hand in 1770, which he has extended as accurately as he could."[131]

Student manuscripts also circulated back to the libraries of their university of origin during the nineteenth and twentieth centuries. Some were used or preserved by family members who then donated them to a university's special collections. Notes that explain this kind of provenance are sometimes written on the flyleaf or explained in a letter tucked inside the notes. The son-in-law of John Hill, Edinburgh's professor of humanity and philology, donated his father-in-law's papers to the University of Edinburgh. A note on the flyleaf of one of the bound manuscript notebooks reads: "M.S.S. of my learned father in law—Saved by me from being cancelled—circa 1808," followed by a scribbled set of initials and then "Bound in 1840." [132]

Other sets of notes found their way into university special collections in North America, Australia, and New Zealand,[133] most remarkably in the case of the Monro

family. From the early eighteenth century to the middle of the nineteenth century, three generations of Monros—Alexander Monro *Primus*, *Secundus*, and *Tertius*—held the Edinburgh chair of anatomy. As each retired, he gave his student notebooks to his son. When Alexander Tertius died in 1859, he gave all the notebooks to his son, David Monro, who had emigrated to New Zealand. In time David gave the collection to the University of Otago, where today it constitutes one of the largest intergenerational collections of Enlightenment anatomy.[134] When considered together with the Buchanan, Thorburn, and Hill notebooks, the Monro family notes reveal that the diverse circulation of lecture notebooks were part of the larger story of how scholarly information management practices spread across Britain and its colonies during the eighteenth and nineteenth centuries.

Sometimes the circulation of manuscript lecture notes was a double-edged sword. On the one hand, it communicated a professor's ideas to the public, but on the other, the presence of too many easily accessible manuscript copies could lead students to transcribe the notes and skip the course. The same might happen if an entire set of lecture notes was published. In both cases, the professor stood to lose a significant amount of money, especially since each student paid a three guinea tuition fee directly to him at the beginning of the course. This explains why professors waited to publish their lectures until after they retired.

The circulation of manuscript student notes made some professors worry over the accuracy of the content. Hugh Blair, Edinburgh's popular professor of rhetoric, expressed this concern in the preface of the published version of his lectures: "When the Author [Blair] saw them [manuscript notes] circulate so currently, as even to be quoted in print, and found himself often threatened with

surreptitious publications from them, he judged it to be high time that they should proceed from his own hand, rather than come into public view under some very defective and erroneous form."[135] Similar statements about the inaccuracy or inadequacy of student notes were also made in print by other professors like Cullen, John Gregory (1724–73), and Monro Secundus when, or after, they published books based on their lectures.[136]

While it is clear that even the most gifted notetaker could not capture every word spoken by a professor, the negative statements about student notes need to be handled with care, especially since their circulation could have adverse financial repercussions on professors. A clue to this situation is given in the preface of Hugh Blair's published lectures on rhetoric. There he states that student notebooks based on notes taken in his course "were first privately handed about; and afterwards frequently exposed to public sale."[137] Here we can see that professorial fears over the circulation of lecture notes were more than a simple academic matter. Student notebooks were a product that could potentially damage enrolment and the sales of a professor's published lectures.

Yet, whereas an unauthorised printing of an entire set of lecture notes was problematic for some professors, there is at least one case where the publication of a selection of lectures might have worked to a professor's advantage. It is highly likely that an unauthorised 1770 printing of Joseph Black's lectures on heat effectively acted as an advertisement that enticed students to travel to Edinburgh and take his entire course.[138] Unlike courses offered in the arts, divinity, and law faculties, Black's lectures included a large number of experiments, many of which had to be seen, heard, and smelled in person to be fully understood.[139]

But overall, in an age when copyright laws were weak, professors used the supposed inaccuracy of student manuscripts and pirated editions as a marketing tool to discredit the competition and, accordingly, to bolster sales of the authorised printed edition. Professors took a great interest, therefore, in the circulation of student notebooks if their lectures had been pirated or plagiarised. Perhaps the most famous case of a pirated book based on student lecture notes is the 1771 edition of William Cullen's *Materia Medica*. As recounted in the preface of the 1773 authorised edition, Cullen was so concerned about the circulation of his lecture material in print that, "as soon as he was informed of the Publication, he applied for, and obtained from the Lord Chancellor, an Injunction, prohibiting the sale of the book."[140] Cullen was also keen to find out whose notes had been used for the pirated edition. As he explained in a 1775 dinner conversation with the ever-present and sociable diarist Sylas Neville, the identity of the original notetaker was revealed without so much as Cullen lifting a finger.

Soon after the pirated edition appeared, Cullen received a letter from none other than Dr. Alexander Monro Drummond, the University of Edinburgh's professor-elect of medical institutes. This post had been vacated recently by, indeed, Cullen.[141] Upon seeing the pirated version, Drummond somehow realised that it was based upon the notes he had taken in the first year of his studies and, to clear his name and conscience, he proceeded to track down the two people who had transcribed his notes. The result is recounted in Neville's diary: "One was Dr Falconer of Bath, the other a Dr Blair of Virginia, now dead. The former wrote a letter to the Dr [Drummond] acknowledging his having published it.'[142]

The fact that Drummond was able to realise that the pirated edition was based on his notes and the fact that he knew exactly who had copied them shows the intimate familiarity that some students had with their notebooks and with their subsequent transcribed lineage. Crucially, the corrections of the authorised 1773 edition of Cullen's *materia medica* lectures were based on other sets of student notebooks, or, as the subtitle states, the book was republished "with many CORRECTIONS from the Collation of different MANUSCRIPTS by the EDITOR." Thus, ironically, even though Cullen felt that the pirated edition was filled with "blunders & inaccuracies", he had to use further editions of student notes to create a more accurate printed edition.[143] Other professors, John Gregory for instance, also had to rely on student notebooks when correcting a pirated edition of their lectures.

Cullen's dependence on student notes is particularly striking when one considers that there were other technologies of writing that he could have used to preserve what he had said in his lectures. For example, later in his career, particularly from the 1780s onward, he dictated medical consultation letters to an amanuensis and he used James Watt's copying machine to replicate them. But scribal alternatives required investment, both in terms of paying the amanuensis and acquiring and servicing a new copying machine. When viewed from a practical perspective, Watt's machine was tricky to assemble and produced an inferior copy. After receiving one as a gift, Joseph Black, Edinburgh's professor of chemistry, informed Watt that he was "not satisfied" with the quality of the ink required by its automated stylus.[144] It seems that since students were taking notes anyway, it was easier, and probably more cost efficient, to simply borrow copies as needed from those living in the Edinburgh area.[145]

The symbiotic editorial relationship between Cullen and his students reminds us that the main graphic mode through which Scottish professors were able to judge the mnemonic impact of their lectures was to read the notes of their students. In an age when the order of the mind was closely linked to the order of words on the page, student notes provided professors with graphic representations of the systems of knowledge that they were attempting to inculcate. In Cullen's case the symbiotic relationship is even more pronounced because he drew a very strong link between pedagogy and systematics. He believed that a course of lectures must be presented via an organised system that broke down information into easily accessible categories.[146]

The line between piracy and plagiarism, however, presented a stronger challenge to the interactive scribal relationship between professors and students. Whereas Cullen and Drummond had to trace the circulation of notes to stamp out piracy, Monro Secundus had to find student notebooks to prove that the content of his lectures had been plagiarised. A particularly acrimonious example of this scribal sleuthing can be seen in a priority dispute between him and Gilbert Blane during the 1790s. Blane had taken Monro's course in the 1769–70 session and had witnessed how his teacher had used geometric diagrams in his teaching. Blane moved to London after his studies and pursued a successful career as an anatomist and expert in military medicine. In 1788 he gave the prestigious Croonian Lecture on Muscle Motion to the Royal Society of London in which he employed Monro's geometric method to illustrate muscle movement without mentioning its origin. He then published his paper as a monograph.[147]

The lecture and the monograph enraged Monro. To make his case against Blane, Monro tracked down three former students: John Haygarth, Benjamin Bell, and James Russell. Each possessed notes taken during the 1760s in Monro's lectures. Additionally, though Monro had a transcription of John Thorburn's anatomy notes from the 1769–70 season, he even went so far as to locate Thorburn's son so that he could see the original rough notes. After all these notes were consulted, Monro published a pamphlet which quoted extensively from the Thorburn, Bell, and Russell notebooks to show that Blane's geometric approach to muscle movement was indeed based upon lectures given two decades earlier by his teacher in Edinburgh.[148]

When considered in tandem with the cases of pirating related above, Monro's plagiarism case underscores the fact that professors and students lived in a symbiotic world of knowledge-making. In many ways the chorus of student notetakers, transcribers, and draughtsmen operating in Scottish universities resembled the group of editors, compositors, and pressmen who worked collectively to produce books on the shop floor of printing houses. For both books and lecture notebooks, no matter what kind of editorial process was used, variant copies were inevitable, if not the norm.[149] The symbiotic editorial dimension of lecture notebooks further reveals that professors were oftentimes dependent upon student notetaking and, consequently, it explains why they spent a notable amount of effort keeping track of the notes that had been taken in their lectures over the duration of their careers.

Conclusion

This essay has endeavored to show the importance of examining the graphic skills and routines required to make a lecture notebook in Scottish universities during the Enlightenment. Instead of treating notebooks as simply fixed repositories of factual information, I have emphasised that we need to ask what notetakers were doing while they learned within a specific kind of scribal community. In following this path, I have revealed that we should approach student notebooks as they were seen and used by their creators, that is, as crucial interactive tools that fostered the ability to actively create and manage knowledge on paper. By treating the lecture notebook as an object of enquiry, we can approach student notes as papertools that were made by specific (but oftentimes anonymous) students through several stages.

At every stage and on every page the young men who attended Scottish universities learned to hone their iterative manual and conceptual skills into a style of information management that was, at one level, bespoke to their own needs and, at another level, consistent with the larger graphic and conceptual norms employed in the notes of their peers. Making a notebook consisted of various reading, writing, and drawing skills that were woven together into notetaking routines—routines that were in turn infused with a sense of purpose, a sense that the acts of notetaking and notebook-making were just as important as the material notebook that they produced.

Some of the visual elements students used to structure their notes were similar to those that compositors employed to lay out textbooks, thereby linking the

subtle interplay between the forms of graphic design used in manuscript and printed educational texts. But unlike their experience with the fixed formats of the printed books cited by their professors, students used their own graphic intelligence to *choose* which kinds of layout suited them best in their notes. In making such important visual decisions, they were learning how to more efficiently manage information on paper. Indeed, students (and sometimes copyists) effectively functioned as manuscript compositors, and in many cases they played the role of an editor as well. By inhabiting these different roles they were able to create manuscript books that helped them learn better while in university and helped them remember better after their studies.

As the presence of notetaking consortiums and the circulation of notebooks between classmates clearly indicates, Scottish students lived within a graphic community centred around the universities that specialised in the packaging and replication of scholarly knowledge. The skill of classroom observation played a pivotal role, particularly when students took rough notes and when they expanded their jottings and thoughts, individually or collectively, into recopied notebooks. Crucially, while students did much of the scribal work, professors were part of the community as well, especially since they distributed outlines and lecture headings designed to help students structure their notes. In many respects professors had become part of the community during their own studies and were intimately familiar with its norms and practices. This familiarity engendered a degree of respect for student notebooks amongst many professors—a respect that is most clearly evinced by the fact that they used the notebooks to edit the published editions of their own lectures.

Yet in addition to the immediate role played by notebooks in Scotland's university towns, they also circulated scholarly knowledge across Britain and its colonies. Buchanan's notebooks are perhaps the best example of this kind of circulation; however, notebooks also were passed from fathers to sons and served as reference works in both professional and private libraries. In the case of the Procurator's Library, student notebooks were communally corrected and annotated. This added another rich layer to their use and value as scribal artefacts outside university settings. The overriding point to draw from the circulation of notebooks is that, in an age in which print was becoming the dominant form of textual dissemination, manuscript texts like student lecture notes still had an important role to play in Britain's information economy.

Finally, the dynamic community of student notetakers in Scottish universities produced lecture notebooks that were often used as expandable files of information. It was a world in which students actively used their notetaking and notebook-making abilities to create symbiotic scribal relationships between themselves and their professors. That helped them to see the contingent nature of knowledge, and exposed them to the painstaking practices required to preserve and construct knowledge systems. Making and using a lecture notebook in Scottish universities during the late Enlightenment was, therefore, a core part of the learning process. It was fundamentally tied to graphic skills and routines that fused the senses of seeing and listening with the material and manual acts of writing, drawing, and reading. As such, it played an integral role in the acquisition of knowledge and reinforced scribal abilities and values that remained with students long after they finished their university studies.

Notes

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[1] Ann M. Blair, "The Rise of Note-Taking in Early Modern Europe," *Intellectual History Review* 20 (2010): 303–16, and *Too Much to Know: Managing Scholarly Information before the Modern Age* (New Haven: Yale University Press, 2010); William H. Sherman, *Used Books: Marking Readers in Renaissance England* (University of Pennsylvania Press, 2009); H.J. Jackson, *Marginalia: Readers Writing in Books* (New Haven: Yale University Press, 2001); Richard Yeo, *Notebooks, English Virtuosi, and Early Modern Science* (Chicago: University of Chicago Press, 2014). Noteworthy articles include: Lorraine Daston, "Taking Note(s)," *Isis* 95 (2004): 443–48; Jacob Soll, "From Note-Taking to Data Banks: Personal and Institutional Information Management in Early Modern Europe," *Intellectual History Review* 20 (2010): 355–75; Anthony Grafton, "The Republic of Letters in the American Colonies: Francis Daniel Pastorius Makes a Notebook," *American Historical Review*, 117 (2012): 1–39.

[2] The *Schreibechor* process and its application to Kant's lectures is summarized in Ann Blair, "Student Manuscripts and the Textbook," in *Scholarly Knowledge: Textbooks in Early Modern Europe* (Geneva: Droz, 2008), ed. Emidio Campi, Simone de Angelis, Anja-Silvia Goeing, and Anthony Grafton, 39–73; for Kant see pp. 61–62. Blair also explains that relay notetaking most likely emerged from practices used to record sermons.

[3] The foregoing examples are discussed, respectively, in: Kasper Risbjerg Eskildsen, "Exploring the Republic of Letters: German Travellers in the Dutch Underground, 1690–1720," in *Scientists and Scholars in the Field: Studies in the History of Fieldwork and Expeditions*, ed. Kristian H. Nielsen, Michael Harbsmeier, and Christopher J. Ries, (Aarhus: Aarhus University Press, 2012), 101–22, see p. 105; Andrew Warwick, *Masters of Theory: Cambridge and the Rise of Mathematical Physics* (Chicago: University of Chicago Press, 2003); Thomas Knoles, Rick Kennedy, and Lucia Zaucha Knoles, eds., *Student Notebooks at Colonial Harvard: Manuscripts and Educational Practice, 1650–1740* (Worcester: American Antiquarian Society, 2003); Matthew Simpson's study of the marginalia in the library books of St. Andrews University: "'O Man do not scribble on the book': Print and Counter–Print in a Scottish Enlightenment University," *Oral Tradition* 15 (2000): 74–95; Paul Nelles, "*Libros de papel, libri bianchi, libri papyracei*: Note-Taking Techniques and the Role of Student Notebooks in the Early Jesuit Colleges," *Archivum Historicum Societatis Iesu* 76 (2007): 75–112; Ann Blair, *Too Much to Know*, and Ann Blair, "On Ovid's *Metamorphosis*: The Class Notes of a 16th–Century Paris Schoolboy," *Princeton University Library Chronicle* 50 (1989): 117–44.

[4] This essay is based on lecture notebooks and ephemera housed in a number of special collections located in many countries. In what follows, I use the following abbreviations: EUL (Edinburgh University Library); GUL (Glasgow University Library); AUL (Aberdeen University Library); SUL (St. Andrews University Library); Wellcome (Wellcome Trust Library, London); Otago (Otago University Library, New Zealand); NLS (National Library of Scotland); RBGE (Royal Botanic Garden of Edinburgh); RSL (Royal Society of London Special Collections); CHF (Chemical Heritage Foundation); RCPE (Royal College of Physicians Edinburgh Library, Edinburgh); and YUL (Yale University Library).

[5] The papertool concept is discussed throughout Ursula Klein, *Experiments, Models, Paper Tools: Cultures of Organic Chemistry in the Nineteenth Century* (Stanford: Stanford University Press, 2003); quotation taken from p. 118.

[6] Michel de Certeau, *The Practice of Everyday Life* (London: University of California Press, 1984); Richard Sennett, *The Craftsman* (London: Allen Lane, 2008); Donald A. Norman, *Things that Make Us Smart: Defending Human Attributes in the Age of the Machine* (New York: Addison–Wesley Publishing Company, 1993); Tim Ingold, *Lines: A Brief History* (London: Routledge: 2007).

[7] Ann Blair, *Too Much to Know*; Anke te Heesen, *The World in a Box: The Story of an Eighteenth-Century Picture Encyclopedia* (Chicago: University of Chicago Press, 2002).

[8] Margaret Sankey, "Writing the Voyage of Scientific Exploration: The Logbooks, Journal and Notes of the Baudin Expedition (1800–1804)," *Intellectual History Review* 20 (2010): 401–13.

[9] The place of notetaking in Scotland's schools is detailed in Matthew Daniel Eddy, "The Shape of Knowledge: Children and the Visual Culture of Literacy and Numeracy," *Science in Context* 26 (2013): 215–45.

[10] The University of St. Andrews Special Collections has a good collection of university dictates from its own colleges (St. Leonard's College and St. Salvator's College) and from the universities of Edinburgh, Glasgow, and Aberdeen (Marischal College) dating from the 1670s to around 1710. See, for example, Colin Vilant, *Tractatus Metaphysicus* (1708–1709), George Scott (notetaker), Bound MS, St. Andrews University Special Collections, msBC59.V8.

[11] See [Anon.], *Perth Academy Notebook* (1780s–90s), Bound MS, NLS MS 14291. For Harvard College, see Knoles et al. (2003). For Harvard, see also Charles Morton, *Charles Morton's Compendium Logicae Secundum Principia*, ed. Theodore Hornberger (Boston: Colonial Society of Massachusetts, 1940), and Arthur O. Norton, "Harvard Text-Books and Reference Books of the Seventeenth Century," *Publications of the Colonial Society of Massachusetts* 28 (1935): 361–438.

[12] The practices of eighteenth-century commonplacers are addressed in David Allan, *Commonplace Books and Reading in Georgian England* (Cambridge: Cambridge University Press, 2010), and the introductory material of the following: Milcah Martha Moore, *Milcah Martha Moore's Book: A Commonplace Book from Revolutionary America*, ed. Catherine La Courreye Blecki and Karin A. Wulf, (University Park: Pennsylvania State University Press, 1997), and William Byrd, *The Commonplace Book of William Byrd II of Westover*, ed. Kevin Berland, Jan Kirsten Gilliam and Kenneth A. Lockridge (Chapel Hill: University of North Carolina Press, 2001).

[13] For a commonplace book kept by a student attending the University of Edinburgh during the 1760s, see Charles Blagden, *Memoranda variis e codicibus excerpta* (1767), Bound MS, Wellcome MS. 1234.

[14] One of the most popular destinations for Scottish students from the 1690s to the 1730s was Leiden University. See E. Ashworth Underwood, *Boerhaave's Men at Leyden and After* (Edinburgh: Edinburgh

University Press, 1977). As the century progressed, Halle, Montpelier, Goettingen, and Uppsala also became popular, especially for medical students.

[15] This stands in contrast to other notetaking contexts where marginalia were more common. See Sherman, *Used Books*; Jackson, *Marginalia*; and Simpson, "'O Man'."

[16] William A. Cole, "Manuscripts of Joseph Black's Lectures on Chemistry," in A.D.C. Simpson, ed., *Joseph Black 1728–1799: A Commemorative Symposium* (Edinburgh: Royal Scottish Museum, 1982), 53–69. Gary Layne Hatch, "Student Notes of Hugh Blair's Lectures on Rhetoric," in *Scottish Rhetoric and Its Influences*, ed. Lynée Lewis Gaillet (Mahwah: Hermagoras, 1998), 79–94. Douglas W. Taylor, "The Manuscript Lecture Notes of Alexander Monro, Secundus (1733–1817)," *Medical History* 22 (1978): 174–86, and "The Manuscript Lecture Notes of Alexander Monro *Primus*," *Medical History* 30 (1986): 444–67; James R. Irvine, "Rhetoric and Moral Philosophy: A Selected Inventory of Lecture Notes and Dictates in Scottish Archives, 1700–1900," *Rhetoric Society Quarterly* 8 (1978): 159–64; John Gregory, *John Gregory's Writings on Medical Ethics and Philosophy of Medicine*, ed. Laurence B. McCullough (Dordrecht: Kluwer, 1998), 45–46. See also the "second generation" notebooks taken in the medical lectures given by Nathan Smith, an alumnus of the universities of Edinburgh and Glasgow, at Dartmouth College and Yale College. Oliver S. Hayward and Constance E. Putnam, *Improve, Perfect, & Perpetuate: Dr. Nathan Smith and Early American Education* (Hanover: University Press of New England, 1998), 339–42.

[17] Vincent M. Bevilacqua, "Adam Smith's Lectures on Rhetoric and Belles Lettres," *Studies in Scottish Literature* 3 (1965), 41–60; John M. Lothian, Introduction, *Adam Smith, Lectures on Rhetoric and Belles Lettres* [1762–1763], ed. John M. Lothian, (Edinburgh: Nelson, 1963); Ernest C. Mossner, "Adam Smith: Lectures on Rhetoric and Belles Lettres," *Studies in Scottish Literature* 2 (1965): 199–208; J.C. Bryce, Introduction, in *Adam Smith, Lectures on Rhetoric and Belles Lettres*, ed, J.C. Bryce (Oxford: Clarendon Press 1983), 1–37; John W. Cairns, "John Millar's Lectures on Scots Criminal Law," *Oxford Journal of Legal Studies* 8 (1988): 364–400; William C. Lehmann, "Some Observations on the Law Lectures of Professor Millar at the University of Glasgow (1761–1801)," *Juridical Review* 6 (1970): 56–77; R.L. Meek, "New Light on Adam Smith's Glasgow Lectures on Jurisprudence," *History of*

Political Economy 8 (1976): 339–477; Jeffrey M. Suderman, *Orthodoxy and Enlightenment: George Campbell in the Eighteenth Century* (Montreal: McGill–Queen's University Press, 2001), 58–68.

[18] Don Abbott, "Blair 'Abroad': The European Reception of Lectures on Rhetoric and Belles Letters," in *Scottish Rhetoric and Its Influences*, ed. Lynée Lewis Gaillet (Mahwah: Erlbaum, 1998), 67–77; Don Abbott, "The Influence of Blair's Lectures in Spain," *Rhetorica* 7 (1989): 275–89.

[19] For studies that have used student notebooks to reconstruct the skills, routines, and beliefs of scribal communities, see Ann Blair, "Student Manuscripts," 59–62; Knoles et al., *Student Notebooks at Colonial Harvard*; Eddy, "Shape of Knowledge.".

[20] James Daybell, *The Material Letter in Early Modern England: Manuscript Letters and the Culture and Practices of Letter–Writing, 1512–1635* (Basingstoke: Palgrave Macmillan, 2012).

[21] Christoff Hoffmann and Barbara Wittmann, "Knowledge in the Making: Drawing and Writing as Research Techniques," *Science in Context* 26 (2013): 203–13.

[22] For the use of "*Mitschriften*" to denote "lecture notes," see Michael Hallett and Ulrich Majer, in David Hilbert, *David Hilbert's Lectures on the Foundations of Geometry 1891–1902* (Berlin: Springer, 2004), xiii–xiv.

[23] More specifically, *Reinschriften* is used to denote extended notes or "fair copies." For the former English translation, see John Michael Cooper and Angela R. Mace, *Felix Mendelssohn Bartholdy: A Research and Information Guide* (Abington: Routledge, 2010), 170.

[24] Ann Blair discusses the two orders of notetaking in Blair, "Student Manuscripts," 39–40, and "Rise of Note-Taking," 303–16, p. 307. See also Ann Blair and Peter Stallybrass, "Mediating Information, 1450–1800," in *This Is Enlightenment*, ed. Clifford Siskin and William B. Warner (Chicago: University of Chicago Press, 2010), 139–63.

[25] Nelles, "*Libros de papel*," summarises the six-stage process of notebook production on p. 85.

[26] The kinds of student notetaking in continental Europe and North America are summarized, respectively, in Ann Blair, "Rise of Note-Taking," 313–16, and Knoles et al., *Student Notebooks at Colonial Harvard*, 19–28.

[27] Late eighteenth-century Scottish scribal culture is addressed in David Allan, *Making British Culture: English Readers and the Scottish Enlightenment, 1740–1830* (London: Routledge, 2008).

[28] See, for instance, Hugh Blair's treatment of early forms of writing throughout *Lectures on Rhetoric and Belles Lettres in Two Volumes* (London: Strahan, Cadell, and Creech, 1783).

[29] William Mavor, *Universal Stenography; or, A New Compleat System of Short Writing* (London: Cadell, 1792), 1–2.

[30] W. M. Matthew, "The Origins and Occupations of Glasgow Students, 1740–1839," *Past and Present* 33 (1966): 72–94, see p. 80.

[31] Alexander Coventrie, "Extracts From the Journal of a Scotch Medical Student of the Eighteenth Century," ed. L.M.A. Liggett, *Medical Library and Historical Journal* 2 (1904): 103–12, see p. 108.

[32] Dugald Stewart, *Elements of the Philosophy of the Human Mind* (Edinburgh: William Creech, 1792), 53–55; 441–44.

[33] John Anderson, *Institutes of Physics, Volume First* (Glasgow: Foulis, 1777), 3.

[34] Dugald Stewart, ed., *Biographical Memoirs, of Adam Smith, LL.D. of William Robertson, D.D. and of Thomas Reid, D.D.* (Edinburgh: Ramsay, 1811), 329. George Jardine, Glasgow's professor of logic, also commented on the use of syllabus lecture headings. See *Outlines of Philosophical Education* (Glasgow: Oliver & Boyd, 1825), 278–79.

[35] James Beattie, *Essays. On Poetry and Music…* (Edinburgh: William Creech, 1776), 519.

[36] The fee for attending one lecture course for the year was three guineas.

[37] Thorburn sold his notes from the lectures of William Cullen and Joseph Black for the same impressive price. Alexander Monro Tertius, ed., *Essays and Heads of Lectures on Anatomy, Physiology, Pathology and Surgery. By the Late Alexander Monro Secundus* (Edinburgh: Maclachlan, Stewart and Co. 1840), vii.

[38] For Strange's experience as a copyist, see James Dennistoun (ed.), *Memoirs of Sir Robert Strange, Knt., Engraver, Volume 1* (London: Longman, 1855), 12. For Finlayson's role as an amanuensis, see Thomas Thomson, *A Biographical Dictionary of Eminent Scotsmen, Division III. Dalrymple–Fordyce*, ed. Robert Chambers, (Glasgow: Blackie and Son, 1853), 318.

[39] University of Edinburgh, *Library Receipt Book* (1768–1781), EUL Da.2.5.

[40] Students learned how to make ink at home. Some professors, Edinburgh's Joseph Black for example, gave further tips on how to make it. Joseph Black, *Notes from Doctor Black's Lectures on*

Chemistry 1767–68, Thomas Cochran (transcriber), ed. Douglas McKie, (Cheshire: ICI, 1966), 143–44. Hereafter cited as Black (1767–68/1966).

[41] The data in the following table is extracted from Charles Elliot, *Ledger I* (1771–77), Bound MS, NLS, John Murray Archive MS 43098, 429, 430, 437, 446. I thank Warren McDougal for sending this information to me.

[42] William Quynn, "William Quynn to Allen Quynn, 20 December 1783," in Dorothy Mackay Quynn and William Rogers Quynn, eds., "Letters of a Maryland Medical Student in Philadelphia and Edinburgh (1782–1784)," *Maryland Historical Magazine* (1936), 197. Earlier in the century during the 1730s, William Sinclair, a Scottish medical student attending Leiden University, recorded a 12 shilling purchase of "paper, pen and ink." This low price suggests that he brought supplies in his large travel chest. William Sinclair, "A Medical Student at Leiden and Paris: William Sinclair (1736–38)," ed, Kees van Strien, *Proceedings of the Royal College of Physicians of Edinburgh* 25 (1995): 487–94.

[43] The ephemeral nature of early modern first order notes is detailed in Peter Stallybrass, Roger Chartier, J. Franklin Mowery, and Heather Wolfe, "Hamlet's Tables and the Technologies of Writing in Renaissance England," *Shakespeare Quarterly* 55 (2004): 379–419. For studies on the manuscript culture of Boyle, see Yeo, *Notebooks, English Vituosi*. For Linnaeus, see Staffan Müller-Wille and Isabelle Charmantier, "Natural History and Information Overload: The Case of Linnaeus," *Studies in the History and Philosophy of Biological and Biomedical Sciences* 43 (2012): 4–15.

[44] The different paper sizes and different penmanship styles (e.g., ranging from semi-neat to scrawled) sometimes make it difficult to determine whether they are either a rough or recopied set. A good example of a "borderline" set is Alexander Fraser Tytler, *Universal History* (1800–1801), Anonymous (Note-taker), Bound MS, EUL Dc.6.115.

[45] John Hill, *Manuscripts of Dr John Hill* (1770s), EUL Bound MS, Dc.8.74. The volume begins with "Lectures on Chymistry by Joseph Black MD Edinr. Novr. 1771". Next, folios 115–361 contain rough notes for Hill's "Lectures on Humanity, Delivered in Edinburgh University." See also the different paper notebooks of John Borthwick bound up as John Hill, *Lectures on Humanity* (1802–03), John Borthwick (Notetaker), Bound MS, EUL Gen. 841.

[46] David Hume, *Notes from Lectures on Scots Law, 5 Volumes* (1816–17), George Sligo (notetaker), EUL Bound MSS 2673–2677. Sligo's quire of rough notes is tucked into volume 4. The rough set is very hard to read and carries the title "Conveyancing," and corresponds to the subject matter of ff. 307–11.

[47] Sylas Neville, *The Diary of Sylas Neville 1767–1788*, Geoffrey Cumberledge (ed.), (London: Oxford University Press, 1950), 140. Hereafter I will refer to this source as Neville (1767–88/1950).

[48] Neville (1767–88/1950), 140.

[49] A good example of this kind of rough notetaking occurs in the Huntington Library's copy of Hugh Blair, *Heads of the Lectures on Rhetorick, and Belles Lettres, in the University of Edinburgh* (Edinburgh: Kincaid and Creech, 1771), Call No. 378392.

[50] Posters were drawn or handwritten and usually featured word tables or figures. Handouts were printed or written and usually featured lists of definitions, books, or significant dates.

[51] For botanical teaching figures, see H.J. Noltie, ed., *John Hope (1725–1786): Alan G. Morton's Memoir of a Scottish Botanist: A New and Revised Edition* (Edinburgh: Royal Botanic Garden of Edinburgh, 2011). For the figures made for anatomy students, see Joe Rock, "An Important Scottish Anatomical Publication Rediscovered," *Book Collector* 49 (2000): 27–60.

[52] W. Graham, *Stenography; or, An Easy System of Short–Hand Writing* (Edinburgh: Bell, 1787).

[53] Joseph Black, *Notes of Dr Black's Lectures* (1766–67), Charles Blagden (notetaker), Bound MS, Wellcome MS 1219–1227. A good set of rough and recopied notes also exists for the Edinburgh chemistry lectures of William Cullen, who was Black's mentor. William Cullen, *Rough Notes Taken by David Carmichael from Chemistry Lectures* (1757), RCPE, Cullen Papers Bound MS 12 and William Cullen, *Fair Copy Notes Taken by David Carmichael from Chemistry Lectures*, (1757–58), RCPE, Cullen Papers, Bound MS 2.

[54] See the centred headings throughout chemistry notes in Hill Bound MS (1770s).

[55] Charles Blagden used freestanding, centred headings for dates in his rough notes. See Black Bound MS (1766–67). George Sligo structured his rough notes with numeric headings set to the left margin, and centred headings that indicated the general topic of the lecture. See his rough notes which are tucked in Volume 5 of Hume Bound MS (1816–17).

[56] Noltie, *John Hope*; Rock, "Important Scottish Anatomical Publication."

[57] Alexander Fraser Tytler, *Plan and Outlines of Lectures on Universal History, Ancient and Modern* (Edinburgh: Creech, 1782). There are six maps placed at the back of the volume.

[58] Alexander Monro Secundus, *Observations on the Muscles, and Particularly on the Effects of Their Oblique Fibres* (Edinburgh: Dickson and Balfour, 1794), 40.

[59] Carmichael Smyth, "Letter from Dr Carmichael Smyth, November 19, 1817," in Monro Tertius, *Essays and Heads of Lectures*, xiii–xvi. Smyth was a Scot who went on to be the physician extraordinary to George III.

[60] Alexander Fraser Tytler, *Notes on Universal History, 1798, Vols 1–3*, Anonymous (notetaker), Bound MSS, EUL Dc.8.144–146. Other notebooks contain other kinds of preliminary sketches as well. See the graphite sketch of trees on f. 135r of Volume 1 (Gen 1391) in David Hume, *Notes on the Scotch Laws, Volumes 1–7* (1810–11), Anonymous (notetaker), Bound MSS, EUL Gen. 1391–1397.

[61] Tytler Bound MS (1798). See scribbled and intact graphite likenesses at the back of Volume 1 (Dc.8.144) ff. 38v and 39r.

[62] Tytler Bound MS (1798). See Volume 2 (Dc.8.46) f. 61r.

[63] John Hope, *Dr. Hope's Lectures in Botany* (1780), Francis Hamilton Buchanan (notetaker), bound MS, RBGE, f. 24r.

[64] For a folio edition of copied notes, see David Hume, *Notes of Lectures on the Law of Scotland, Volume 1* (1810), Anonymous (notetaker), bound MS, EUL Gen. 862.

[65] For an example of one of the most thorough syllabi of lecture headings given to Scottish students, see Anderson (1777).

[66] Tytler Bound MS (1800–1801).

[67] William Cullen, *Chemistry Notes,* Vol. 1, *Taken in the Lectures of William Cullen* (1765–66), Charles Blagden (transcriber), Bound MS, Wellcome MS 1922, f. 51.

[68] The acts of "writing after the fact" and using a notebook as an "open file" are discussed in Marie Noëlle Bourguet in "A Portable World: The Notebooks of European Travellers," *Intellectual History Review* 20 (2010): 377–400.

[69] The observational skills engendered by student notetaking are addressed in Paul Nelles, "Seeing and Writing: The Art of Observation in the Early Jesuit Missions," *Intellectual History Review*20 (2010): 317–33.

[70] The Coventrie quotes come, respectively, from Coventrie, "Extracts," pp. 109 and 110.

[71] Neville (1767–88/1950), 140.

[72] John Gregory, *Lectures on the Practice of Medicine by John Gregory Professor of Physick in the University of Edinburgh* (1772–73), John Bacon (transcriber), Bound MS, EUL D.C.6.125. Bacon's comment about copying the notes is quoted in Gregory, *John Gregory's Writings*, 46.

[73] Whitfield J. Bell, "Thomas Parke's Student Life in England and Scotland, 1771–1773," *Pennsylvania Magazine of History and Biography* 75 (1951): 237–59, see esp. p. 250.

[74] Neville (1767–88/1950), 222.

[75] John Walker, *An Epitome of Natural History, 10 Volumes* (1797), David Pollock (notetaker), Bound MSS, EUL Gen.703 D – Gen.712 D; James Finlayson, *An Epitome of Logic, 5 Volumes* (1796–97), David Pollock (notetaker), Bound MSS, EUL Gen.774–8.

[76] George Sandy, *Legal Diary, March-July 1788*, Bound MS, Signet Library, Edinburgh.

[77] Neville (1767–88/1950), 205, 222–23.

[78] Neville (1767–88/1950) addresses acts of transcribing, copying, writing, and rewriting on pp. 205, 208, and 213–14.

[79] Based on the handwriting and graphic flourishes, it is likely that the same transcriber copied out David Pollock's natural history and logic notes. Walker Bound MS (1797), Finlayson Bound MS (1796–97).

[80] Monro Secundus, *Observations on the Muscles*, 39–40. The capitalization is Monro's.

[81] James Wilson's life as a poet is summarized in J.O., "Replies," *Notes and Queries* 7 (1853): 68. Wilson described himself as "Claudero, Son of Nimrod the Mighty Hunter" in the subtitle of his *Poems on Several Occasions* (London: Wilson, 1765).

[82] Monro Secundus, *Observations on the Muscles*, 39.

[83] For example, the right and bottom sides of the frame box have been cut off in several volumes of Hume Bound MS (1810–11).

[84] Whole or partial graphite grids are still visible in the following notebooks: Hume Bound MS (1810), volume 1; James Finlayson, *Notes from the Lectures of Professor Finlayson on Logic, 2 Volumes* (1795–96), John Lee (notetaker), Bound MSS, EUL Dc.8.142[1–2], see esp. vol. 1 (Dc.8.142[1]).

[85] Adam Smith, *Notes of Dr. Smith's Lectures* (1762–63), Anonymous (notetaker), Bound MS, GUL MS Gen 95/1, 2.

[86] Lehmann, "Some Observations," discusses the circulation and use of Millar's lecture heads on pp. 57 and 72.

[87] The graphic importance of headings and textual layout are discussed in Janine Barchas, *Graphic Design, Print Culture, and the Eighteenth-Century Novel* (Cambridge: Cambridge University Press, 2003).

[88] Eddy, "Shape of Knowledge."

[89] Compare the graphic layout of Pollock's notes to John Walker's lecture headings, *Classes Fossilium: sive Characteres Naturales et Chymici classium et ordinum in systemate Mineralicum nominibus genericis adscriptis* (Edinburgh, 1787), 24–25, to Walker Bound MS (1797), Volume 5 (Gen.707 D), ff. 18–19.

[90] See Walker (1787).

[91] Compare the manuscript notes in John Millar, *Lectures on Government by Mir Millar P. L. Delivered in Glasgow* (1771), Anonymous (notetaker), Bound (sewn) MS, SUL MS 53/3/9 to the printed syllabus in John Millar, *A Course on Government* (Glasgow: 1771).

[92] Compare the headings and subheadings featured on pp. 1 and 8 of John Hill, *Heads of Philological Lectures, Intended to Illustrate the Latin Classicks, Third Edition* (Edinburgh: Smellie, 1792) to John Hill, *Heads of Philological Lectures, Intended to Illustrate the Latin Classics, in Respect to the Antiquities of Rome; the Rules of General Criticism; and the Principles of Universal Grammar* (1797), John Lee (notetaker), Bound MS, EUL Dc.8.141, f. 2. It is possible that Lee might have been using the second edition of heads (Edinburgh: Smellie, 1785), however, the order of headings and subheadings on this edition's first page also does not match the format used by Lee.

[93] William Cullen, *Chemical Lectures by William Cullen, Volume I* (1760), Anonymous (notetaker), Bound MS, Wellcome MS 1918, f. 147.

[94] In addition to the sketches of Tytler in the Bound MS (1798) discussed earlier in the essay, likenesses appear of the following professors: James Finlayson in Finlayson Bound MS (1795–97), see the flyleaves; Joseph Black in Black (1767–68/1966); Alexander Monro Secundus in Alexander Monro Secundus, *Lectures on Surgery* (1799–1800), George Bruce (notetaker) Bound MS, RAMC/516, f. 13. Wellcome Library, London, f. 13.

[95] Cullen Bound MS (1765–66), 221, 328. Chiasms occur in most copied notes from Black's lectures. Several are reproduced in Black (1767–68/1966). The important role played by Black's chiasm within the history of science is explored in Matthew Daniel Eddy, "How to See a Diagram: A Visual Anthropology of Chemical Affinity," *Osiris* 26 (2014): 178–96.

[96] Cullen Bound MS, (1760), Volume 1, f. 144, 146–47. William Cullen, *Chymical Notes, Volume 2* (c. 1765), Anonymous (notetaker), Bound Notebook, Wellcome MS 1923, f.38, 40.

[97] Cullen Bound MS, (1760), Volume 1, f. 126. Cullen Bound MS (c. 1765), f. 14. Cullen Bound MS (1765–1766), Volume 1, f. 127.

[98] One of the most impressive collections of chemical instrument figures occurs throughout Joseph Black, *Lectures on Chemistry, 6 Volumes* (1778), Paul Panton (notetaker), Bound MS, CHF QD14 .B533 1828.

[99] John Hope, *Notes Taken from Dr Hopes Lectures on Botany*, [n.d.], Anonymous (notetaker), RBGE, ff. 54r, 73r, and 102r (figures 6–12). Hope Bound MS (1780), f. 108v, 109v, 110v.

[100] Hopes's sidecuts appear in Hope, *Notes Taken from Dr Hopes Lectures*, f. 102r.

[101] For pictograms, inhalers, scissors, pins, tubes, syringes, and bandages were popular. Monro Bound MS (1799–1800) ff. 90, 96, 156. Representative apparatus drawings appear in William Cullen, *Adversaria Chemia ex prolictionibus Dr Guliemi Cullen* (1762), Anonymous (notetaker), Bound MS, Wellcome MS MSL 49, ff. 57, 89, 95.

[102] For a fine list of (most likely) copied definitions, see the end of Hill Bound MS (1797), ff. 149–59. For a list of books see the law titles listed at the end of Volume 3 (Dc.3.10) in David Hume, *Notes from Lectures on the Law of Scotland, 1815–1816, 3 Vols.*, James Hark (notetaker), EUL Bound MSS Dc.3.8–10. For a list of experiments, see John Hope, *Lectures on Botany by D^{r} Hope* (1781), James Cunningham (notetaker), Bound MS, AUL MS 564, f. 333.

[103] It is not clear, however, whether a student or professional copyist drew some of the more elaborate temperature scales featured in notes taken in Black's lectures. A good example of such a borderline case appears in Paul Panton's copy of Black Bound MS (1778), Volume 1, ff. 508–11.

[104] "The Preparation of Mercury," found by the author tucked inside Blagden's Black Bound MS (1766–67), Volume 3, Wellcome MS.1225.

[105] The dates on the cover pages of lecture notes sometimes need to be treated with caution since students and transcribers occasionally wrote the year in which the notes were copied and not the original year in which the professor gave the lectures. Cole (1982), 53–55, ref. 20.

[106] Printed title pages are used for all of the volumes in David Hume, *Notes on the Law of Scotland,* Vols. 1–3 (1810–12), David Johnstone (notetaker), Bound MSS, EUL Dc.10.42[1–3].

[107] Printers followed the practice of turning lecture headings into tables of contents when they published a professor's lecture notes as a book. See the tables of contents in William Cullen, *A Course of Lectures on the Materia Medica, Vol. I* (1761), Anonymous (notetaker), Bound MS, Wellcome MSL 22[a], f. 3, and in William Cullen, *Lectures on the Materia Medica* (Philadelphia: Bell, 1775), 494–95.

[108] For lists of unnumbered and unpaginated lecture headings that served as tables of contents, see the beginning of each volume of George Sligo's law notes: Hume Bound MSS (1816–17). For a numbered and paginated list of lecture headings that served as tables of contents, see the front pages of each volume of David Johnstone's law notes: Hume Bound MSS (1810–12).

[109] The close conceptual relationship between the headings of the lecture syllabus and the headings of student notebooks can also be seen by the fact that some professors added paragraphs of narrative to their headings but still called the syllabus a collection of "heads." Students then retained the practice by calling their handwritten notes "heads." See Hill, *Heads of Philological Lectures*, and John Lee's notes, Hill Bound MS (1797).

[110] Hume Bound MSS, (1810–12).

[111] John Locke's commonplacing method is explained in Richard Yeo, *Encyclopaedic Visions: Scientific Dictionaries and Enlightenment Culture* (Cambridge: Cambridge University Press, 2001), 110–15.

[112] See the tiled index in Cullen Bound MS (1760), Volume 1.

[113] Edwin Cannan, "Introduction" in Adam Smith, *Lectures on Justice, Police, Revenue and Arms*, ed. Edwin Cannan (Oxford: Clarendon Press, 1896), xviii–xvix.

[114] See the copy of Charles Alston's botanical lecture notes listed in Cornelius Elliot, *A Catalogue of the Books in Natural History with a Few Others, which Belonged to the Late Rev. Dr. Walker* (Edinburgh: Stewart, 1804).

[115] For notational additions see again the "Catalogue of Books" the end of Volume 3 in Hume, Bound MS (1815–16), as well as the Appendix. One entry refers to a book published in 1830. Many pages are left blank at the end, indicating that this volume was bought prebound and blank.

[116] See the accounting tables scribbled on the front and back flyleaves of Hugh Blair, *Lectures on Rhetoric and Belles Lettres,* Vol. 2 (1779), John Bruce (notetaker), Bound MSS, EUL Gen. 1990.

[117] For a selection of sidenotes, see the following: David Hume, *Notes on the Scotch Laws,* Volume 4 (1810–11), Anonymous (notetaker), EUL Bound MS, Gen 1394. Hume Bound MS (1815–16).

[118] Hume Bound MS (1810–12). For the pasted notes, see Volume 1 (Dc.10.42[1]), f. 216.

[119] Hume Bound MS (1810–12). Other good examples of pen and ink corrections occur in John Lee's edition of Finlayson Bound MS (1795–96).

[120] For John Grant's provenance note, see the title page of Tytler Bound MS (1800–1801). Most sets of lecture notes held by a research institution today bear a library stamp (or two) at the front.

[121] See John Borthwick's library plate in Hill, Bound MS (1802–03) and John Waldie's bookplate in Tytler Bound MS (1800–1801). John Borthwick appears as 13th Lord Borthwick in most Scottish peerages and the life and education of John Waldie is discussed in Peter Livsey, *Napoleonic Encounters: The Waldies of Forth House, Newcastle* (Newcastle: Tynebridge Publishing and Newcastle Libraries, n. d.).

[122] Mark Towsey, *Reading the Scottish Enlightenment: Books and Their Readers in Provincial Scotland, 1750–1820* (Leiden: Brill, 2010).

[123] Hume Bound MS (1810–11).

[124] John Millar, *A Course of Lectures on Government* (1786), Anonymous (notetaker), Unbound MS, SUL ms53/3/10b. Cleghorn's inserted notes were written on slips cut from larger sheets of paper, or on the backs of letters addressed to him.

[125] Monro's annotations occur in Alexander Monro Secundus, *Lectures Delivered by Doctor Alexander Monro Professor of Anatomy etc. in the College of Edinburgh, 7 Volumes* (1733–74), John Thorburn (notetaker), Bound MSS, Otago MS 175, MS 176–9. The annotations are addressed in Douglas W. Taylor, *The Monro Collection in the Medical Library of the University of Otago* (Dunedin: University of Otago Press, 1979), 97–98.

[126] Ann Blair, "Note-Taking as an Art of Transmission," *Critical Inquiry* 31 (2004): 85– 107. Quotation on page 85.

[127] Monro Secundus, *Observations on the Muscles*.

[128] Sir John Clerk of Penicuik, for example, brought his lecture notes on metaphysics and ethics when he went to study in the United Provinces during the late seventeenth century. Esther Mijers, *"News from the Republick of Letters": Scottish Students, Charles Mackie and the United Provinces, 1650–1750* (Leiden: Brill, 2012), 129.

[129] Hope Bound MS (1780), f. 1.

[130] Monro Primus gave a number of his lectures and commentaries to Monro Secundus which are discussed in detail throughout Taylor, *Monro Collection*. Of special note is Alexander Monro Primus, *Commentary on Monro's Anatomy of the Bones by A.M.P.A. Wrote for the Use of His Son A.M.* (1750), Bound MS, Otago M163. For insight into how Monro Secundus used this manuscript (including his written additions to it), see Taylor, *Monro Collection*, 83–85.

[131] Monro Secundus, *Observations on the Muscles*, 43.

[132] Hill Bound MS (1770s). Sometimes notes of provenance are written by the presenter and are as short as the "Presented by John Grant, Esq." pencilled in the front of Tytler Bound MS (1800–1801). Alternatively, librarians sometimes included information as well. For example, a note dated 1 October 1966 in David Hume, *Lectures on Scots Law, 2 Volumes* (1808–09), Anonymous (notetaker), Bound MSS, EUL Gen. 860–861, states that the notebooks were given by "Mr Justice Larskin".

[133] For a North American example, see the notes taken by William Logan Jr. in the Edinburgh lectures of Joseph Black (chemistry), Alexander Monro Secundus (anatomy), Thomas Young (midwifery), and Hugh Blair (rhetoric). Library Company of Philadelphia, Logan Family Papers, Series VI. William Logan, Jr. Papers.

[134] The story of the Monro manuscripts is told in Taylor, *Monro Collection*, 9–20.

[135] Hugh Blair, *Lectures on Rhetoric*. Quotation taken from Volume I, page iii. A pirated printed version of John Gregory's lectures was published as *Observations of the Duties and Offices of a Physician* (London: Strahan and Cadell, 1770). He then published his own authoritative edition as *Lectures on the Duties and Qualifications of a Physician* (London: Strahan and Cadell, 1772). His comments about the "many transcripts" of student lecture notes occur at the beginning, in the "Advertisement."

[136] William Cullen, *Lectures on the Materia Medica, as Delivered by William Culllen, M.D.* (London: Lowndes, 1773). See also Monro's comments throughout Monro, *Observations on the Muscles.*

[137] Hugh Blair, *Lectures on Rhetoric.*.

[138] Joseph Black, *An Enquiry into the General Effects of Heat with Observations on the Theories of Mixture* (London: Nourse, 1770).

[139] A similar case could be made for the official and unofficial printed editions of the chemistry lectures given by Herman Boerhaave at Leiden University during the early eighteenth century. As pointed out by Ann Blair, "Note-Taking as an Art of Transmssion," 93, the Leiden student William Logan took notes on blank pages interleaved into Boerhaave's *Institutiones medicæ* (Leiden: 1708).

[140] Cullen, *Lectures on the Materia Medica*, vii.

[141] Though offered the chair of medical institutes in 1773, Alexander Monro Duncan, who was living in Naples at the time of the appointment, eventually declined the offer in 1776. Andrew Dalzel, *History of the University of Edinburgh from Its Foundation, Volume II* (Edinburgh: Edmonston and Douglas, 1862), 443–48.

[142] Neville (1767–88/1950), 336.

[143] The use of other student notebooks is also intimated in the preface of Cullen, *Lectures on the Materia Medica*. Cullen's assessment of the first edition's accuracy is recorded in Neville (1767–88/1950), 236.

[144] After he assembled his own machine, Black then helped the Duke and Duchess of Buccleugh assemble theirs as well. Joseph Black to James Watt, Edinburgh, 18 October 1780, in Robert G.W.

Anderson and Jean Jones (eds.), *The Correspondence of Joseph Black, Volume 1* (Farnham: Ashgate, 2012), 433–34.

[145] Richard Hills, "James Watt and his Copying Machine," in *The Oxford Papers: Proceedings of the British Association of Paper Historians Fourth Annual Conference*, ed. Peter Bower (Oxford: British Association of Paper Historians, 1996), 81–88.

[146] The relationship between systematics and teaching in Cullen's thought is explained in Michael Barfoot, "Philosophy and Method in Cullen's Medical Teaching," in *William Cullen and the Eighteenth Century Medical World*, ed. A. Doig, J.P.S. Ferguson, I.A. Milne and R. Passmore (Edinburgh: Edinburgh University Press, 1993), 110–32, and in Matthew Daniel Eddy, *The Language of Mineralogy: John Walker, Chemistry and the Edinburgh Medical School* (Alsdershot: Ashgate, 2008), 53–68.

[147] Gilbert Blane, *The Croonian Lecture on Muscular Motion: Read at the Royal Society, November 13th and 20th, 1788. Corrected and Enlarged* (London: 1790).

[148] Excerpts from student lecture notes, as well as from Monro Secundus's own lecture notes, are quoted in the last half of Monro, *Observations on the Muscles.*

[149] For contingent aspects of early modern printing (and its connections to manuscript culture), see David McKitterick, *Print, Manuscript and the Search for Order 1450–1830* (Cambridge: Cambridge University Press, 2003), 97–138.