5 *Analysis and Evidence*

SOMETIMES, it is necessary to investigate the physical characteristics of a manuscript or printed book with more precision than common descriptive methods alone would require. There are usually two reasons for doing this: either the enquiry is historical (greater clarity is required as to who produced the object, how, and when), or it is textual (an attempt is made to explain perceived deficiencies in the textual record and analyze how they came about). Clearly, these two lines of enquiry may be closely related if the item is a work of particular cultural interest, as with the analysis by Blayney of the 1608 quarto of *King Lear*, and the earlier study of the 1623 *Comedies, Histories, and Tragedies* by Hinman.[1] The association of document and content is not, however, to be assumed as the research might be deployed to resolve such non-textual matters as the date of an item and its place in a historical sequence, or the extent and proportions of shared activity in order to reconstruct the activity of a printing-house or scribe without a specific focus on a text or book. In fact, what the work of Blayney and Hinman illustrates is the risks that are involved when the working assumptions predetermine the results of the analysis. As so often, it is not the methods that are flawed, but the thinking that goes with them. Hence, in this chapter, the focus is on the processes of textual inscription and the traces that are left in the material record, as well as the way in which minor flaws, mistakes, and variant practices might be analyzed for the information that they yield, together with an example of how a simple physical detail can lead to broader questions about the assumptions made concerning a specific text—in this instance, the 1608 quarto of *King Lear*.

Manuscript and Manufacture

Both print and manuscript were prepared by hand: the differences that separate the media lie in the processes and materials involved, and the ways in which these can be read for the information that is latent in their arrangement. Hence, having looked through the page to see the paper, and determined the structure of the object in hand, the bibliographer is interested not only in the presence of ink (including its presence where it ought not to be, as with the image from an offset impression), but in its absence where it ought to be. The distinction that is made is the difference between texture (which records the processes by which

[1] P. W. M. Blayney, *The Texts of* King Lear *and Their Origins: Volume I, Nicholas Okes and the First Quarto* (Cambridge, 1982; Vol. 2 not published); C. Hinman, *The Printing and Proof-Reading of the First Folio of Shakespeare*.

the object was made and the temporal sequence of those events) and the text (which encodes the message or idea that initiated the processes of transmission). It is only once the former has been understood, that its relationship with the latter can be established.

It is, in fact, quite rare for a manuscript or printed text of any length to be prepared in a sequential order by one person for a sustained period of time without any interruption at all; nor should the processes of revision and replication be assumed to be linear and continuous. Yet this fact, which is so obvious from our own experience, is one we are less likely to perceive when possessed of a finished work that can be read from beginning to end. A text might be prepared by two or more different people at the same time, or at different times; or prepared by two or more different people in the same place, or different places. A forme might well be printed on one press, and the sheet then perfected on another.[2] To compound the matter, sometimes these differences are invisible, whilst on other occasions seeming differences are nothing of the kind. As a consequence, working assumptions need to be open to being revised with a frank recognition that, even when there is copious secondary information, any reconstruction will fail to anticipate fully the random and the irrecoverable variations that were woven through a daily routine. As McKenzie remarked, 'a narrow range of theories is less likely to embrace the complex possibilities of organisation within even quite a small printing-house'; or for that matter, one might add, the working arrangements of a scrivener, or secretary.[3]

The important thing to remember with manuscript and print is the human presence in their making: the difference between the media lies in the transparency and regularity of the signs. What is obvious in manuscript may be disguised by the processes of manufacture in print because of the apparent similarity of the materials used; whilst what might seem irregular in manuscript, such as the presence of two hands and therefore of two people, might be nothing more than one person with several hands, as with Sir George Buc, the Master of the Revels.[4]

[2] A modern analogy might be made with film production: when we watch a film, the work of the make-up artist, camera-hand, and film editor, as well as the rest of the crew who stand just outside the frame, are all usually invisible when the component parts are assembled and finished. When the production processes are intrusive, it typically involves a deliberate statement about the relationship between the art and its materials.

[3] McKenzie, 'Printers of the Mind', 61.

[4] See, W. W. Greg, 'Three Manuscript Notes by Sir George Buc', *Collected Papers*, 226–38; also, R. C. Bald, 'The *Locrine* and *George-a-Greene* Title-Page Inscriptions', *The Library*, IV: 15 (1935), 295–305. Buc was responsible for both the Bridgwater manuscript of the poems of Donne (Huntington Library, MS El 6893), which he wrote in a consistent single (and rather feminine) hand, and for British Library, Harley MS 3910, a verse miscellany which he prepared in a diversity of scripts.

Questionable Characters

It is not uncommon for manuscripts to be prepared in stages: sometimes these stages, and the relationship between the parts, are visually striking and can be identified as separate units; although the exact order of the parts, and the intervals between the sequences, may not be as obvious or as easy to determine as the differences are to recognize. Hence, the palaeographical evidence needs to be read alongside other physical details, such as changes in paper stock, the presence of stab-holes from an earlier sewing in one part of the manuscript and not another, or the presence of wormholes in one or more sections that are not extant throughout the manuscript as a whole. In essence, one is comparing information about the structure of the document with the sequences of the writing. When doing so, it should be borne in mind that the original block of material from which the manuscript evolved may not be at the beginning, with later additions then proceeding in a logical manner, but rather it may be surrounded by this later material.

Some of the examples cited elsewhere in this book illustrate the variety of ways in which a manuscript might have been prepared, and these range from the straightforward to the highly complex. Bodleian Library, Rawlinson Poetry MS 31, for instance, is a seven-quire, 26-sheet manuscript, on a single stock of paper, with twin watermarks written in a single professional hand (that of the Feathery scribe) from beginning to end over a relatively short duration.[5] Analytically, it would be very difficult to divide the stints for the work on this manuscript with any accuracy (changes in the intensity of the ink, for instance, may be owing to the quill being dipped afresh), and any reconstruction would be nothing else than imaginative guesswork. On the other hand, the fact that the scribe was a professional means that any associated manuscripts that share the same grape watermarks (figure 2.2; p. 33) would have been copied at much the same time. Hence, via the paper stocks, one would be able to get a sense of what other texts Feathery was working upon at the time that he copied the miscellany, and hence the work on that manuscript could be placed within the broader context of the business.[6]

The verse miscellany that is part of British Library Lansdowne MS 740 tells a very different story to that of the Rawlinson manuscript. Once again, it is copied in a single hand, but here there is more sense of the stages through which the manuscript evolved. The miscellany is copied on multiple paper stocks and there are subtle yet distinctive changes in the script. The earliest group of paper is to be found at ff.74–81, 87–91,

[5] The collation is given on p.69 above.
[6] See, Beal, *In Praise of Scribes*, 58–108 and 211–68.

and 94–7: these three sections consist of Overbury's *Wife* from c.1601–2 (the Lansdowne copy is also the earliest version of the first state of the poem), the Elizabethan libel 'Bashe', and a small group of poems that include two attacks on the marriage of Bishop Fletcher by Sir John Davies from 1595, Donne's 'The Storme' and 'The Calme' from 1596, and the elegy 'Marry and Love thy Flavia'.[7] The 'If' that begins the first poem on Fletcher has some decorative flourishes, which suggests that f.94 may have been the original opening leaf of the manuscript. Overall, these sections suggest greater care in the writing. Interleaved before, between, and after the three sections are other poems, particularly by Donne and Sir John Roe that have been added in at two or more later stages on different paper. Hence, the combination of evidence suggests that the manuscript evolved in several stages over a number of years before work ceased. Eventually, the remaining blanks were removed when the manuscript was bound as part of the sammelbände c.1680.

A third manuscript, British Library Harley, MS 4064 (which is related to Rawlinson Poetry MS 31 via an earlier state of the underlying papers), involves the work of two copyists: scribe A has an elegant secretary hand; scribe B one that is much more rough-hewn and which is clearly not professional. Scribe A is responsible for the first 23 poems; scribe B then copies the title of the next poem and the first 28 lines (figure 4.5, p. 102) before A resumes to copy the remainder of the poem and a further sequence of 22 poems; B then copied the remaining 45 items—it is these poems that are predominantly by Donne. In this case the first interruption looks like a matter of a few minutes: A is called away, and B takes over; when B resumes work later on, however, it is less evident whether this represents a continuation or a separate later stage. Scribe A finally paginated the manuscript when it was finished.

In comparison with the Harley manuscript, the work on Huntington Library HM 198 part 2, which may also be the product of a secretariat, looks as if it was much more complex, as it would appear to combine elements of separate preparation alongside concurrent activity. The manuscript can be divided into four subgroups with a single leaf of indeterminate relationship, and it involves the presence of five different scribes, one of whom (B) is responsible for organizing the collection as whole. In particular, B undertook all the work on the second sequence of papers (ff.57–79), which contain an early version of the poems of Dudley, Lord North, except for a short stint on f.63^{r-v} in the hand of A. Equally hand C writes across the two stocks of paper in the first section (ff.1–56), indicating that the paper does not represent different stages of

[7] The manuscript and the textual history of Overbury's *Wife* are discussed at length in Bland, *Jonson and Donne*.

the process. It seems possible that B was therefore at work on some of the North poems (figure 5.1) whilst other material was being copied by A and the others.[8] Equally, however, the final section of the manuscript seems to belong to a different stage of the transcription process than the other material. In general, the nature of the texts being copied indicates that whoever was responsible for its organization, and the material that the manuscript contains, had a relationship with the Inner Temple, which might explain why several people are involved (the hands may be those of law clerks).

The nature of manuscript, with its patterns of scribal activity, allows at least some understanding of the relationship between different hands and parts to emerge from a close study of a document. It is evident that the organization of activity could be as various as the work on any printed book: one or more people might be involved over a sustained period, or at different intervals, working concurrently or sequentially. There are issues, as well, about how far this information might be reconstructed to provide a certain narrative about the order of events, and the time over which they took place. For all that we may be able to point to some distinguishing features as being obvious, there remains much about even the most visible of differences that must be simply irrecoverable. With print, we lay over manuscript the opaque uniformity of type which erases the character of the underlying document, and we introduce a further layer of process that may complicate the material evidence. Not all things beneath the surface are always as they seem.

Lasting Impressions

With a manuscript, the script reveals whether we are working with an author's draft, with a fair or corrected copy, the work of an amanuensis, or with a later copy. With a printed book, unless it is otherwise stated in the prefatory materials, or the errata, that information is not evident, and we know little about the working conditions under which most texts were set and printed. Hence, differences in type and ornament have sometimes been studied in order to establish specific details about the production of a book, from the work on the composition and printing, to the relationship between different formes, and between different books at the press. By measuring type and counting sheets of paper, we can gain a sense of the scale of a business. These insights are no more than piecing together fragments from a damaged fresco.

[8] See also, M. Bland, 'Francis Beaumont's Verse Letters to Ben Jonson and "The Mermaid Club"', *English Manuscript Studies*, 12 (2005), 157–8 (139–79), and 159 for Hand A.

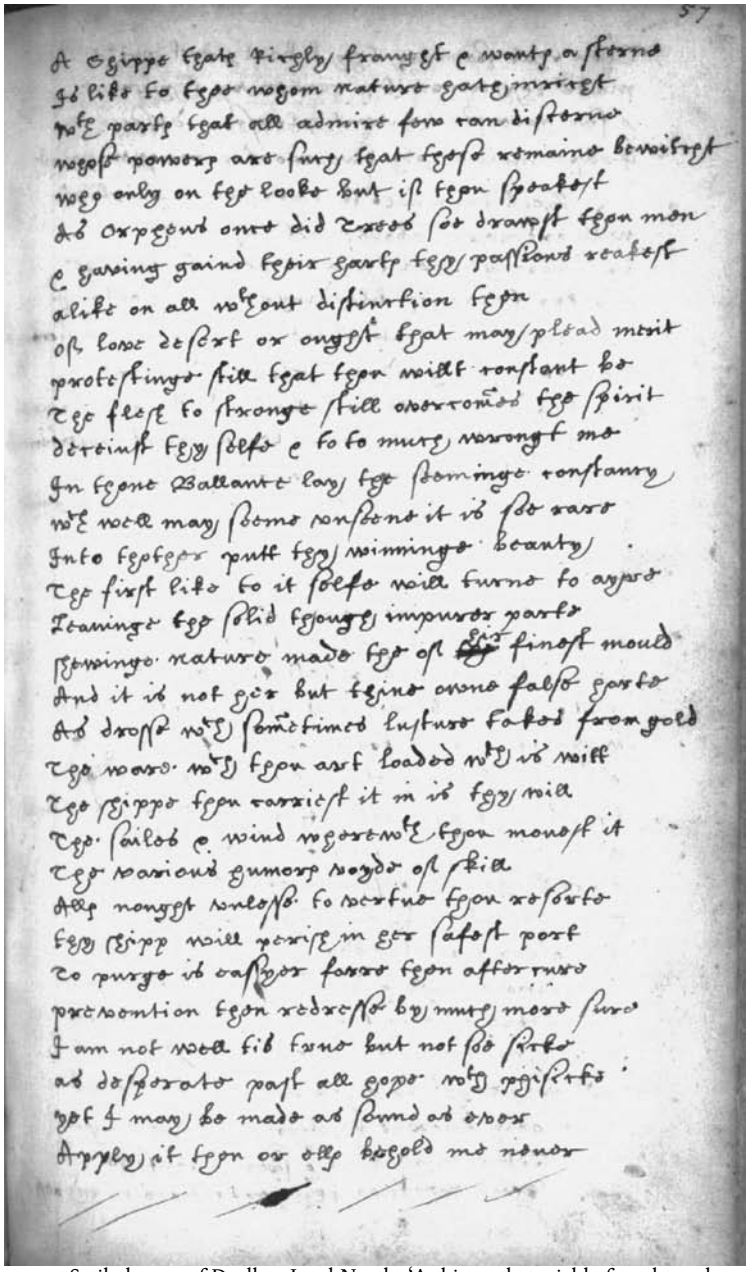


Figure 5.1 Scribal copy of Dudley, Lord North, 'A shippe thats richly fraught and wants a sterne': Huntington Library, San Marino, MS HM 198, part 2, f.57^{r} (Hand B).

The analysis of early printed books must take account of the archival records: dates of entry, the dates of prefaces, court records, notes of purchase, correspondence, and so on: these details help to fix a temporal range within which to situate the study of paper, type, and ornament for the information they yield. What cannot be proven from the differences in type fonts, type and ornament damage, running-titles, pagination sequences, and so on, are issues such as edition size, or the rates of composition and presswork: usually any estimates have to be made according to a best guess based on what is known from other sources, such as the Cambridge records combined with what is known via the archival sources. Further, any attempt at reconstruction must also identify any printing that had been shared with another house, which means that the output of the entire trade has to be checked for the relevant period. Further, whilst many practices were common to the trade, the arrangements for the production of a given book cannot be assumed to be true of every book produced by that business, or for every printing-house.[9]

The material record is to be found as an image upon, as well as an image within the paper. The methods of mechanical reproduction mean that everything ought to be the same; hence, it is the minor flaws and differences that have significance. When a piece of type or an ornament is first cast, it is the same as all the other letters and ornaments cast from the same mould. With time, pieces of type and ornament stock become unique and we can trace the history of this through their use and the impressions left on paper: a dent, a hairline fracture, a bent kern, or any other damage that makes one piece of printer's material different from those that are similar, is all that is required to establish the repetition of that piece in the history of a book or across different books. Further, the damage may increase with time, so that it is possible to trace the use of a damaged sort or ornament through its various states.

There are other kinds of typographical trace that may leave evidence of interrelationships: pagination errors in running-titles may relate to a previous forme that was printed, blind impressions left by load-bearing type (i.e. type that was not inked, but used to stabilize the structure of a page because it was not completely set with text) may reveal type taken from another forme or book, offsets from different sheets of output will indicate that they were being worked on at the same time, changes in the relationship between running-titles may indicate they have been removed from the chase, and the misallocation

[9] For an extended treatment of analysis and inference, see F. T. Bowers, *Bibliography and Textual Criticism* (Oxford, 1964).

of space within the page may indicate a gap between the printing of one forme and the composition of another as the presswork of the first must have begun before the composition of the second. Indeed, any kind of physical evidence that establishes ruptures in the patterns of activity, or which clarifies the relationship between different pieces of output, is potentially significant. The problem then becomes what one does with this information once it has been established.

Ultimately, the reason for doing detailed analytical work on a book or printing-house must go beyond the facts of sequence and precedence in textual production. Usually, the close bibliographical examination of a book is done with a view to resolving textual issues that have arisen in the study of a work of some literary or historical importance. However, these insights are useful only to the extent that they help explain otherwise irrecoverable details that bear upon the history of the book or house under investigation. Hence, whilst it is necessary that the facts should be right, getting them right requires that the investigation start from the point of what the facts can establish given the evidence that survives, not a prior assumption of what they might show. That caveat must be weighed before embarking on a line of research that could well make the angels tremble at its threshold. Research of this kind needs to concentrate clearly on fact rather than conjecture, and be focused upon resolvable issues.

Materials and Identification

Both Gaskell and Moxon have described, at length, the processes and equipment involved in composition and presswork.[10] Some of the materials employed were purely functional: chases to contain the pages, quoins to lock them in place, composing sticks in which the type was set, galleys to hold the type before it was locked up as well as after it had been printed off and was ready to distribute, and mallets to secure things tight; whilst, at the press, the frisket and tympan ensured that only the area to be printed received an impression of ink, and protected the paper from the surface of the platen. In addition, a printing-house had a great deal of other material that was not type but constituted part of the resources that might be engaged: copper-engraved title-pages and plates, woodcut illustrations and diagrams, headpieces, tailpieces, arabesques, flowers, factotums, initial letters, ornamental borders, brass rules, and printer's devices (block illustrations that were applied on title-pages and

[10] Gaskell, *New Introduction*, 40–56 and 118–41; Moxon, *Mechanick Exercises*, 10–44 (type and materials), 45–96 (the press and equipment), 191–246 (composition), 252–311 (presswork).

particular to a house). Some of this material was made from wood, and some might be cast from metal. Any of it might be used, often in combination, in a particular book. To the extent that plays were printed with little more than a device, and perhaps rules, they are the exception to the practices of the trade which viewed a judicious use of ornament as being pleasing to the eye—especially if it could be matched in ways that were appropriate to the work.

A printer's ornament stock was accumulated over time, and from a variety of sources; it was not always bought new. Sometimes type and ornament passed along with a business, as when the house of Thomas Vautrollier passed to Richard Field, or when William Stansby succeeded John Windet. Sometimes it was acquired when another member of the trade ceased to operate. Hence, Windet acquired some of his early material from the estate of Henry Bynneman, at much the same time as John Wolfe acquired material from John Day. Later, Wolfe divided his materials between Windet and Robert Bourne (who was soon after succeeded by Adam Islip), and from late 1590 Wolfe acted as a publisher not a printer although his publications read 'Printed by Iohn Wolfe'.[11] Stansby was later to make much use of Day's Anglo-Saxon type, even though Windet only used it once in a piece of unidentified shared printing,[12] and Wolfe did not use it at all. Understanding the lines of association is a prerequisite for work on printing-house identification.

The ornament stock of a printing-house is normally distinctive. Initial letters may either have a theme (A is Abraham, C is for Cain), or else be cut with a floral or sculptural background. Sizes varied significantly depending on the type it was to feature with, and the format of the page, as one would want to choose a smaller initial for an octavo volume than for a folio. Arabesques could be shaped like diamonds, triangles, ovals, squares, rectangles, or stars; or else be set from smaller units in blocks. Headpieces and tailpieces typically had some kind of symbolic content: cornucopias, archers, birds, fruits, plants, faces, cupids, and so on, like a painted ornamental frieze. The ornaments had their historical roots in the decorative embellishments made to medieval manuscripts as well as some of the earliest printed books, and they can serve for identification alongside the evidence provided by the type.

The importance of Gutenberg's original invention was not that he created the press, but that he found a way to manufacture movable type:

[11] Wolfe has been the subject of fairly regular attention: see, C. C. Huffman, *Elizabethan Impressions: John Wolfe and His Press* (New York, 1998); for Windet, Bland, *Jonson, Stansby and English Typography 1579–1623*, 1, 121–2 and 125n (Bynneman), and 135–9, 145, 149 (Wolfe).
[12] This is quire 5G of the 1597 reprint of Foxe's *Actes and monuments* (STC 11226).

that is letters that were exactly the same as each other and that could be reused once they had been distributed back into the case. Type was the single most important resource that a printer possessed: it was available in different sizes and faces, including the exotic and special fonts that some, but not all, printers acquired or inherited. The skill of the craft lay not only with the ability to set type, but through the arrangement and deployment of all the resources available to their greatest utility and effect.

Every letter, punctuation mark, or space for a printed page was made from pieces of type. Type was made by first cutting a steel punch about 45 mm long, and then hammering the punch into copper. This piece of copper, or matrix, ensured the uniformity of cast type. The matrix was locked in a hand-held mould into which a mixture of lead with a little tin and antinomy was poured. The mould was shaken, then opened and the type discarded. If it was flawed, it was thrown back into the molten metal; if it was true, the shank was broken off, and the piece filed down to a standard height between 24 and 27.5 mm. Spaces were made in the same way, except that they were blank and shorter than the other type. Across the bottom edge of the sort was a nick that helped a compositor determine by touch the lower side of the letter when setting.[13]

The cutting of the punch was a highly skilled job. The first typecutters were goldsmiths; later it became a specialized craft. Every letter has a mid-section that is level with the line, and some have ascenders (b, d, f, h, k, l, f, t), or descenders (g, j, p, q, y). Further, f and f were cast as ligatures, either as doubles, or with i, l, and t, because the kern (the front curve of the letter which lipped over the edge of the sort) could easily be damaged when two sorts were combined. All the letters shared the same x-height (the height of x defining the height of the mid-section of a letter). Further, the matrices required exact matching of the strikes, so that each letter would sit in perfect alignment. Overall, the letters had to be able to combine with each other in a way that ensured semantic coherency and sustained legibility, as a gap in the wrong place might imply word separation where it was not intended, whilst confusion in design and height might make the text unreadable.[14]

From a broad historical perspective, changes in typeface have altered the physical appearance of the book over time. Until the twentieth-century, type served as an index of contemporary aesthetic preferences both in its appearance and its relationship to literary style and content.

[13] Gaskell, *New Introduction*, 9–12; A. F. Johnson, *A History of the Old English Letter Foundries* (London, 1952), 97–113, with illustrations; H. Carter, *A View of Early Typography up to about 1600* (Oxford, 1969), 5–22.
[14] Carter, *A View of Early Typography*, 93–116.

The primary assumption of good design is that the face is invisible to the reader.[15] Each font is based on a relationship between the vertical and horizontal emphasis of the whole and whether the visual line between letters is weighted to the top or bottom of the x-height as it carries the eye along the page. Subtle adjustments to the weight, width, x-height, and emphasis can be traced across the fonts of different type foundries in the books of the sixteenth and seventeenth centuries.[16]

The visible distinctions that render as obvious the work of different foundries over time may be observed in rather finer detail between the fonts owned by each printing-house. In the first half of the sixteenth-century, English printers acquired their type material from abroad; but by the 1580s there were at least four type foundries operating in London with French and Dutch connections.[17] Printers acquired their type at different times from each other, and not always from the same source: thus, the x-height of one printer's pica or the cut of the g or M, could be different to that of a neighbour. As a consequence, it is often possible to identify the types associated with individual houses.[18]

Printing-house identification is one of the more awkward issues in bibliographical analysis because a mistaken assumption will obviate any reconstruction of a business, or the account of printing a text. For many books, the statement 'Printed by John Jones', or 'Printed by John Jones for George Smith', is accurate; sometimes, as with 'Printed for George Smith', the publisher and not the printer is named. Most attributions are based on the device, border, or ornament on a title-page;[19] when that is not helpful, the ornament stock is next examined for identification. Provided there are no further complications, these details usually pinpoint the printer involved and this can be confirmed by examining the type. There remain, however, a group of books for which these methods are not sufficient owing to lack of ornament, or because shared printing or borrowing are involved. Hence, the ability to distinguish the type of one printing-house from another is helpful for two reasons: first, a direct

[15] S. A. Morison, *First Principles of Typography*, 2nd edn. (Cambridge, 1967).
[16] See, Gaskell, *New Introduction*, 21–9.
[17] Johnson, *A History of the Old English Letter Foundries*, 96.
[18] W. C. Ferguson, *Pica Roman Type in Elizabethan England* (Aldershot, 1989); A. Weiss, 'Font Analysis as a Bibliographical Method: The Elizabethan Play-Quarto Printers and Compositors', *Studies in Bibliography*, 43 (1990), 95–164; —, 'Bibliographical Methods for Identifying Unknown Printers in Elizabethan/Jacobean Books', *Studies in Bibliography*, 44 (1991), 183–228.
[19] See, for instance, R. B. McKerrow, *Printers' and Publishers' Devices in England and Scotland 1485–1640* (London, 1949); R. B. McKerrow and F. S. Ferguson, *Title-Page Borders Used in England and Scotland 1485–1640* (London, 1932).

comparison of types in the size and face across all the houses will serve to identify those items for which no printer is known; second, the comparison of fonts between sheets within a book or pamphlet will indicate instances where two or more printing-houses have worked together on the same volume—a practice known as shared printing.

If one identifies shared printing in a particular book, then from a practical perspective, it is possible to construct a database of books produced at that time in the same font by taking the items listed in the chronological indices of the short-title catalogues and then using this information to undertake an initial survey. This can be done via *Early English Books Online (EEBO)*, provided the proper scale is used and any doubtful items are listed for physical inspection.[20] This is particularly true for small-format books where the digital image can be deceptive. Once a list of relevant items is made, the best method is to inspect and measure a physical copy of all the output set in the same size and face of type. This can be done by measuring 20 lines of type to confirm the size of the font; the differences can then be examined in detail. While doing this, it is instructive to carry out spot checks between sheets to ensure that shared printing in the comparison copy is not involved, for the easiest mistake is to attribute a book to the wrong printer by comparing it with only one sample of type from another book that has been shared.

Having determined which printers employed which fonts, and compared the samples with the unidentified output, most books will be able to be removed from further consideration. Then, either there will be one printer whose font is the same; or, if two or three alternatives present themselves, the type should be reinspected both for minor differences and for damage. Taking a sample of damaged types from the item to be identified, it is then possible to look at the output of the alternatives to see if they occur elsewhere in the unidentified items. A comparison of paper may also provide further corroborative, if circumstantial, linkage between the comparative witnesses.

Damage: A History

Damage was caused to type and other material owing to the presence of grit or other stray matter at the press whilst it was being worked, or by loose type being driven under pressure in ways that might damage a

[20] Access to *EEBO* is usually possible via university or library databases: the website is http://eebo.chadwyck.com. Unfortunately there is no equivalent site for continental imprints. Any items not available via *EEBO* can be located via the appendices to the standard bibliographical catalogues (*STC* and Wing).

kern. During presswork, the pressure of the platen, as it pressed against the type and paper at c.2.25 kg/cm^2, could easily cause foreign objects to bend or nick the type—lead being a heavy and soft metal, which is why tin and antinomy were added to harden it.[21] Each time a piece of type was used, it might be pressed 500–2,000 times, and depending on how much type there was, how many sheets there were in the book, and how often the type was distributed, it could be employed from several to many times in the same publication, as well as repeatedly in different publications over time. It was inevitable that eventually wear or damage would render the type unsatisfactory.

Damaged type has been used by bibliographers in two main ways to trace aspects of printing-house activity. Both Hinman and Blayney analyzed evidence from damaged type to reconstruct the order in which formes were composed, printed, and distributed.[22] This was possible because the books concerned were set exclusively from cases that were not in concurrent use with other items at the press. This kind of reconstruction becomes infinitely more complex when several cases and books in the same type are linked, as the damaged sorts could potentially move between different volumes, especially if they were large folios and there was a plentiful supply of type.

With running-titles, damaged type is the quickest and easiest way to establish the relationship between skeleton formes. Most books were printed using a pair of, or sometimes four or six, skeleton formes. The skeleton was that part of the forme that did not change from sheet to sheet except for the pagination. The running-titles were often set in italic which, owing to the kerning, was more prone to damage. This material was left in place within the chase to ensure that the positioning of the pages was the same, and because running-titles did not require frequent resetting. What should be looked for are breaks in the regular patterns of use owing to interruption, or sometimes added urgency.

The easiest way to trace the movement of running-titles from sheet to sheet is to record the damage as it appears in each title and its place within the signature (1^r, 1^v, etc), and then unfold the paper so that the locations of the damaged type on the inner and outer formes can be seen. If a pair of skeleton formes was used in rotation, then all the outer formes will share one set of damage, and the inner formes the other, and the position of the damage will always be the same, or be rotated 180 degrees. If this sequence is broken then something has occurred.

[21] Gaskell, *New Introduction*, 125: the pressure is equal to 31.64 lbs per square inch.
[22] Hinman, *Printing and Proof-Reading*, 1: 52–138; P. W. M. Blayney, *The Texts of* King Lear, 89–150 and 504–39.

There are several possible permutations to the ways in which a set of running-titles might change sequence. First, the sequence of rotation between the inner and outer forme may be switched so that the skeleton of, say, the outer forme recurs immediately: if this is so, then the type may have been removed from both formes before setting continued. This indicates some kind of interruption, most probably a small piece of job printing for which the press was required but not necessarily the chase with the skeleton forme. Second, the placement of the running-titles on one or both sides of the forme may have shifted in a way that cannot be explained by rotation (as when one-half of an octavo is spun around but the other side remains as it is). When this happens, the skeleton must have been taken out of the chase, which suggests that the chase was required for another job. Third, the running-titles may be divided and the number of skeletons engaged increased. Finally, two completely different sets of skeleton formes may be present, usually with a clear point of division. This either indicates that work was suspended and the skeleton formes distributed, or that the printing was shared.

Within the running-titles, there is one further piece of information that can be informative: pagination was the only part of the skeleton forme that ought to have been changed every time. In some cases, mistakes in the sequence will have been caused by the wrong sorts being in the wrong box, and sometimes they will be caused by a compositor forgetting to change the number, perhaps owing to a minor distraction. In the latter case, the number will belong to the forme that was previously used, and be from the same position in the forme or the same position rotated 180 degrees. Thus, if a quarto book is printed by using alternating formes, page 41 ($F1^r$) would retain the pagination of $E1^r$ (33) or $E3^r$ (37). If the pagination for $F1^r$ read 25, and the pagination for $E1^r$ was correct, then the skeleton would have belonged to that used for outer D and more than one pair of skeleton formes would be in operation.

Donne's *Psevdo-Martyr* (STC 7048; 1612) is, for instance, an example of a book with a change in the sequence of running-titles and a significant pagination error. It is a 54-sheet crown quarto, printed by Stansby, set in great-primer roman, and entered to Walter Burre in the Stationers' Register on 2 December 1609. It was presented to King James seven and a half weeks later on 24 January 1610, despite the Christmas period.[23] In 'An Advertisement to the Reader', Donne stated that he had been 'willing to giue the Booke a hasty dispatch' and it has been described by Keynes as 'very carelessly printed'.[24] However, Bald suggested that 'the entry was

[23] G. Keynes, *A Bibliography of Dr. John Donne*, 4 and 9.
[24] J. Donne, *Psevdo-martyr*, ¶1^v; Keynes, *Bibliography*, 7.

probably made when the printing was well along'.[25] What the evidence of the running-titles suggests, however, is that Stansby printed the book more quickly than Bald realized.

The most serious errors in pagination occur in sheet Y. The outer forme of Y was set with two of the running-titles taken from outer V, and two from inner X which, unchanged, created the mis-pagination. Until inner X, a pair of running-titles had been employed in rotation; in order to set outer Y, the two other skeletons were broken up. Outer X also has a new set of running-titles and must have been in use when the new skeleton for outer Y was created. Further, outer X introduces a faulty *V* that then recurs in outer Z, inner 2B, outer 2D, outer 2F, inner 2H, inner 2K, outer 2M, inner 2O, inner 2Q, inner 2S, inner 2V, outer 2Y, inner 3A, outer 3B, outer 3D, and inner 3F. What this irregular pattern shows is that at least two of the skeleton formes were stripped of their type at any one time, and that the work was divided between several workmen, and probably more than one press. This suggests that additional urgency was taken, and that, in order for the presswork to proceed the compositors set the text more quickly than had previously been the case. In other words, the running-titles suggest that Donne's 'hasty dispatch' is perhaps a more accurate statement than had been supposed.

If the pagination of a book is completely out of kilter and repeats or omits numbers in a sequence, then either a sheet from later in the book was printed before those that preceded it; or, once again, it is a sign of shared printing. Most items where the printing has been shared will have clearly divisible sections between the two houses involved. Let us assume that Jones printed A–D and Smith E–G. The evidence for that claim will be cumulative, including differences in type, and the fact that the running-titles belong to different skeletons. Several further signs also confirm shared printing: first, that there is a disruption to the signature and/or pagination sequence because the second printer thought he was starting from a different point relative to the other house; second, there may be changes in the layout which usually can be measured by differences in the width of the compositor's measure and, perhaps, the number of lines to a page (as in one more or less, consistently); third, an ornament or initial may be present that can be traced to a particular printing-house (not common in plays, but likely to happen in books with chapters, or that have been divided into 'books'); and fourth, through the use of rules that have been bent in distinctive ways.[26]

[25] R. C. Bald, 'Dr. Donne and the Booksellers', *Studies in Bibliography*, 18 (1965), 77.
[26] A. Weiss, 'Bibliographical Methods for Identifying Unknown Printers in Elizabethan/Jacobean Books', *Studies in Bibliography*, 44 (1991), 183–228.

In some cases, shared printing can be difficult to spot. The title-page of Francis Godwin's *Annales of England* (STC 11947–7.5; 1630) states that it was 'Printed by A. Islip, and W. Stansby', as do both the sub-title-pages; nevertheless, the editors of the *Short Title Catalogue* remarked that 'Although entered to both pr[inter]s, the whole book was app[arently] pr[inted] by Stansby.' This is because the printing was not shared in the usual way by dividing parts of the book in sections but was spread throughout the whole, to the extent that the final sheet printed (2V2.5) was divided not by forme, but by leaf, with Islip printing 2V2 on both sides, and Stansby 2V5 in the same way. The tell-tale sign is that Islip's great-primer is slightly larger (116 mm/20) than that employed by Stansby (112 mm/20), but this is less obvious because the two alternate. In all, Islip was responsible for a quarter of the book.[27]

Godwin's *Annales* is a useful reminder that the primary motive of an early modern printer was not profit alone, but the sustained viability of the business. Whilst materials were acquired as needed, larger shifts in capital structure happened on an irregular basis and owing to specific circumstances, such as the division of John Wolfe's resources between Windet and Bourne in late 1590, or the new type and other materials that Stansby purchased when he took over from Windet in 1609–10.[28] Few printers aggressively reinvested profits in order to expand their business constantly; their primary concern was sustainability.

All too often, arguments about the market for books assume that a printer or publisher would maximize production and income, and that this drove the organization of work in hand. Trade practices tell a different story: concurrent production and shared printing ensured that the organization of activity was consistent in volume, and flexible in its use of materials, thus avoiding erratic fluctuations in staff caused by shortages of work in hand. Cash-flow was maintained because the money would come in as the projects were completed. Less obvious, but as important, were the social and familial links that glued many business relationships together. It is friendship, not logic or profit, that led to the work being shared for the *Annales* in the way that it was.

Measuring Output

In most instances, the study of a printing-house is likely to emphasize the scale of business and its social networks, rather than specific material

[27] The *Annales* collates: §^{4} A-2I^4 2K^6 2L-2O^4 2P^4(+2P1.1) 2Q-2T^4 2V^6. Islip printed F-K2.3, S1.4, T2.3, V1.4, X-2A2.3, 2F-2I2.3, 2K3.4, 2M2.3, 2P-2R2.3, 2V1 (2V6 is blank), and 2V2.
[28] Bland, *Jonson, Stansby and English Typography 1579–1623*, 1: 184.

evidence; however, shared and unidentified printing has to be included in order to estimate output. Output is best measured by en-count combined with a record of the number of edition sheets set. The number of edition sheets is a less reliable indicator than the en-count because a larger font will require less composition for the same area of a page, and a smaller font more; and because we do not know the average print-run to establish the volume of presswork, so that all that can be measured with some understatement is composition.[29]

The method of calculating composition by ens requires that all fonts be converted to their pica equivalent. Hence why the height of a font over 20 lines set solid matters, for while the number of lines per page will differ according to the height of the type, the differences in letter width need to be accounted for and converted to a standard measure. This can be done by dividing pica height by the font used to give the correct ratio (e.g. 82/94), and then multiplying by measure and page depth to give ens per page in the same way as was described for estimating and casting-off copy (pp. 114–6 above). As an example, *Harwards Phlebotomy* (STC 12922; 1601) is a 9½-sheet octavo, set in pica roman to a measure of 36 ens and a depth of 34 lines. The calculation is: (82/82) × 36 × 34 × 16 × 9.5 = 186,048 ens. Samuel Daniel's *Certain Small Workes* (STC 6242; 1611) is a duo-decimo that collates A–P^{12} Q^{4} and is set in 67 mm long primer. The calculation for this text is: (82/67) × 30 × 35 × 24 × 15.3 = 471,879 ens. Likewise the *Workes of Benjamin Jonson* (STC 14751–2; 1616) is a 257-sheet folio set in english roman to a measure of 58 ens and a depth of 45 lines, or (82/94) × 58 × 45 × 4 × 257 = 2,240,559 ens.

Once the en composition figures have been established, it is possible to take them and calculate from the average Cambridge rates of 5,600–5,700 ens per day roughly how many compositors would have been working in a given establishment over the course of a year with a fairly accurate sense of the proportions of different types used. Indicatively, in 1606–08, the balance of composition at the printing-house of John Windet was approximately 48 per cent in pica and 22 per cent in english, with nearly 9 per cent set as music, 8½ per cent (quarto and octavo psalm-books) set in brevier, and nearly 8 per cent in long-primer. Non-pareil and great-primer roman were the next most commonly used types and then small pica and a small-bodied pica inherited from John Wolfe. The balance between the various faces was a little more than 44 per cent black-letter and 44 per cent roman, with italic accounting for less than 3 per cent and music the remainder. In terms of ens set, the various

[29] See also, D. L. Gants, 'A Quantitative Analysis of the London Book-Trade 1614–1618', *Studies in Bibliography*, 55 ([2004 *for*] 2002), 185–213. John Pitcher and Andy Boyle's study of Simon Waterson will be the first to examine fully a publisher's business by en-count.

psalm-books in their differing types accounted for approximately 30 per cent of the compositors' activity and probably a greater percentage of the pressmen's time. The figures suggest that Windet could have employed at least three compositors full-time. He probably had four pressmen. Five years later, the volume of composition under his successor William Stansby had increased sufficiently for there to be work for six compositors.[30]

Invisible Hands

With a manuscript, it is usually evident when one scribe has taken over from another, even when there is an attempt to blend seamlessly the work of those involved. Only rarely does one encounter a manuscript where the scribal habits of a single person suggest multiple identities. With print, type erases the visual distinctions and the activity of different workmen is particularly difficult to separate. At the documentary level, we know from the records when various members of the trade were apprenticed and made free, and from the parish records we often know when they were married and when they died. What we do not know is whether 'Fingers Finnegan' was setting type on 27 August or, once he was made free, whether he worked for the same house. From the output data we know approximately how many employees a business is likely to have had and this can be compared with the life records to see if they are broadly in agreement. From there, it is is possible to make a tentative list of the likely names of the invisible hands at work.

At the time of its publication, one of the principal achievements of Hinman's work on the 1623 Shakespeare folio was felt to be his attempt to assign different sections of work on the text to different compositors (known as A, B, and so on) based on cumulative differences in spelling habits between the workmen. In the years since, this work has been refined and modified, and it is still broadly accepted as being the best assessment we have of the interrelationship between workmen on the composition of a text.[31] In its scope, ambition, and attention to detail, it was a work of great imaginative courage, particularly given the diverse nature of the copy from which the compositors set their text. In lesser hands, compositor studies have been far less convincing.

There are five main issues with compositor identification that need to be resolved or satisfied before an attempt is made at identification. First, the copy from which the text was set must have been neutral and

[30] Bland, *Jonson, Stansby and English Typography 1579–1623*, 1: 173 and 199–200.

[31] For a revised attribution, see: P. Blayney, 'Addendum to the Textual Introduction', C. Hinman (comp.), *The First Folio of Shakespeare*, 2nd edn. (New York, 1996), xxxiv–xxxvii.

consistent as any underlying scribal variation may influence the analysis and suggest differing practices where none exist. Second, the work of one of the compositors must be sufficiently distinct as to be genuinely separable from the remainder of the text. If the habits of two workmen are essentially the same then any attempt to separate their work will be meaningless. Third, if the right margin is justified (i.e. the text is prose) then all spelling variants that might be used for the purposes of justification must be removed from the analysis (e.g. she/shee, manie/many, learn/learne), because a compositor will vary spelling to fit the line. Fourth, the analysis needs to be carried out line by line, not page by page, because one compositor can take over from another at any point. Finally, the type being used must be studied in detail to establish whether two cases are in service, and attention needs to be paid to any differences in the layout of the page and the accuracy of the setting.

Experience suggests that the habits of scribes and compositors were always, to some extent, inconsistent and to formulate an analysis based on uniformity of practice is conceptually mistaken. Adopting arbitrary criteria and applying them with reductive simplicity will produce an answer that bears no relation to actual practice: a fact McKenzie was able to demonstrate by comparing the method of analysis to the payments for the same book in the Cambridge records.[32] In most instances, and particularly in a larger printing-house, any attempt at compositor analysis is likely to be an object rare and high conceived, in Marvell's phrase, by 'despair upon impossibility'. One needs to be confident that the results of the analysis will serve a genuine purpose and use.

One example of how compositor studies can be helpful is provided by Blayney's analysis of the compositors of the first quarto of *King Lear*.[33] He demonstrated that two different cases of type were in operation, and that the compositors had distinct spelling preferences. This combination of detail is more useful as the play is a mixture of prose and verse. It would appear, as well, that one compositor may have been less experienced: all the surviving stop-press corrections relate to his work. Further, the copy would appear to have been a neutral manuscript written in secretary hand. Blayney's analysis of the *Lear* quarto is exacting in its rigour and comprehensive in its approach. One can therefore be confident that his methodology was careful and his conclusions as accurate as we are likely to be able to establish. In what follows, his study of the compositors will serve to clarify other issues to do with Okes and *Lear*.

[32] D. F. McKenzie, 'Stretching a Point: Or, The Case of the Spaced-Out Comps', *Studies in Bibliography*, 37 (1984), 333–65.
[33] Blayney, *The Texts of* King Lear, 148–87.

Okes, King Lear*, and* The Masque of Queenes

Blayney established that the quarto text of *Lear* was set seriatim (one page after another), rather than by formes, and this led him to a number of conclusions about the organization of the printing-house, including the fact that he believed the order of printing to be sequential (one book after another) rather than concurrent. Hence, Blayney suggested that the evidence from the printing-house was contrary to that supplied in exhaustive detail by the Cambridge records, and that the kind of material Okes printed meant that production had to be organized to maximize income. Okes was, according to Blayney, the exception.

For the remainder of this chapter, the discussion will focus on the claim that the Okes' house operated in a significantly different manner to the Cambridge press and it will engage forms of analysis and evidence to place that assumption under scrutiny. There is no intention to question Blayney's analysis of the physical details to do with the printing of *Lear*, for that is a work of great thoroughness. However, the assertion that Okes was an exception to the rest of the trade is sufficiently important that it should not go unquestioned, as it has a direct bearing on our understanding of early modern book production and the account of that which has been given here. As an example of the primary issues that arise in the use and interpretation of evidence, it will also serve its turn.

There can be no doubt, given the type evidence, that *Lear* was set seriatim, but that does not mean that all of the books printed by Okes were so set—in fact, as Blayney acknowledges, 'Okes's norm is likely to have been setting by formes';[34] nor does the fact that he observed a type shortage in the pica roman cases mean that concurrent production was not the norm—Okes had cases of pica black-letter and english roman. The rationale for claiming that production was organized in a sequential order is, therefore, based on an argument of urgency, and the need for rapid turnover and cash-flow. There are several stages to Blayney's argument, the first of which is to offer an assessment of Okes's work:

> It is true that *some* of his books are quite creditable pieces of work in the rather low-grade context of Jacobean London, but the majority are not. There were printers whose worst was worse than Okes's—but not very many, and not *much* worse. His average standard was good enough to allow him to compete for low-priced work, but was nevertheless poor.[35]

[34] Blayney, *The Texts of* King Lear, 150.
[35] Blayney, *The Texts of* King Lear, 29: the italics are present in the original.

It is true that the standards of the London trade were not those of the Plantin establishment in Antwerp, or of a celebrated university press, but then the publishing of scholarly editions was not a primary concern. It was a commercial trade, and it is worth remembering that few books look now as when they were sold: over time they become discoloured, used, cropped, and rebound. The phrase 'low-grade' is pejorative and its purpose is to portray Okes in the least flattering light. Further, there really is no such thing as 'low-priced work' as the Stationers' Company regulated the retail price for books (at a halfpenny a sheet of pica roman) and the cost of paper was the same for everyone. There were longer books and shorter books: between 1607 and 1609 the average book that Okes printed in its entirety and that survives is a little over ten sheets;[36] he did not print a folio until Sir Arthur Gorges translation of Lucan (STC 16884) and his share in *The History of Lewis the Eleventh* (STC 17662), both published in 1614. As for the sixpence books, it is inevitable that some will not have survived.

The fact that a book is scarce does not mean that its contents were without merit, it means that it was read. Okes printed books that were read, which is why their survival rate is low. His output includes such items as Theodore Beza's *Houshold Prayers* (STC 2024–4.3; 1607–8), and John Pelling's *A Sermon on the Providence of God* (STC 19567; 1607), both of which went through the press at much the same time as *Lear*. In Okes's case, Blayney argues:

> There were . . . printers who specialized in ephemeral books, and they may have needed to evolve specialized methods. . . . a concurrent system might have rather less appeal for a printer to whom deadlines were frequent and necessary evils associated with the kinds of books he *preferred* to print. [emphasis mine][37]

To describe such items as sermons and godly pocketbooks as ephemera is misleading, and there is throughout an element of false reasoning involved. The larger a printing-house, and the more books it produced, the more frequent were the 'necessary evils' of deadlines, yet this did not change the methods of production, and there is very little evidence that the kinds of books that Okes produced were of the kind that were wanted 'yesterday'. For instance, *The Cobler of Canterburie* (STC 4580; 1608), again printed at the same time as *Lear*, survives as a unique copy. It was first printed in 1590 and then entered in 1600. At the time that Blayney wrote, the 1600 edition was not known to survive, but a single

[36] The figures for Okes were compiled from Blayney, *The Texts of* King Lear, 334–428.
[37] Blayney, *The Texts of* King Lear, 48–9.

copy has since emerged in the library of the Polish Academy of Sciences in Gdansk (STC 4579.5; Appendix, vol. 3) as part of a sammelbände with several other unique items.[38] A book that was reprinted every eight-to-ten years is scarcely urgent, and there is no particular reason why a publisher might specify a delivery date equivalent to more than a couple of sheets a week: most books were produced more slowly than that.[39] In fact, what mattered were the trade relationships between the publisher and printer. Unless the printer commissioned work on his own account, it was the publisher who decided what to offer the printer, both in terms of the nature of the content and the length of the text: Okes may have *preferred* to print books of 30 sheets or less (such claims can only be speculation), but it was the publisher who decided what to offer him, and if he was needing work he would sooner have shared a book than lose a contract.

The idea that a printer needed to 'evolve specialized methods' by, in effect, reverting to the simplest and least efficient method of operation has as little foundation as the 'necessary evils' of deadlines. Even Wynkyn de Worde, a century earlier, used cases of different types of type concurrently. There is an implicit assumption being made that somehow concurrent production is slower, less cash-generative, than sequential printing. Hence Blayney goes on to claim that:

> Concurrent printing provides flexibility, and therefore efficiency, at the expense of individual production rates.[40]

This may seem obvious, but in fact it is not: it depends entirely on how many cases of a given type are available and how many compositors there are available to set text. If a printer has two cases of pica roman and two compositors then this is true; if a printer has three compositors and two cases of pica roman then the third will have to set from another case, such as pica black-letter, whether the other compositors work in tandem or not. Further, if urgency was the primary rationale for organizing work, then in a two-compositor business an analysis of type would always demonstrate two cases being used concurrently on the

[38] Biblioteka Gdanska PAN, Di 3552 (8°), item 8. The edition was printed by Valentine Simmes, and the first sheet was folded inside out by accident. The volume is bound in contemporary vellum and belonged first to 'Georgius Melchman à Mùlbach Hæres in Luckoczin es czarlin 1634', with the later stamp of the Danzig State Library.

[39] McKenzie, Printers of the Mind, 15: as McKenzie observes, of 36 books printed at Cambridge between 1698 and 1705 of ten sheets or more, seven were produced at a rate of more than two sheets a week, 14 at a rate of between one and two sheets a week, and the remaining 15 at a rate of less than one sheet a week.

[40] Blayney, *The Texts of* King Lear, 55.

same book. In fact, in *Lear*, compositor B set B–G and most of H before compositor C (there is no compositor A), joined him.[41] Presumably compositor C was busy doing something else. As McKenzie observed:

> It was unusual for a compositor to work for any long period on one book to the exclusion of all others—usually he would be setting type for two or three books concurrently.[42]

If concurrent organization is best for the operation of the business, it has financial advantages as well. Each book may take longer to print, but it would be rare for two books to be completed at exactly the same time. Hence, there is a regular cash-flow that is sustaining work in hand. The argument for sequential printing on the other hand holds that on every given occasion a new contract will be urgent and has to be given priority over existing work. Blayney formulated this working model:

> Suppose that stock work is being undertaken on book A in the absence of other orders. Suppose further that a publisher brings in a small book B, and requests early delivery. The purpose of stock work being what it is, book A is interrupted so that book B can be produced in a short time.[43]

A little reflection might suggest that if a printer were to operate in this manner the results could be financially disastrous. Assume book A is a 20-sheet volume and that Okes has set three formes before a new six-sheet book comes to the press, which he then prints before managing to set another four formes of A, when another eight-sheet book is taken on and needs to be printed urgently, and so on. The production of A, and payment for the work, would stretch out to the edge of doom. Further, even the work for a 'stock' book would have been agreed at some convenient rate such as a sheet or two a week, and if Okes could not reasonably keep to that he might not get any further work from that publisher. No London printer would have agreed to a rate of delivery that would have left them unable to balance their workflows. Trade relationships were based as much on friendships and family associations as they were on financial self-interest.

It is now time to look at the relationship between output and activity a little more closely. In his 'Checklist of Books' in Appendix II, Blayney

[41] Blayney, *The Texts of* King Lear, 149.
[42] McKenzie, 'Printers of the Mind'; 18.
[43] Blayney, *The Texts of* King Lear, 53.

lists the output for Okes's predecessors and for Okes in 1607–9.[44] As Okes was first a partner in the business from 27 January 1607 (with all imprints bearing his name),[45] and then in full control three months later, the volume of output for the year does not need to be adjusted, as all but one sheet has his imprint. In 1607, Okes printed 19 items totalling 142½ sheets, with nine of those items being shared; in 1608, he printed 21 items totalling 205½ sheets, with six items shared; and, in 1609, he printed 28 items totalling 276 sheets, of which seven items were shared.

At first glance, this looks like a rapidly growing business, but the figures are deceptive. As Blayney's reconstruction of the printing-house activity suggests, in the third quarter of 1607 Okes apparently printed almost nothing. Two of the most likely reasons for this are an outbreak of the plague, or lost output.[46] Of these alternatives, it is possible that Okes left London owing to the plague, but if he did so he cannot have been particularly concerned about his cash-flow. Between 19 June and 3 July 1607, Windet's house fell victim to the plague, and within two weeks he had lost his apprentice George Vokes, two other workmen (one possibly a nephew), and his wife.[47] Nevertheless Windet continued to work and his output for 1607 is not noticeably lower than average. If the plague is the reason for the low output, then we might assume an adjusted figure of c.200 sheets for 1607 if conditions had been normal.

The most likely reason for a low total, however, remains lost output: as Blayney acknowledges, 'What survives . . . is unlikely to be all that ever existed'; nevertheless, he discounts this by adding that 'The surviving books will thus be assumed to represent (for the sake of hypothesis) a substantial percentage of the total output.'[48] Later, he goes on to add that 'if the losses involved several books it seems unlikely they would have been confined to a single period, and a 40-sheet single book would be more likely to survive'.[49] This may seem to be true but, as the example from an earlier chapter might suggest (p. 65), it is not always so: the 102-sheet fifth edition of Blundevile's *Exercises*, printed by Stansby some time in 1617–18, does not survive. Likewise, the loss rate from Bynneman's press has been estimated as between 17 and 19 per cent.[50] It is

[44] Blayney, *The Texts of* King Lear, 334–428.
[45] Blayney, *The Texts of* King Lear, 24.
[46] Blayney, *The Texts of* King Lear, 69–70. Blayney also suggests that Okes may have either been in prison, though not what for, or setting up his new printing-house.
[47] Guildhall, MS 5721/1, f.82^{r}.
[48] Blayney, *The Texts of* King Lear, 37 and 39.
[49] Blayney, *The Texts of* King Lear, 70.
[50] J. Barnard and M. Bell, 'The Inventory of Henry Bynneman (1583) A Preliminary Survey', *Publishing History*, 29 (1991), 5 (5–46).

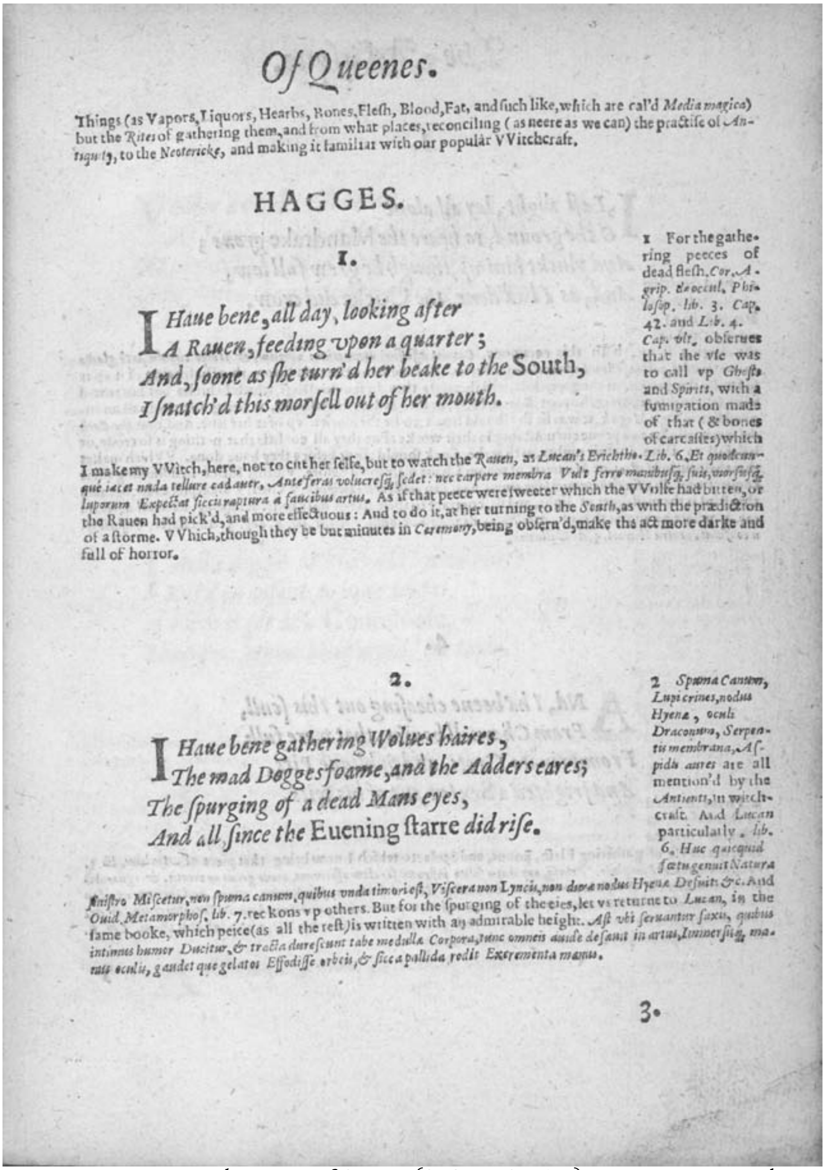
quite easy to imagine that, during the plague months of 1607, Okes printed a godly pocketbook or two that long ago were read to pieces.

Let us assume, therefore, that Okes's rate of output was 200–40 sheets a year (the total for 1609 probably includes some material printed in 1608), or four to five sheets a week. Bear in mind that the second and third most competent compositors at Cambridge set 5,600–5,700 ens a day, or approximately a forme, with many of their colleagues producing less, and that in the midwinter composition would have been lower owing to poor light.[51] Remember as well that the type evidence shows that compositor B set sheets B–G and most of H before compositor C joined him. If we accept the sequential-printing argument that means a single compositor, who would have set at most two–three sheets a week, did so for at least two–three weeks and that Okes either produced only half his average output during that time, or that the edition was a very large one. If any further evidence were needed that *Lear* was produced in concurrent production, then it simply remains to observe that the four books that Blayney identifies as being produced at the same time as *Lear* were not set from the same cases: two are primarily set in pica black-letter, and two are set in english roman.[52]

There is one last detail that is of some interest: early in 1609, Okes printed Jonson's *The Masque of Queenes* (STC 14778; figure 5.2). Unlike *Lear*, this text was well produced, with only a single stop-press correction, except for one serious miscalculation. When estimating, a wrong assumption was made about the size of type required for the sidenotes, with the consequence that they occupied much less space than was expected. Now, if *Queenes* had been set seriatim there would have been no problem about closing up the pigeon holes that mar $B2^{r}$, $B3^{v}$, and $B4^{r}$, and the text would have collated as it was first meant to do, $A–E^{4}$, not $A^{4}(\pm A2)$ $B–E^{4}$ $F^{2}(–F2)$. In the process, fully a page would have been saved in the setting of the text; therefore, *Queenes* must have been set by formes. Further before the inner forme was set, presswork on the outer forme of B must have begun. Thus, outer B had been set, corrected prior to machining, and was well along at the press, if not fully printed, before the compositor began work on inner B: he had to have been busy with something else. It was only when the compositor began to set the sidenotes for $B2^{r}$ that the error would have become obvious, and for the same reason: the text had to be spaced generously for $B3^{v}$ and $B4^{r}$ as well. These blocks of space had to be put in place and they were the only way in which the compositor could have corrected the error.

[51] McKenzie, 'Printers of the Mind', 9.

[52] *Pelling* and *Friendship* were set in 94 mm/20 roman; *Beza* and *Cobler* were set in 82 mm/20 black-letter (see Blayney, *The Texts of* King Lear, 79; App. II. items 31, 49, 21, and 43).



Of Queenes.

Things (as Vapors, Liquors, Hearbs, Bones, Flesh, Blood, Fat, and such like, which are cal'd *Media magica*) but the *Rites* of gathering them, and from what places, reconciling (as neere as we can) the practise of *Antiquity*, to the *Neotericke*, and making it familiar with our popular VVitchcraft.

HAGGES.

1.

I Haue bene, all day, looking after
A Rauen, feeding vpon a quarter;
And, soone as she turn'd her beake to the South,
I snatch'd this morsell out of her mouth.

1 For the gathering peeces of dead flesh, *Cor. Agrip. de occul. Philosop. lib. 3. Cap. 42.* and *Lib. 4. Cap. vlt.* obserues that the vse was to call vp *Ghosts* and *Spirits*, with a fumigation made of that (& bones of carcasses) which I make my VVitch, here, not to cut her selfe, but to watch the *Rauen*, as *Lucan's Erichtho*. *Lib. 6. Et quodcunque iacet nuda tellure cadauer, Ante feras volucresq; sedet: nec carpere membra Vult ferro manibusq; suis, morsusq; luporum Expectat siccis raptura à faucibus artus.* As if that peece were sweeter which the VVolfe had bitten, or the Rauen had pick'd, and more effectuous: And to do it, at her turning to the *South*, as with the prædiction of a storme. VVhich, though they be but minutes in *Ceremony*, being obseru'd, make the act more darke and full of horror.

2.

I Haue bene gathering Wolues haires,
The mad Dogges foame, and the Adders eares;
The spurging of a dead Mans eyes,
And all since the Euening starre did rise.

2 *Spuma Canum, Lupi crines, nodus Hyenæ, oculi Draconum, Serpentis membrana, Aspidis aures* are all mention'd by the *Antients*, in witchcraft. And *Lucan* particularly, *lib. 6. Huc quicquid fœtu genuit Natura sinistro Miscetur, non spuma canum, quibus vnda timori est, Viscera non Lyncis, non diræ nodus Hyenæ Defuit, &c.* And *Ouid. Metamorphos. lib. 7.* reckons vp others. But for the spurging of the eies, let vs returne to *Lucan*, in the same booke, which peice (as all the rest) is written with an admirable height. *Ast vbi seruantur saxis, quibus intimus humor Ducitur, & tracta durescunt tabe medulla Corpora, tunc omneis auide desæuit in artus, Immersisq; manus oculis, gaudet que gelatos Effodisse orbeis, & sicca pallida rodit Excrementa manus.*

3.

Figure 5.2 B. Jonson, *The Masque of Queenes* (STC 14778; 1609), B4[r]: Huntington Library, San Marino, RB 62067, the Arundel-Royal Society copy.

If *Queenes* was set by formes and concurrently with other work, then the fact that *Lear* was set seriatim makes it something of an exception.

There are at least three details from Blayney's analysis that might be looked at differently. First, Blayney records that a partial distribution of sheet E took place to assist with the completion of F, yet he also demonstrates that a second compositor appears at sheet H with a new case.[53] If we do have some missing output, therefore, it may be that the second compositor was setting from these other cases of pica italic and roman before he commenced work on *Lear*. Otherwise B could simply have raided the sorts from these cases when small shortages occurred. Second, whilst we only have evidence for stop-press corrections from eight formes out of 21, all this material relates to work set by B: it is an inference only, but one textual error suggests that the compositor may have been an apprentice about two years in the trade (II.ii.47/52), which would point to Thomas Corneforth.[54] That the apprentice set the text may explain why *Lear* was set seriatim. Third, the paper evidence suggests that *Lear* may have been finished in February.[55]

Faced with an outraged modern scholar demanding to know why *Lear* was set by an apprentice, Okes might well have looked in blank astonishment and reminded the scholar that his friend Simon Waterson, for whom he regularly printed, was the leading London literary publisher of the day, whose most important author was Samuel Daniel, and that *Delia* had been reprinted many times. Okes rapidly became Waterson's most important London printer, and for a while was second only in importance to John Legate of Cambridge, who was Waterson's brother-in-law. The fact that Okes was employed by as reputable a publisher as Waterson, whose family business extended back to the late 1550s and had passed through his stepfather Francis Coldock and stepbrother-in-law William Ponsonby, might give one reason to pause before slighting the repute in which he was held by the trade.[56]

If there is a more general point to be made from the example of *Lear*, it is that sometimes the information that is accumulated through the study of bibliographical detail is more securely employed in exposing false assumptions than in revealing the mysteries of the page. McKenzie, in 'Printers of the Mind' expressed a need for greater humility in the face of the erasure of so much quotidian detail: the fragments that survive flatter us and, for the lack of other pieces, we close the space around them and assume they are the picture.

[53] Blayney, *The Texts of* King Lear, 115, 149, and 156.
[54] Blayney, *The Texts of* King Lear, 17 and 26: see p.161 below.
[55] Blayney, *The Texts of* King Lear, 99–101.
[56] I would like to thank John Pitcher and Andy Boyle for providing me advance access to, and involving me with, their work on Waterson and Daniel, which is forthcoming,