Modern Aids to Bibliographical Research

DAVID FOXON

THE TITLE ASSIGNED to this article is an ample one and, of necessity, the author has concentrated on the general subjects which seem to be the most significant. Those developments which affect particular periods are covered in preceding articles. In general, the modern aids discussed here are only developments of earlier techniques. If R. B. McKerrow were to survey the bibliographical scene today he would see little that was not implicit in his own work.

The Hinman collating machine must take first place, not only because it is the one piece of equipment developed purely for bibliographical purposes (and a very impressive and rather expensive machine, too) but also because it was developed to study the text of Shakespeare, a study which has inspired much of the most brilliant bibliographical work in the English-speaking countries.

In the early seventeenth century it was the practice when a form of type had been set up to pull a proof (and perhaps a revise), but it was often impossible in those small printing shops to keep type standing and pressmen idle while the proof was being read. Accordingly the pressmen started printing-off sheets while the proof was read, stopped while the necessary corrections were made, and then printed-off the remainder of the sheets. As a result, only some copies of the sheet would be correct, and since this could be true of many or all the gatherings, which were assembled at random into books, the likelihood of any copy containing all the text in its corrected state is small. Moreover, in many cases the original readings may be as significant as the "corrections," [1] so for the establishment of a text it is necessary to find all the variant readings by collating as many copies as possible.

The seventy-nine copies of Shakespeare's First Folio in the Folger Shakespeare Library accordingly offered a rich field for study; but the prospect of comparing in detail some 75,000 large double-columned folio pages was a frightening one. E. E. Willoughby made some ex-

Mr. Foxon is in the Department of Printed Books, British Museum, London.

periments in the thirties with methods which would superimpose the image of a page from one copy with the image of the same page from another copy, but it was not until after the last war that Charlton Hinman developed the present machine which makes it possible to collate 150 pages a day with much greater accuracy than the eye alone could achieve. Full publication of Hinman's discoveries is eagerly awaited; meanwhile it is known that he has found several hundred new variant readings and has overturned some of the accepted premises on which bibliographical studies of the First Folio (and contemporary printing) have been based.[2]

The principle of the machine is simple: by optical means the images of two copies of a book are superimposed, page by page. They are then displayed alternately; if the two are identical the operator will appear to see only a single motionless image, but if there is any change it will call attention to itself by movement of the place where the type has been disturbed. The machine is a large structure some six feet high with book supports for the two copies, one on either side of the operator. These are illuminated, either together or alternately, by powerful lamps, and a series of mirrors superimpose their images on a final mirror facing the operator. Since the images are now reduced in size by the distance they have traveled, they are viewed through a binocular eyepiece which can also provide considerable magnification —this is invaluable for studying damaged letters. The alternate presentation of the two images is effected entirely by switching the lamps which illuminate the copies; this is carried out automatically by a device which varies the speed of alternation at will. The other controls are all designed to achieve the best possible superimposition of images.

It is not only the speed but the elimination of much human error that makes this machine so useful. Nor is its use limited to the study of textual variants: it will also show the presence of standing type at a glance where the unaided eye is at a loss. In the controversy over the misdated Shakespeare quartos printed for Pavier in 1619, Sir W. W. Greg provided evidence from type and paper to show their common origin, but it was left to W. J. Neidig[3] to produce superimposed photographs showing that parts of title pages which claimed to be of different dates were clearly from standing type and used the same furniture. Evidence of this form is conclusive, and the collating machine automatically provides it.

Standing-type becomes a matter of increasing importance in the

eighteenth century when in larger and better supplied printing shops the type of pamphlets was kept standing in order to print new impressions. These are rarely announced as such, though they may masquerade as new editions. Usually they are not readily distinguishable from the originals in spite of minor corrections made to the text. These reimpressions may be roughly grouped under four heads, though the groups shade into one another and quite commonly different sheets in a book will fall into different categories:

1. Reimpressions, often made within a day or two, where the type has been kept locked up in the chases.
2. Reimpressions where the type-pages have been tied-up, sometimes with the headlines and direction-lines removed, and then reimposed.
3. Reimpressions with textual revisions.
4. Partial reimpressions with part of the text reset.

It is impossible to say with any certainty which category any sheet falls into without the help of the collating machine; at the least, many of the most distinguished scholars can be shown, by this means, to have erred. With the machine, reimpressions of group (1) can only be detected in certain cases where the tightening of the quoins has shifted the type, but group (2) can be clearly distinguished although there is no change in the type since the irregularities in the different wooden furniture cause slight movement of the lines of type relative to one another. Group (3) has caused considerable confusion in the past; Pope, for example, on a number of occasions made numerous revisions in punctuation and capitalization between impressions, and these have been taken to show a new setting of type. But since the spacing of words depended on the compositor's choice and was not automatic (as it is with modern composing machines) every line of type has its own characteristic pattern which can be readily recognized on the collating machine wherever the corrector has not made a change.[4] In the same way with group (4) it is possible to say with considerable certainty how much of the text has been reset. Where the text is reset, the collating machine can only record the confusion caused by superimposing two different settings: it is useless for comparing the texts of different editions.

The chief disadvantage of the collating machine in its present form is that it can only collate two copies of a book side by side, whereas what one often wants is to compare a copy with a microfilm of a copy

in another library. Full size photocopies may be used, and perhaps the inexpensive enlargements now being made from microfilm by xerography will solve this problem at a reasonable price.

The introduction of microfilm has been of great value to scholarship, but its use for bibliographical purposes has many disadvantages. One may be able to guess the compilation of a book from microfilm if it is a straightforward one; but one cannot study paper and watermarks and all the subtle signs which may indicate such things as cancels and "sophisticated" copies where leaves have been supplied from another copy to make good imperfections—a possible cause of great confusion. Fredson Bowers has shown the best use of microfilm for bibliographical research.[5] Here a microfilm is made of a copy whose bibliographical details have been studied, and this microfilm is then used as a standard against which other copies can be compared to determine whether any variants exist. On a more modest scale, photographic copies of title pages and ornaments can be very useful for the bibliographer and can eliminate much checking of transcriptions of out-of-the-way books. Tools such as the Polaroid Land camera or xerography which produce finished prints in a minute or so may make such work quicker and less expensive as they become more generally available.

But in all cases copying processes are no substitute for the book itself, and the closer a copy is to its originally produced form the better. The concern of collectors for "original condition" has often had no direct scholarly concern but has stemmed from a feeling for condition common to all fields of collecting. Yet the value to scholars of such copies is great, and R. W. Chapman is its best exponent. His advice to students of eighteenth-century books who search for cancels is to find a copy in original boards where their insertion is obvious; [6] and many problems of collation vanish once such a copy comes to hand. In the study of cancels and collation, watermark evidence can be supplemented by the difference between the two sides of a piece of laid paper, one bearing the indentation of the chain lines, the other comparatively smooth; machine made paper too can still show a right and wrong side.[7] These signs are best seen in copies that have been only lightly pressed if at all. Similarly a study of the impression of type in an unpressed copy of a book can show which side of a sheet was printed first, and thus which form went to press first. Uncut copies are useful not only for a study of the size of paper used and the relation between paper sizes and watermarks [8] but also for the related

problem where two sheets of paper were made side by side in one mold, producing paper with chain lines running at right angles to their normal direction.[9] The position of point-holes left by the hand press can also be of evidential value, and these are usually only found in uncut copies.[10] Where books are bound in different units from those in which they are printed—e.g. a 24° gathered in 8s or a 18° in 6s—an uncut copy or even a copy which still preserves just a few deckles can clarify the collation and the printing process enormously.[11, 12]

These examples must serve to show some of the uses of books in fine condition. As for the difficulties caused to the bibliographer by those who in rebinding books oversew the leaves (making evidence of conjugacy invisible), remove blanks and signs of provenance, and generally sacrifice evidence to appearance, all bibliographers have been frustrated by them too often for their activities to need further comment. The nearer a book is to its original condition, the better.

The study of watermarks must be dealt with here, though as A. H. Stevenson has said: "Bibliographers who fear madness may prefer to let them alone." The foundation of the Paper Publications Society at Hilversum is only one sign of the recent revival of an interest in paper which includes a number of studies of paper production in addition to volumes of watermark tracings by W. A. Churchill and Edward Heawood which supplement the classic work of C. M. Briquet. For the bibliographer the most important feature of recent work is the differentiation of similar watermarks. In the first place, most watermarks belong to a family type—e.g. pots, grapes, coats of arms—and within that family there are wide variations in design, each represented by a number of similar patterns belonging to various localities and within localities, to individual paper mills. What has not been generally recognized is that paper (at least since the fourteenth century) has been made on pairs of molds, on one of which the vatman forms a sheet while his mate, the coucher, takes the last made sheet from the other and transfers it to the pile. So the two molds alternate; they will normally have twin watermarks which may resemble each other more or less closely but, being fashioned by hand, can always be distinguished.[13] Each of these twins will wear, be damaged, repaired, or replaced. It follows that if watermarks are to be used as positive evidence they must not be related to similar watermarks but must be identified with a pair of twins—or at least shown to be from a worn or damaged state of the same molds.

Roberto Ridolfi has recently published a monograph [14] distinguishing

thirty-eight varieties of a watermark used by the paper-makers of Colle Valdelsa near Florence which are found in Florentine incunabula; by this means he has been able to relate a number of undated editions with dated books. It is possible to reproduce watermarks photographically with considerable clarity, and Ridolfi illustrates all his specimens. What the Centro per lo Studio dei Paleotipi now aims at is a corpus of all watermarks occurring on printed paper up to 1500. Certainly this is the sort of large scale basic research which is necessary if the full benefit is to be gained from watermark evidence: but Ridolfi admits, it is an "opera gigantesca."

Watermarks suffer from obscurity—hidden in the paper, if not in the binding, and covered by the type. Printers' devices, ornaments, and woodblocks are much more readily used and with the aid of R. B. McKerrow's *Printers and Publishers' Devices,* McKerrow and F. S. Ferguson's *Title-page Borders,* and Edward Hodnett's *English Woodcuts,* it is possible to go a long way in dating and identifying the printers of early English books.

One or two studies have recently been made of seventeenth and eighteenth-century ornaments,[15-17] but these are all of individual printers and give no help in the identification of the printer of a given book unless one remembers seeing an ornament in one of these studies. The author is attempting to collect materials for an index of eighteenth-century printers' ornaments from their return to popularity about 1710 to their decline in the 1750's. It may be of use to repeat here that there is no evidence for any general use of cast ornaments in England until the end of the eighteenth century in spite of the delicacy of many blocks. Some indeed may have been cut in metal, though the only survivor this writer has seen is cut on the end grain of boxwood, a technique practiced in Holland in the seventeenth century and certainly not invented by Thomas Bewick, as has often been said. As with watermarks there are very similar patterns which must be distinguished from each other, but each is individual; and once they are identified as belonging to printers it should be possible to study the practice of different printers and the way in which work was divided among them.

W. M. Sale's study of Samuel Richardson used this procedure to identify the books he printed and to show something of the relationships with the rest of the trade, though this was supplemented by other sources of information. The paper ledger of William Bowyer in the Bodleian Library and the Strahan papers in the British Museum are

other sources for a fuller understanding of the trade, while the records of the University presses at Oxford and Cambridge are now being studied in more detail than before. Finally, the fact that all the records of the Stationers' Company up to 1800 are now available on microfilm means that there is a great deal of archival material available to be digested and put to use.

For many purposes the bibliographer needs reference works where information is systematized and indexed and D. G. Wing's *Short Title Catalog 1641-1700* together with the indexes of printers and publishers to it and the earlier *S.T.C.* (1475-1640), compiled by P. G. Morrison, have been in many ways the most useful publications of the last twenty years. These, of course, only pave the way for the more detailed study of books and printers which can be represented in the field of reference works by W. A. Jackson's current revision of the *S.T.C.* and by F. S. Ferguson's complementary work on the printing and collations of *S.T.C.* books. From this work one can hope for a next stage of revision of the Bibliographical Society's dictionaries of printers and booksellers.

In this earlier period two such exceptional men as Jackson and Ferguson may by a life-time's work succeed in compassing their tasks alone; how the later and more prolific periods which are to be dealt with is a problem still to be resolved. It is clear that there is a need for the forging of reference tools for later periods and that these will need much research and, in present conditions, much finance. Perhaps the main aids to bibliographic research are time and money.

References

1. Hinman, Charlton: Mark III: New Light on the Proof-Reading for the First Folio of Shakespeare. *Studies in Bibliography,* 3:145-153, 1950.

2. Hinman, Charlton: Cast-off Copy for the First Folio of Shakespeare. *Shakespeare Quarterly,* 4:259-273, Summer 1955.

3. Neidig, W. J.: The Shakespeare Quartos of 1619. *Modern Philology,* 8:145-163, Oct. 1910.

4. Foxon, D. F.: Two Cruces in Pope Bibliography. *Times Literary Supplement,* 57:52, Jan. 24, 1958.

5. Bowers, F. T.: Purposes of Descriptive Bibliography, with Some Remarks on Methods. *The Library,* 5th series, 8:1-22, Mar. 1953.

6. Chapman, R. W.: *Cancels.* London, Constable, 1930.

7. Stevenson, A. H.: Chain Indentations in Paper as Evidence. *Studies in Bibliography,* 4:181-195, 1953.

8. Gaskell, Philip: Notes on Eighteenth-Century British Paper. *The Library,* 5th series, 12:34-42, Mar. 1957.

9. Povey, K., and Foster, I. J. C.: Turned Chain Lines. *The Library,* 5th series, 5:184-200, Dec. 1950.

10. Foxon, D. F.: On Printing 'At One Pull,' and Distinguishing Impressions by Point-Holes. *The Library,* 5th series, 11:284-285, Dec. 1956.

11. Bühler, C. F.: The Printing of a Valerius Maximus Dated 1671. *Studies in Bibliography,* 7:177-181, 1955.

12. Foxon, D. F.: Some Notes on Agenda Format. *The Library,* 5th series, 8:163-173, Sept. 1953.

13. Stevenson, A. H.: Watermarks Are Twins. *Studies in Bibliography,* 4:57-91, 1951.

14. Ridolfi, Roberto: *Le Filigrane dei Paleotipi. Saggio Metodologico.* Firenze, Tip. Giuntina, 1957.

15. Sale, W. M., Jr.: *Samuel Richardson: Master Printer.* (Cornell Studies in English vol. 37) Ithaca, N.Y., Cornell University Press, 1950.

16. Miller, C. W.: Thomas Newcomb: A Restoration Printer's Ornament Stock. *Studies in Bibliography,* 3:155-170, 1950; A London Ornament Stock: 1598-1683. *Studies in Bibliography,* 7:125-151, 1955.

17. Maslen, K. I. D.: *Works from the Bowyer Press (1713-65): a Supplement to John Nichols.* Unpublished B. Litt. Thesis, Oxford University, 1952.