Claire Bolton: 'Fallen' type letters

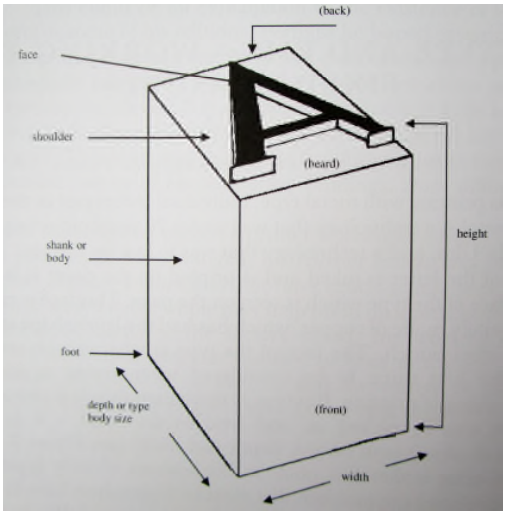

Fig.1 Diagram of a piece of early type.

Fig 2. A modern type letter

Printing was invented with movable type letters, most probably by Johannes Gutenberg, in Straßburg and Mainz from about 1440-54. A page of text was set, letter by letter into lines, and the lines assembled to make up a full page, ready for inking and printing. What the reader sees is the very tip of the iceberg, the inked letter on the printed page. What the reader does not see is the rest of the piece of type, its body. As Harry Carter stated 'Type is a 3-dimensional thing'…[1]. The type body dictates the size of the letters and the space around and between the letters. It also has to be tall enough to handle when setting and distributing the letters for the text. What did earliest type look like?

The first clues came in 1868 when two collections of (21 and 212) type letters were discovered in Lyons, in the bed of the river Saône, that have been dated to the end of the fifteenth century, or the beginning of the sixteenth.These were described by Maurice Audin in 1954 in an article in the *Gutenberg Jahrbuch* and in a separate publication in 1955, where he showed a variety of type letters and spacing of different heights, widths, some with flat feet and some with sloping, some with a nick in the side, some with a hole drilled through.[2]

A further piece of fifteenth-century type was discovered during an archaeological dig in Basel in 1995, and mentioned by Peter F Tschudin.[3] Tschudin states that the letter is the same size

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[1] Harry Carter, *A view of early typography up to about 1600* (Oxford: Clarendon Press, 1967) p. 5

[2] Maurice Audin, 'Types du XVo siècle', *Gutenburg-Jahrbuch* 29 (1954) pp. 84-100 and '*Les types Lyonnais primitifs, conservés au département des imprimés* (Paris: Bibliothèque Nationale, 1955). Note Audin states this find was made in 1868 whereas Talbot Baines Reed, *The old english letter foundries, (*London: 1887) p.19, gives 1878.

[3] Peter F Tschudin, 'Ein buchgewerblicher Fundkomplex der Inkunabelzeit aus Basel,' *Gutenburg-Jahrbuch* 77 (2002) pp. 84-89, describes finding print-related artefacts, including a fifteenth-century type letter, in Basel during an archaeological excavation in the St Alban-Vorstadt area.

as Johann Amerbach's Type 19: 62G or Johann Froben's Type 4: 62G, both in use at the end of the fifteenth century. [4]

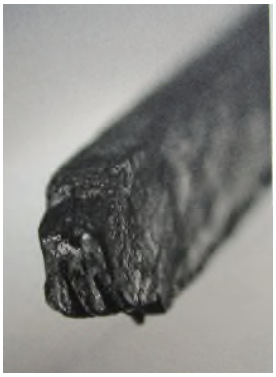

Fig. 3. The head of a piece of 15th century type, a letter 'n', found in Basel (courtesy of Basel Historical Museum). (Image from Martin Kluge, The Basel Paper Mill: the Swiss Museum for paper, writing and printing, Basel: Basler Papiermühle, 2014).

To add to these physical examples there have also been occasional finds of imprints made by type letters that have fallen on their sides, on top of the set page of text, where they left an impressed shape on the page, known as 'fallen type'. These are rarities, and perhaps could be considered as mere curiosities, however they do have a more important role in that the shape and size of each piece of fallen type comes with its time frame; it can be instantly linked to the printer, the text and page being printed and the time and place of printing. Here is sound archaeological evidence with its context.

The first piece of fallen type described was by J P A Madden in 1868, and found by him in an edition printed by Conrad Winters, Cologne, 1479 (Johannes Nider, *De moralis lepra,* [ISTC in00191000; MEI 02014966]), in the Bibliothèque Municipale, Versailles. [5] This type letter measured 25mm high, had sloping shoulders and a flat foot with no grove as in modern day, hand-cast, type letters, and a hole through the body.

Sitings of other examples of fallen type were slow to emerge, the next being by Henry Bradshaw, who found an example in Cambridge University Library in an edition of Petrus Damascenus, *Liber in laudem Marie,* [*c.*1475] [ISTC ip00468000; MEI 02014903] printed by Nicolaus Götz, also in Cologne. This example was described by Talbot Baines Reed in his 1887, *The old english letter foundries*, but no date of when Bradshaw discovered the fallen type was given.[6]

Since that time other examples have been discovered in editions by different printers, in different towns and showing different type body shapes and sizes. As more fallen type has been discovered, and can be studied, hopefully we can gain a better understanding of what fifteenth-century type looked like, and how type was set in this early period.

Type body parts

With the small number of examples available it may be a bit ambitious to see if there is anything that can be drawn from analysing the differences and similarities between these impressions of fallen type. Also, for most of these examples, measuring can only be approximate. Olivier Deloignon's measurements in millimetres to three decimal places are exemplary, but most scholars do not have these facilities, and perhaps up to one decimal place is the best that can be achieved.[7] Audin rounded his measurements to 0.05mm in his 1954 article and his *Type Lyonnais* of 1955. However, with these caveats, I suggest that some possible interpretation can be made.

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[4] Tschudin, p. 85

[5] J.P.A. Madden, *Lettres d'une bibliographe*, série 4, 1875, p. 230.

[6] Reed, p. 19, stated that Bradshaw had found this example 'within the last few months'.

[7] Olivier Deloignon, 'Un double "accident typographique" dans la *Concordantiae Bibliorum* de Konrad von Halberstadt, Strasbourg, avant 1474', *Gutenburg-Jahrbuch* 91 (2016), pp. 81 - 92.

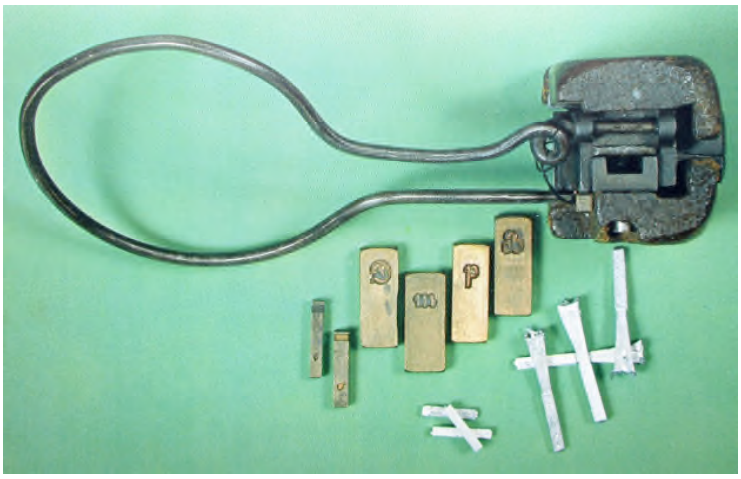

Fig. 4. A type mould, showing the throat at the top through which the molten lead is poured, also punches, matrices, cast letters, with the tang attached and removed. (The Swiss Museum for paper writing and printing, Basel).

- type height

The height of a piece of type is dictated principally by the mould in which it is cast, and then by how much metal is removed from the foot during dressing - the planing of the foot of the letter to ensure that it is flat, and the same height as the rest of the letters in the fount.

The type heights of the fallen type examples found so far vary between 20.5mm and 27mm. There seems to be some slight geographical link between printing place and type height. The examples from Johann Zainer in Ulm, his brother Günther in Augsburg, and their mentor, Johann Mentelin in Strassburg, from whom they both learnt to print, along with Johann Schönsperger in Augsburg all measure *c.* 21mm. Also Berthold Ruppel, who learnt to print with Gutenburg, has the same type height in Basel. And three different printers in Venice have type that measures 27mm high. Did they perhaps all use the same patterns for their moulds? There seems to be little or no correlation between type height and date of printing.

type height	**printer**	**place**
*c.*20mm	William Caxton	Westminster
20.617mm	Johann Mentelin	Strassburg
*c.*21mm	Günther Zainer	Augsburg
	Johann Schönsperger	Augsburg
	Johann Zainer	Ulm
	Berthold Ruppel	Basel
*c.*22mm	Erhard Ratdolt	Venice
*c.*23mm	Johannes de Nordlingen	Strassburg
	Pierre Gérard & Jean Dupré	Abbéville
c.24mm	Conrad Winters	Cologne
	Nicolaus Götz	Cologne
c.25mm	Azriel b. JA Gunzenhause	Naples
	Georges Wolf	Paris
	Ketelaar & de Leempt	Utrecht
	J & G Gregorius	Venice
*c.*26mm	Adolf Rusch	Strassburg
*c.*27mm	Baptista de Tortis	Venice
	Aldus Manutius	Venice
	Nicolaus de Frankfordia	Venice
	Fust & Schöffer	Mainz
	Johann Kölhoff	Cologne

Gérard & Dupré	Abbéville
Johann Bergmann	Basel

To help place these type heights into some context for the 21st century, the type height of *c.*27mm is *c.*2mm taller than the tallest modern type height, Russian, of 0.990"/25.146mm. For the printer this is a considerable difference; even a difference of 0.3mm in height from one type letter to another can mean that the lower type letter will not print on the paper (depending on how soft the packing is on the press). Today's English and American type height of 0.918" is 23.317mm. Today's more common European type height is 23.566mm, and the taller Dutch type height is 24.566mm.

- type body shape - shoulders

Most of the fallen type examples have square shoulders and only five, so far, have sloping shoulders. The square shoulders of type letters can be seen on some printed pages as a dotted line, most usually at the head or the foot of the page. Planing off the square corners to give sloping shoulders helps to remove this problem, although it is a time consuming process. [8] The earliest example, so far, of fallen type with sloping shoulders is from printer Nicolaus Götz in 1475. (Figure 5)

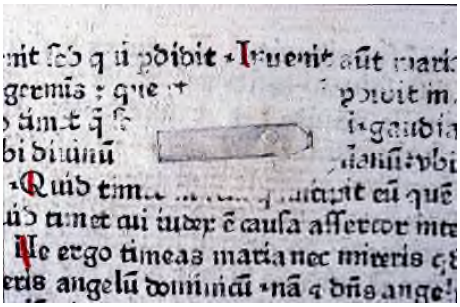

Fig. 5. Fallen type with flat foot, sloping shoulders and a hole drilled through. From Petrus Damascenus, Liber in laudem Mariae, printed by Nicolaus Götz in Cologne about 1475. (courtesy Cambridge University Library, shelf mark Inc. 3A.4.9, and James Mosley www.typefoundryblogspot.co.uk for June 2007; ISTC ip00468000; MEI 02014903).

Type with square shoulders was still in use as late as 1609, as a fallen type letter from that date shows.[9]

- type body shape - feet

Pieces of type are inherently unstable and fall over without support. It would seem most logical to give them as stable a base on which to stand as possible. Curiously, whilst many examples of fallen type show a sensible flat foot, many show only a partial flat foot with a slope. Also many of the examples from the type-trove find in the Saône also have a sloping foot.

Stan Nelson suggests that the sloping foot of some type letters could come from using a mould with a jet at the side of the mould, through which the molten metal was poured. When the surplus metal, the tang, was removed it came off at an angle, and the rough edges were then planed, keeping that angle.[10] [He further notes that the later groove seen in the foot was due to how the foot of the type letter was dressed after casting]. The earliest example, so far, with a

[8] From email correspondence with Stan Nelson, August 2016, the shaping of the shoulders was done with a file/plane after casting. Moulds that could cast sloping shoulders were not introduced until the 19th century.

[9] Richard Eburne, *The maintenance of the ministery*, London, 1609. STC 7470. Copy in Folger Library, Washington DC, shelf mark 2. See www.collation.folger.edu.

[10] Stan Nelson, 'Reconsidering a conclusion: were the earliest types cast or cut to type height?,' *Journal of the Printing Historical Society*, new series 24, 2016.

sloping foot is from printer Heinrich Liechtenstein in Venice in 1484 (Figure 6) Type with sloping feet continued to be used, along with type with flat feet, through the sixteenth century.[11]

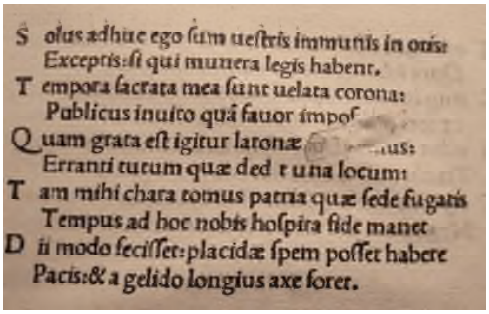

Fig. 6. Fallen type with sloping foot, Ovid, Opera, printed by Heinrich Liechtenstein, Venice in 1484. (courtesy of the Bodleian Library, shelfmark Auct. Q 3.15; ISTC io00131000; MEI 00207166).

piercings - holes

Some of the fallen type examples have a hole pierced/drilled through them. There has been much discussion by scholars about the significance of these holes - were they holes or just indentations, and if they were holes why were they there. The case for them actually being pierced holes can be backed up from written evidence. A document describing the setting up of the press at SS Ulrich and Afra in Augsburg in 1474 mentions the casting of a fount of 80,000 letters and then both planing [the feet] and boring (ie. each letter had a hole pierced or drilled through) the letters.[12] Another document, this time from Italy in 1477, tells of printer, Enrico, selling his fount of pierced letters, *lettere bucade*.[13] And the account book from the press at San Jacopo de Ripoli mentions the purchase of a drill to pierce the type.[14] Also actual pieces of type with holes pierced through were found among the collection found in the Saône, and one example was shown by Maurice Audin.

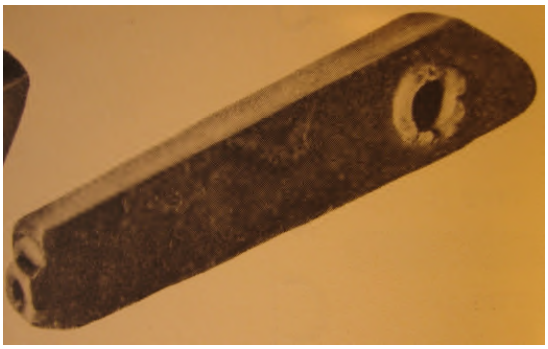

Fig 7. A pierced type letter found in the river Saône, from Maurice Audin, 'Types du XV siècle,' Gutenberg -Jahrbuch 29 (1954) pp. 84-100, p. 90, Type 11.

A complete survey of the size of the diameter of all the examples has not been done, but curiously, the holes in the two fallen type letters, from the same edition, described by Olivier Deloignon, are not the same size.[15]

Currently scholars have no definitive answers as to why the time-consuming process of drilling holes though pieces of type was done. Audin suggested that pierced type letters strung

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[11] An example of fallen type with a sloping foot was found by Neil Harris in *Commentaria*, printed by Jacques Giunta in 1564 (*Gli incunaboli e le cinquecentine della Biblioteca di San Gimignano*, San Gimignano, 2007, vol.1 p. 52; vol.2 pp. 101-102, Fig 18)

[12] Rolf Schmidt, 'Die Klosterdruckerei von St. Ulrich und Afra in Augsburg (1472 bis 1474), *Augsburger Buchdruck und Verlagswesen von den Anfängen bis zur Gegenwart*, eds. Helmut Gier and Johannes Janota (Wiesbaden: Harrassowitz, 1997) pp. 141-153.

[13] Angela Nuovo, *Il commercio librario a Ferrara tra XV e XVI secolo. La bottega di Domenico Sivieri* (Florence: Leo S. Olschki, 1998), (Storia della tipografia e del commercio librario, 3) p. 27.

[14] Melissa Conway, *The 'Diario' of the printing press of San Jacopo di Ripoli, 1476-1484* (Florence: Leo S. Olschki, 1999).

[15] Deloignon, pp. 84 & 85.

together, on wire or thread might have been used for printing some text in red, making it easier to pull the letters out after the red printing and before the black printing.[16] The letters with holes in would not need to be kept separately, and could be in the same type case as undrilled letters.

Presumably the holes were made for a reason, the most likely reason being for the letters to be threaded on to string or wire, perhaps to help support the type letters during composition and handling of lines of type. Some impressions of wire have been found in copies of the *Catholicon,* and also in a copy of Thomas Aquinas', *De articulis fidei,* from the same printer.[17] However, if type letters were threaded to produce lines as part of the typesetting process, it can be asked how some of the letters become loose from the locked up page of lines and fall onto the type page.

Drilling holes through type seems to have been a relatively short-lived practice - the earliest example of fallen type with a pierced body found so far is in the *Catholicon,* as described by Lotte Hellinga, printed between 1460 and 1469,[18] and the latest example found to date comes from Johann Schönsperger in 1486. As with the height of the various type letters, there is also a possible geographical link emerging as these fallen type examples are gathered together. Pierced fallen type letters have been found in books printed in Strassburg (4 different printers), Cologne (3 different printers), Mainz, Basel, Augsburg, Ulm, Utrecht and Lyons (1 printer each). Johann Zainer in Ulm learnt to print with Mentelin in Strassburg. Berthold Ruppel in Basel with Gutenberg in Mainz, and Gerard de Leempt, a travelling printer who worked firstly with Fust & Schöffer in Mainz and then Conrad Winters and Ulrich Zel in Cologne, before setting up his press in Utrecht. Marc Reinhart traveled from Strassburg to print as an apprentice with Barthélémy Buyer in Lyons. Did they all take the idea of drilling holes through type letters with them?

- slots.

Apart from holes there are two fallen type fragments, one from 1477 in Naples and one from 1484 in Pavia, that have what looks like a slot cut in the body. There is a photo of a piece of type with a slot in the body shown by Maurice Audin in 1954, and he describes twelve type letters with slots in his account of the 212 *Types Lyonnais*.[19] The purpose of having slots in type letters seems to be even more of a puzzle than the pierced holes.

A quick analysis of the body parts of these fallen type examples (at 22 Aug 2016) shows that their most common feature is having square shoulders, with 26 of the 30 examples that show shoulders - 86.6%. The next most common feature is a flat foot, with 22 out of the 27 examples where feet can be seen - 81.6%. The third most common feature was having a hole pierced through with 19 of the 34 examples holes might be seen - 55.9%. Only two examples have slots, only four have sloping shoulders and a sloping foot.

Depth of drive

Another aspect of type that can be seen in the fallen type examples is their depth of drive - the height of the letter shop on top of the body. The depth of drive is shaped by the depth the punch is driven into the matrix. A shallow depth of drive lessens the chance of the letter breaking off but increases the problem of printed shoulders. A deeper depth of drive elevates the letter face a bit higher from the body and reduces the incidents of printed shoulders, but increases the chance of the letter being damaged. Most of the fallen type examples have about 2mm depth of drive as shown in Figure 8.

Fig. 8. Clear image of a fallen type letter showing depth of drive. From Biblia latina, printed by Johann Zainer, Ulm in 1480. (From single leaf held at Catholic University of America, Washington DC; ISTC ib00567000; MEI 02014973).

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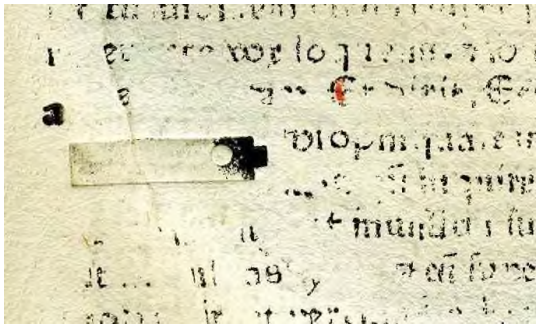
[16] Audin, *Les type Lyonnais primitifs*…, p. 21-22.

[17] Thomas Aquinas, *De articulis fidei*, [*c.*1460-69] [it00273000], Bod-Inc T-117, shelfmark Auct. 1Q 5.40.

[18] Lotte Hellinga, 'Slipped lines and fallen type in the Mainz Catholicon', *Gutenberg-Jahrbuch* (1992), pp. 35-39.

[19] Maurice Audin, 'Types du…', p. 90, Plate 4, Type no. 13, and *Types Lyonnais*, p. 19 - 22 for his discussion on holes and slots in type letters.



This is a very small sample from the thousands of typefaces that were used in the fifteenth century - hopefully more examples of fallen type will be found, and a better picture of incunable type can be drawn.

Information about any other examples of fallen type are most welcome.

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