Recollecting stencil letters

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This essay is a recollection of stencil
letters and associated artefacts of the
past four centuries. It begins with a
brief definition of stencil letters and a
review of their presently known his-
torical applications, then focuses on
three inter-related factors that con-
tribute to the forms of stencil letters.
These factors are 'methods of manu-
facture', 'use' and 'design'. The dis-
cussion is guided by documents and
references that address stencil letters
and the stencilling of texts and other
graphic matter, by the analysis of
extant artefacts, and by insights
gained through reconstructions.

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Nearly everyone is familiar with stencil letters. They are in fact so
common that, beyond the few enthusiasts who find them of interest,
their familiarity discourages our attention until we re-discover their
usefulness in circumstances where nothing else serves so well. For any-
one who wants to know more about stencil letters than might be hit
upon simply by using them, information does come to hand, though
not much. When stencil letters are discussed, they typically play only
 a minor part in a larger story: as a style of printing type or a letter for
signs, as an industrial vernacular adopted by avant garde artists, archi-
tects and designers, as *matériel* of warfare, and so on. If encyclopedias
offer entries on stencilling, emphasis is commonly placed on the appli-
cation of colour to playing cards or the decoration of interiors and only
rarely on marking out letters and words. When manuals for stencilling
and screen printing assemble a history of the technique by way of
introduction, their accounts of lettering are erratic in scope and accu-
racy. But occasionally, stencil letters figure prominently. This is true in
articles about liturgical books made with stencils. And once in a while
a stencil letterer or signwriter will publish a record of their own efforts.
The work they reproduce is often ingenious while the practices they
describe are (as we will see) proof that many aspects of stencilling
are historically persistent. More commonly though, their interests
bypass historical matters, or address stencilling mostly as a means of
illustration.[1]

If such texts are gathered up, a view of stencil letters emerges, but
one that is fractured and in many places wholly obscured. So it is not
difficult to assert the need for a fuller history, one that draws together a
body of examples and practices that are in themselves worthy of inves-
tigation, and whose study will also elucidate the intersection of stencil
letters and stencilling with typography, printing, letter design and
multifarious trade-crafts whose stories are better known. That said,
the present essay will not attempt a fuller history; but as a first step,
what follows is a recollection of stencil letters from a variety of periods,
made in different ways for many purposes. The intention is to map out

1. Hutchings (1965: 23–6) is the most com-
prehensive review of stencil letters manufac-
tured as printing types; this inventory is
based on an earlier article (1958). Discussion
of stencil letters in the context of twentieth-
century avant garde art can be found in many
works, though Marcus (1972) is a good start-
ing point, as is Miller (1993). Volumes listing
artefacts of the American Civil War for col-
lectors and re-enactors, such as Phillips
(1974: 138–40) or Sylvia and O'Donnell
(1978: 282–3), illustrate a variety of stencils
and related tools used during that conflict.
Tomlinson (1854), a typical trades encyclope-
dia, lists stencilling but only to direct the
reader to information under playing cards;
more recently Rickards (2000: 311–2) includes
a useful entry on stencilling in the context of
(printed) ephemera. Twentieth-century writ-
ers on stencilled liturgical books include
Schreiber (1927: 174–5), O'Meara (1933),
Gottron (1938), Rodrigues (1973) and
Rosenfeld (1973); they variously refer to ear-
lier commentators, among them Heinecken
(1771: 270–1), Breitkopf (1801: 32–3),
Fischer von Waldheim (1800–4: 139–60),
Jansen (1808: 34–41) and Lacroix (1852:
56–7). Saudé (1925), Hunter (1946: 143–57)
and Abbe (1980) are all records of individual
practice though Saudé documents *pochoir*,
stencilling that is often associated with (book)
illustration and decoration in the late nine-
teenth and first half of the twentieth century.

stencil letters by way of their form and the factors that contribute to it. The discussion will begin with a general description of the stencil letter, but thereafter concentrate on examples found specifically in the work of stencilling. An examination of form means that local practices of stencil-making and use will be addressed only where they demonstrate particular points; a representation of the diversity of practice is not envisioned. But by emphasizing issues of form, the recollection should provide a basis for subsequent, detailed discussions elsewhere on specific episodes of practice within this fascinating sphere of letters.[2]

What is a stencil letter?[3]

The technical principle of stencilling is so simple it hardly merits explanation, though for the sake of describing stencil letters, a short review is needed. To create a stencil, a design is pierced or cut out from a sheet (or 'plate') of metal, card, paper, plastic or some other flat material. Thereafter, the design is transferred to a surface by passing ink or pigment through the stencil's openings.[4] The process, of course, requires that no ground be isolated within the figure of the design as this enclosed ground would fall away when the stencil is made. Stencil letters, then, are those that may be used for stencilling. In keeping with the figure-ground arrangement just described, stencil letters have no ground that is entirely enclosed within the figure of the letter; or put slightly differently, the ground within and around the letter is always entirely contiguous. It is this attribute that all stencil letters share, with several important exceptions.[5] But letters that can be used for stencilling are not always so employed: they can be applied by other means; or cut out and left at that. So to advance a description of stencil letters, their formal attributes should at first be summarized without reference to stencilling.

A series of two-dimensional letters (figure 1, a–h) illustrate how the contiguity of ground just described is achieved.[6] In some instances, letters are constructed from simple elements that are discrete and unjoined, i.e. individual (often modular) elements arranged to indicate a letter, though each element remains isolated from the others (a). Next, letters are described as having 'breaks' in their construction, but in a manner that is less an arrangement or repetition of individual elements and more sections of an overall form kept separate (b, c). Distinguished from these are letters whose construction incorporates breaks to produce a contiguity of ground, though the original form of

2. Throughout this essay, I usually refer only to 'stencil letters', for convenience. But the stencil letters so called often include many more characters as found, for example, in a (single weight) fount of printing type. Because practices of stencil-making and supply vary widely, it has seemed best to adopt this somewhat general description except where the character set needs to be stated more precisely.

3. This question was suggested by 'What is a typeface?' (Kinross, 1986).

4. The design may also be transferred by other means, such as light.

5. Exceptions include letters that are pur-posely designed to disguise their stencil attributes. Letters of this kind are split into two or more parts where the ground of each part is entirely contiguous. When they are rejoined to make the complete letter (through consecutive printings, for instance) this contiguity is lost as ground is enclosed within the figure of the letter. Two-colour letters may be designed in a similar manner, if not necessarily with the same intention; the type Bifur ('double' variant; A. M. Cassandre, 1929) demonstrates this. Other exceptions that should be mentioned are the letters used in stencils made of transparent film, as found in photo-reprographic screen printing or in the manufacture of dry transfer letters using master patterns cut from multi-layered masking film (Brignall and others, 1996). Here the figure of the letter is supported by, or fully part of a substrate that need only allow the transmission of light; contiguity of ground is thus technically irrelevant.

6. In the descriptions that follow, the demonstration of contiguity will refer primarily to those letters whose ground is conventionally discontiguous: A/a, B/b, D/d, e, g, O/o, and so on; it is, however, common for the formal attributes that provide contiguity to be applied to all letters even if some do not strictly require this.

a. Johann Merkenthaler, from an advertising circular, *c.* 1900
b. Bery (*c.* 1781)
c. Hunter (1946)

d. Richford (*c.* 1920)
e. Johann Merkenthaler, from an advertising circular, *c.* 1900
f. Bauer (*c.* 1760)

g. Marsh (*c.* 1947)
h. Helvetica modified

Figure 1. Contiguities of ground. a–g reproduced at actual size from source given; note that dates refer only to the sources named and not necessarily to a date of design, which may be earlier.

7. The approach to description and some of the terminology used here are derived from Dixon who, in creating a framework for describing typographic letters, lists the visual, formal attributes of types (in two dimensions) and identifies their sources and influences. An attribute Dixon gives for some types, and one that proves helpful in the context of stencil letters, is 'broken/interrupted'. It describes 'clear breaks in character construction', but may alternatively refer to shape or decoration where a 'cut-out' or 'subtraction' alters or embellishes an existing form. ('Broken/interrupted' also describes the emphatic points of transition found in the construction of broken-script letters, i.e. 'blackletter' or 'gothic'; this sense is not intended here.) See Catherine Dixon, 'A description framework for typeforms; an applied study', PhD thesis, London: Central Saint Martins College of Art & Design, 2001.

the letter was probably unbroken (d–g). Here, modifications range from those sympathetic to the underlying letter to those where no apparent effort has been made to integrate the break into the overall design; instead, it bluntly joins interior and exterior ground. More extreme modifications involve simply removing or filling in the interior ground (h).[7]

The illustrations shown in figure 1 are only selected locations in a continuum of stencil form; individual examples must be examined – often closely – before an accurate description of their contiguity of ground is possible. Indeed some letters incorporate several tendencies and so require a more elaborate description. But once the fundamental attribute of contiguity is confirmed, the description of a stencil letter should be supplemented by components that identify its other formal attributes. For example, if a stencil letter has been through a process of modification in order to achieve its contiguity of ground, many of the descriptive components will identify the attributes of the original underlying letter. Similarly, for stencil letters principally derived from decorative elements, the elements should be named and listed. In all the examples given so far, no specific reference to the activity of stencilling or to the physical artefact of a stencil is necessary.

Having described the stencil letter in its two-dimensional state, a third dimension can be introduced; it locates the stencil letter's physical form. When a two-dimensional stencil letter without a specific context is cut from some material, the letter becomes space defined by the edge of the material; or rather it pleasantly alternates between space with a material boundary, and material whose edge creates the letter. Perhaps it is more productive (and less bewildering) to consider space and matter as two inseparable parts of a whole. When describing a stencil letter in three dimensions, it is helpful to introduce a new term, the 'bridge', to replace the breaks of the two-dimensional letter. It suggests a three-dimensional construction that joins separate areas. But

Figure 2. Friendly society pole head ('BS'=Benefit Society[?]), brass, England (West Country; specific provenance unknown), *c.* first half 19th century, Museum of English Rural Life, The University of Reading.
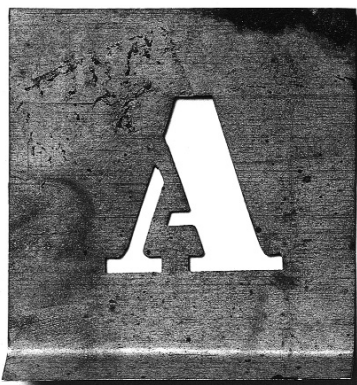

Figure 3. Stencil, punched brass, North America, late 19th/early 20th century. Actual size.

Figure 4. Figure 3, as stencilled.

bridges are more than the source of contiguity: they give strength and structural integrity to the pierced or cut-out material.[8]

The precise context of the stencil letter is now the remaining component of description to be added. As mentioned, stencil letters are found in contexts that are unrelated to stencilling (figure 2); but for those that are stencilling-specific, they occur in several places. Most common is the stencil (figure 3): it carries the letter and anticipates the activity of stencilling. But the stencil letter is elsewhere too, if more obscurely; for instance, at the end of steel punches used to cut stencils. The punch is an intermediary: it holds or stores the letter for cutting; another intermediary is a pattern that guides a pantograph. In any case, once the stencil is made it gives rise to the *stencilled* letter, that is to say, one made by stencilling (figure 4). In this state, the letter has returned (more or less) to two dimensions and though it is described accordingly, it often gains additional attributes from its manner of application and from the surface it has been applied to.

The stencil letter is thus a transient entity, shifting from two dimensions to three, from space to solid matter, from future possibility to past act. Adding to its mutability is the very descriptor 'stencil letter' whose technical reference is sometimes irrelevant or, if not, may refer to multiple states.[9] But the name is the one most commonly understood and a qualified, orderly application of it can usefully delineate the stencil letter's many visual and material forms.

Sources, context and factors of form

Despite the variety of contexts in which stencil letters are located, the discussions that follow will focus solely on stencil letters found in the work of stencilling. This is to illustrate the often close association that exists between the form of the stencil letter and how it is made and used for stencilling. To understand this association, I have collected evidence from a range of sources. Most important are the artefacts of stencilling itself: stencils and the tools and materials related to their manufacture and use; and works made with stencils: books, specimens, commercial documents, signs and much else. Significant too are printed ephemera: catalogues, broadsheets, flyers, packaging, trade cards and other items that describe and illustrate how stencils were made, sold and used. Further evidence is gathered from documents, both published and unpublished, that describe working practices. Some are first-hand accounts, compiled by stencillers, stencil-makers or by observers; others are second-hand, where the authors have taken a specific interest in stencilling but have not necessarily made observations for themselves. Collateral sources supply contextual information on relevant technical and aesthetic developments.[10]

8. There are a number of terms used in the past to describe that which ensures contiguity in the stencil. The earliest so far found is in Des Billettes (*c.* 1700). He refers to this element as a *tenon*, or 'attachment'; the verb is *tenir*, or 'to hold'. Jansen (1808) relies on *le réserve*, a term denoting those elements which, in any process of making a print or executing a design, are left blank or untouched by ink, paint, acid, and so on. In

English, in 1811, the connecting ground is a 'tie', as in 'common ingenuity might overcome the difficulties of O and other letters by ties' (quoted in Rhodes & Streeter 1999: 129; the context is duplicating texts using stencils; see also note 32 below). Tie may be the most common term, used more recently in Hunter (1946), Hutchings (1965) and Abbe (1980). 'Bonding' is more idiosyncratic, adopted by Mackenzie (1950), while O'Meara (1933)

prefers 'bridge', as do I.

9. Dorothy Abbe remarks: 'Actually, one *stencils* a *stencil* and the product is a *stencil*' (Abbe, 1980: 3n.); emphasis in the original.

10. Although I have gathered sources and artefacts from as broad an expanse of time and location as possible, they are far from comprehensive and should be considered only indicative, not representative. Additions are anticipated and welcomed.

To provide some historical orientation for the development of stencil letters, the narrative these sources suggest should be briefly sketched out. An early programmatic application of stencil letters in Europe first occurs in the seventeenth century, when they were used to mark out texts in liturgical books.[11] In work of this kind, texts were often combined with stencilled initials and other decorative matter, guided by the conventions of printing and typography, and to a lesser degree the illuminated manuscript. Such books and the brass or copper stencils used for them were usually made in workshops and scriptoria in northern France (principally Paris), Germany (the Mainz region especially), Flanders, and Italy (Rome) but possibly elsewhere too and in other settings. They are often magnificent in format, graphic expression and craftsmanship, made singly or in small multiples for private individuals or for group worship and chanting in monastic or church services. The use of stencilling for large-size liturgical books and for smaller format devotional literature and secular works was probably most common in the latter half of the eighteenth century and the early years of the nineteenth, and it was during this period that the technique attracted the attention of printing historians. In addition to books, stencils were used to apply scriptural texts to walls, probably as part of ecclesiastical or domestic decorations; and no doubt they were employed in other related contexts where letters were needed.

The earliest known commercial maker of letter stencils was working in Paris in the 1780s, though it is probable that others were already in operation well before then. In the late eighteenth century, merchants in France and England, and artists and engineers in German-speaking areas (Breitkopf, 1801: 33) were using founts of single character stencils, or stencils carrying words and decorations; and by the early nineteenth century, billheads, receipts, labels and other ephemera were 'printed' in small multiples with them.[12] At this time, stencils were made by specialists or by engravers producing lettering work of several kinds, but as the nineteenth century progressed they were more commonly made by companies offering a variety of marking devices. Stencil use continued to grow in the second half of the nineteenth century in areas such as agriculture, bulk packaging, shipping and the military, and in domestic settings, particularly for marking names, monograms and decorations onto linen. Patent specifications for many and various stencil-related inventions were filed at this time, especially in the United States, some of which automated stencil manufacture. It may be that in Europe and North America stencilling letters was never more popular.

Over the last one hundred years, the use of stencil letters has continued in shipping, heavy industry, construction and the military but lessened elsewhere as other methods of marking have replaced stencilling. Similarly, the stencilling of letters and graphic matter in small businesses has also declined, despite occasionally regaining a degree of popular application, for instance in do-it-yourself signwriting kits of the 1920s and later.[13] For the purposes of domestic decoration, stencilling remains widely used though lettering does not often figure in it. Rather, the stencil letter is more likely to be found in non-stencilling contexts – avant garde art, type design or architectural signing – where

11. Early dates are from Des Billettes (*c.* 1700) and Fischer von Waldheim (1800–4): the former (discussed below, note 14) suggests *c.* 1620–60; the latter quotes a reference (147n.) of 1674 naming a deceased Trappist monk who in life cut stencil letters (*La Trappe Fr. Benedictus des Champs püssime obiit, qui in vitâ suâ literas laminis incidit*). Fischer von Waldheim offers a lengthy 'pre-history' for stencil letters, i.e. before the development of the stencilled liturgical book. He asserts that stencils were sometimes used for marking out royal monograms and signatures (Justinian, Theodoric, Charlemagne) and for (decorated) initials in early printed books. Reaching further back to antiquity, he cites a passage from Quintillian (*Institutio oratoria*, 1, 1, 27) on the teaching of writing to children; this, he concludes, was done with stencils. Doubt is cast over most of these assertions by Rosenfeld (1973) who instead postulates connections between decoration, the manufacture of playing cards, and stencil lettering that may have contributed to the latter's exploitation for making liturgical books.

12. A distinction should be made between the largely manual and low-volume or 'one-off' stencilling referred to here (and throughout this essay) and stencil duplicating, a semi-mechanical species of screen printing developed later in the nineteenth century primarily for copying documents. See Proudfoot (1972) and Rhodes & Streeter (1999).

13. e.g. Econosign (UK) or Stencillor (US). A vernacular tradition of signwriting with stencil letters also persists in parts of France, commonly using letters adapted from the modern face roman.

innovations in its form are made, if free of some or all of the exigencies that are the subject of the present essay. But isolated examples of stencilling give evidence of continued experiment and renewal, as in the clandestine inventions of stencilled graffiti and rogue advertising.

From the narrative of practice just sketched, and from the sources and artefacts that describe specific episodes, it is possible to identify a group of factors that contribute most to the forms of stencil letters produced over the past several centuries. While the factors might well apply to any prefabricated letter, in the context of stencil letters they are certainly apt. First, design is signally important. Design, however, does not refer only to the stencil letter's final visible form, but to underlying models, guides, antecedents and conventions, and to strategies of designing that draw on them. Next are the materials from which the stencil is made and the tools and working methods employed in its manufacture. These are essential to the realization of the stencil letter, aiding the intentions of design or presenting obstacles that encourage certain forms and not others. And once the stencil letter is designed and made as a stencil, the vagaries of skill and purpose in its handling and application further add to the letter's final form by rendering it accurately or altering it wilfully or ineptly.

Design, manufacture and use, then, provide divisions for discussion (though not in this order). But while each factor on its own emphasizes a particular dimension of stencil letters, it is essential to see the three factors as knit together, often closely. In the sections that follow this is understood implicitly, and acknowledged explicitly where possible.

Manufacture

Cutting

The simplest way to make a stencil is to cut it by hand with scissors, knives, chisels or other cutting tools. Historically, cutting may be the most commonly-practised method as it can be conducted quite informally, often with few special skills. It was certainly used early in the period under review.

According to Des Billettes (*c.* 1700),[14] cut stencil letters were made of brass: 'one takes pieces of very thin brass of the kind called "latten", as thin as they can be while keeping the strength that will make them last and stand up to the work that must be done with them.'[15] The use of brass depended on its ready supply as pre-made sheets in a variety of gauges or as thicker pieces to be hammered flat; Des Billettes suggests that brass in these formats was conveniently available. To make stencils 'last and stand up', the qualities of brass were quite suitable. Its strength facilitated the work of cutting and refining the letters while its resiliance meant that stencils could easily withstand the repeated brushing, wiping, washing and drying they would endure. Such advan-

14. Many of the observations to follow on early stencil letter cutting are taken from this important source. Around or just before 1700, Gilles Filleau des Billettes compiled a lengthy draft text describing various aspects of printing (Des Billettes, *c.* 1700). It was a contribution to the 'Commission Bignon', formed under the authority of the French Royal Academy of Sciences to survey the *arts et métiers* of France beginning with printing and its related trades. (For a summary of the Commission's work see Jammes (1965) and Mosley (1995) and (1997).) Des Billettes' text contains a section of some 10,000 words headed 'Printing of church books, scriptural texts or maxims etc.' relating to the production of liturgical texts using stencils. He describes the construction of special furniture, tools and stencil letters needed for such work, and a procedure for using them systematically. An engraving by Louis Simonneau, dated 1701, illustrates the description. While it appears that this section of Des Billettes' text is more nearly a proposal than a record of contemporary stencilling practice, it is probable that some of the details he supplies were based on observations in the field. Notably, at the start of the section, Des Billettes surmises that the use of stencils for marking out texts had evolved from several trade practices (not mentioned) 40 to 80 years earlier and that its 'invention' could not therefore be attributed to a single source. I am indebted to James Mosley for bringing this unpublished text to my attention (see Mosley, 1995, III: *388–90n. and *394n.) and for consulting on its study, as it falls within his own expertise and work on documents produced by the Commission Bignon. The text has also formed the basis of a separate research project I have conducted with consultation from Andrew Gillmore, James Mosley and Fred Smeijers. The project reconstructed and tested the stencilling apparatus and procedures described by Des Billettes and some of its findings are drawn on here.

15. *On prend des plaques ou des lames de cuivre c'est a dire du laton bien minces, et autant qu'elles peuvent l'estre en gardant quelque consistance pour la durée et qui puisse soustenir le travail qu'on y doit faire, et celuy de leur usage.* (English translation in text by James Mosley.) Commenting on the terminology found in the French, Mosley writes (in correspondence with the author): '*Cuivre* at this period may mean "copper" but in the context of tools and made objects it almost invariably means "brass". The term *laton* means "thin brass", a little thicker than "foil", and there is an [analogous] English term "latten". *Plaques ou lames* both mean "plates"; a *lame* would be thinner than a *plaque*, and the end of the sentence makes it clear that the very thin brass known as *laton* is what is meant.' See also

Mosley (1995, III: *358–9) where several of these and other related terms are discussed in the context of typefounding. A note inserted by Des Billettes into this sentence as it appears in the original MS gives the optimum thickness of the *laton* as a twelfth part of a *ligne*, i.e. a *ligne seconde* (*c.* 0.188mm) the basic unit of measurement in the first scheme of

proportional type bodies devised in 1694 by Des Billettes' colleague Jean (Sébastien) Truchet for the Commission Bignon (Mosley, 1997: 11). While in the context of stencil-making this specification may seem little more than a borrowed convenience, it is in fact a quite suitable thickness for sustaining the work of cutting and filing.
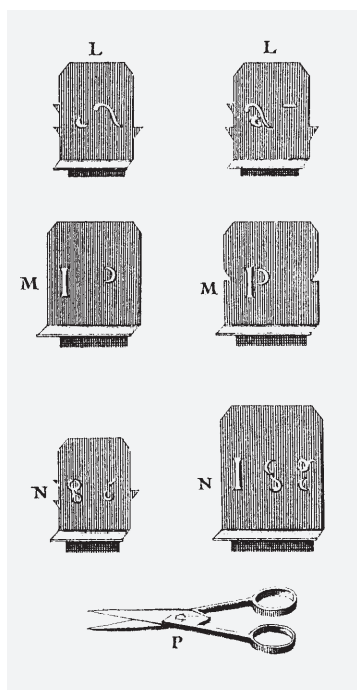
Figure 5. Stencils, from an engraving by Louis Simonneau (detail), 1701, depicting a suite of stencilling equipment as described in Des Billettes (*c.* 1700). From the album 'Les Arts et Métiers de l'Académie des Sciences', St Bride Printing Library, 5825. Note that only the lower right stencil approximates the format described by Des Billettes; cf. figures 6 and 31.

tages surely justified the expense of time, effort and materials that brass stencils required; and the investment could be recouped over a long working life.[16]

On cutting the letters, Des Billettes offers a brief description. The operation began by inscribing four lines across the uncut plate, corresponding to the height of the capital, the x-height, the baseline and the descender depth. Guided by these proportions, the outline of the letter was also inscribed on the plate.[17] Next, the plate was punctured within the outline using pointed scissors which were subsequently deployed to snip away the letter, working outward from the puncture. Any roughnesses or areas the scissors were unable to reach were removed and refined with files of various shapes and sizes, or with a knife. Des Billettes notes that the files were those of the clockmaker and so implies his expectation that the letters be refined and well-finished (figure 5). But Des Billettes did not think letters cut and finished with scissors, knives and files could be well-formed or easily used below a certain size. He counsels the would-be stencil-cutter: 'sizes will be few in number as one cannot make the characters [very] small, and it would be very difficult or at least quite useless to make any as small as *gros parangon* [*c.* 22 point Anglo-American], because even if they could be well executed, there would be even more difficulty in marking them out properly.' Instead he recommends *gros canon* (*c.* 44 point) as the smallest size that should be attempted.

In stipulating a stencil letter's smallest effective size, Des Billettes asserts a relationship between the form of the letter, the tools and techniques employed to cut it in brass, and its eventual use. The relationship is one of mutual restraint among the factors just listed. But rather than simply accept Des Billettes' assertion unreservedly, it might be more instructive to test his way of working, and so articulate the attributes of the cut stencil letter more fully.[18] To begin with, he confidently recommends scissors for cutting the brass plate. For large-size letters, scissors alone might be effective if their points are sharp and the brass they are cutting is thin. Attributes of form that can result from their use include awkward or irregular curves. But for small-size letters scissors are essentially ineffective as they bend the plate when snipping the letters out. Knives, too, are relatively inconvenient for cutting brass of the thickness Des Billettes specifies. An alternative is a set of chisels shaped to cut the various curves and straight parts of letters. Surprisingly few are required and may be struck though brass with ease. Attributes of form produced by curved chisels can include poorly-joined points of transition from curves to straight sections, and the recurrence of the same curve in several parts of the letter or among different letters. Straight chisels often produce a series of small nicks in the brass along the outline of a letter and can result in faceted curves.

16. The use of brass may be set against paper, card or canvas coated with varnish or oil paint, materials already well established in the work of stencilling colour onto prints and playing cards. If also employed for stencilling letters early on, these materials might be found in contexts where resilience or longevity were not especially important or where a good deal of customized design was needed for a specific application. Equally, paper, card or canvas would perform well, and no doubt economically, where large-size letters were required but would not facilitate fine detail in small letters. Rosenfeld (1973: 77) speculates that copper stencils were used for the mass production of playing cards and that some influence would have been felt by early stencil letter cutters through this channel. Some early nineteenth-century commentaries on stencilling (e.g. Jansen, Sievers) name copper as a common material for stencils and it is indeed found in examples of the

nineteenth century and later. However, pure copper is less appropriate for stencils than brass, an alloy of copper and zinc: although copper is softer and easier to cut, it is less resistant to deformations caused by forceful or clumsy handling, brush pressure during use, or even heat generated from rubbing. Deformations such as warping or bending can significantly impair a stencil's performance.

17. Des Billettes says little more about the design of the letter or how, exactly, it was inscribed on the brass plate prior to cutting. The implication is that the outline was freely made; he describes the work variously with the verbs *tracer* (to draw or trace) and *dessiner* (to draw or design).

18. Statements that follow in this paragraph are based on trials and observations made by Fred Smeijers.

Figure 6. Stencil, cut with short straight chisels and finished with files, brass; and (at right) letter as stencilled. Actual size. Cut by Fred Smeijers, 2002, based on Des Billettes (*c.* 1700); see also figure 31.

Both kinds of chisels give rise to sharp, pointed features, serifs especially (figure 6; see also figure 31).[19] The other tool Des Billettes recommends, the file, is useful regardless of how the stencil is cut and would, in its different profiles, contribute much to the letter's well-regulated form. In fact the file may smooth away those traces of scissors and chisels just mentioned. And his prediction of the smallest possible letter size also appears well-founded. This, however, is determined less by use (the 'difficulty in marking them out properly' is contentious) but rather by the nature of the tools: files and scissors may not fit within the outline of a letter while chisels are difficult to align and control at small sizes. So a degree of caution should accompany Des Billettes' account of the tools and procedures he thought most suitable for cutting stencils, though the attributes he suggests and those just postulated can help in identifying stencil letters made in this way.

Commentators on stencilling in the century and more after Des Billettes offer little help in resolving these matters: their accounts are sketchy or ambiguous. Nearly all identify sheets or plates of brass or copper as the most common materials for the stencil; none mention paper, card or canvas. Little else is said about how the stencils were made and it can only be assumed that cutting was the principal method used. Nor do their choice of words make conclusions any easier. For instance, Fischer von Waldheim (1800–4), who wrote from first-hand knowledge of stencilled liturgical books made in the Mainz region, describes the stencils as cut (from *schneiden*) without naming the tools or procedures involved. He does mention a monk (see note 11 above) working in the seventeenth century who 'cut letters in plates' (*literas laminis incidit*).[20] Breitkopf (1801: 33) was told that stencils made in Paris were 'pierced by hand' while Jansen (1808), writing in French, only offers a generic description of cutting (from *découper*). Sievers (1825: 357) is more forthcoming in his description of work in the Papal (Sistine) Chapel in Rome. There, stencils for liturgical books were made from thin copper sheets and he lists the tools used: 'chisels, shears, rulers, set squares, compasses and the like, [such] that one would believe oneself in a locksmith's and copper engraver's work-shop.' His list implies cutting and his failure to mention any unusual or

19. It may be significant, in the context of Des Billettes' account, that in French 'chisels' and 'scissors' share the same word: *ciseaux* (rendered *cizeaux* in the MS); Des Billettes, however, is clearly referring to scissors.

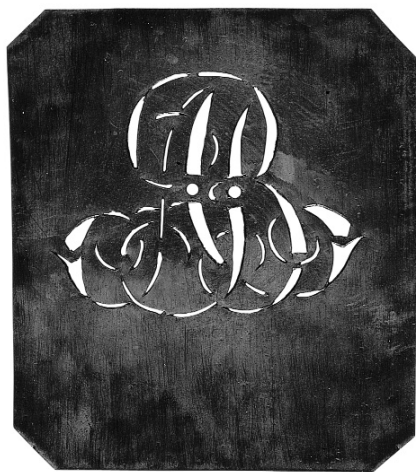20. Fischer von Waldheim (1800–4: 147n.); cf. Jansen (1808: 39n.).

Figure 7. Stencil, knife-cut [?] brass, Germany, *c.* late 19th/early 20th century. Actual size.

Figure 8 (right). Stencil, chisel-cut (wholly or in part) brass, North America or Britain, *c.* 19th century. Actual size.

Figure 9. Stencil (detail), chisel-cut zinc, North America, *c.* 19th century.

21. Late 19th- and early 20th-century catalogues indicate that letters three inches or greater in height were cut by hand, for example Quint (*c.* 1887–95), The Wharton Novelty Co. (*c.* late 19th c.) and Hoep (*c.* 1939); the tool used is not named. Spencer (*c.* 1890) describes the letters of made-to-order stencils as 'chiseled [to] any special shape or to fit any given space wider or narrower than the ordinary letter'. Incidentally, Hunter (1946: 156) advises that when the signwriter is asked to supply lettering as metal stencils, the letters should first be drawn on paper and pasted onto a metal (copper, lead or zinc) plate. The stencil is then made by pressing a knife through the plate in a series of short cuts.

more technically sophisticated method encourages the supposition. But these descriptions are discursive and should be treated with caution. Each commentator's admiration for books made with stencils came at the expense of recording specific technical details and procedures. They were, however, agreed on the fluency of what they observed: Sievers describes the letters he saw as 'cut to the greatest perfection'; Fischer von Waldheim and Jansen emphasize the stencil's delicacy of form, as if surprised by it; and Breitkopf remarks on the evenness of the letters he examined.

After these equivocal written sources, further attributes of cutting are more readily ascertained by examining a series of stencils whose letters were probably made in this way. Although later in date (nineteenth or twentieth century), they are likely to have attributes similar to earlier work. The first example is a monogram (figure 7) apparently cut with a knife. Because of its delicate and complex forms, it is uncommon to find a monogram stencil made in this way. But its small size and narrow openings suggest the possibilities and limitations of cutting at this scale. A second example (figure 8) is a stencil cut wholly or in part with straight and curved chisels. This is especially evident in the serifs whose similarly shaped curves make awkward transitions into the strokes, a fault characteristic of chisel work. One further example illustrates a large-size letter cut from zinc using a single short chisel. The chisel's residual marks are here left in the metal (figure 9).[21]

In addition to identifying attributes of the stencil letter cut with scissors, knives, chisels and similarly simple tools, it is also worthwhile
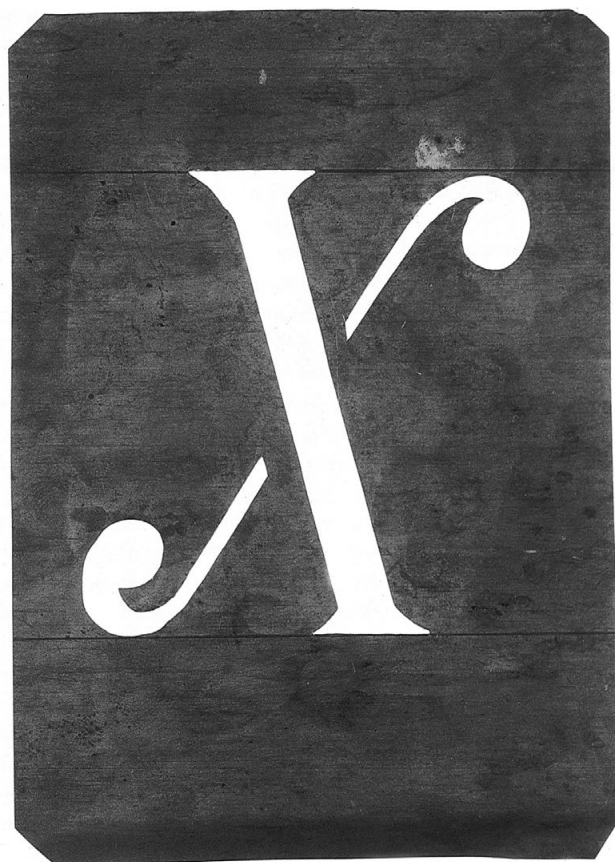
AR
gce
DEFG
848

Figure 10. Stencilled letters,
W.A. Dwiggins, original stencils are
knife-cut celluloid, United States,
c. 1930s–50s.

22. Abbe (1980); Dwiggins was highly
proficient at such work. He employed
stencils in the late 1920s to construct orna-
mental motifs, mostly for books, and for
making letters, as he was also an accom-
plished letterer, calligrapher and type
designer. Cut from celluloid with a short-
bladed knife, his stencil letters have a fluid-
ity that would be difficult to achieve in
metal. See also Brignall and others (1996).
In a related matter, in the late 1920s or
early 1930s, Dwiggins corresponded with
Eva Judd O'Meara, librarian of the music
library at Yale University, on the subject of
stencilled liturgical books, about which
O'Meara was then preparing an article
(O'Meara, 1933). She solicited Dwiggins'
views on how quickly and easily a choir-
book (Boddeart, 1755) owned by Yale
might be marked out and Dwiggins'
opinion is given in her article (faster than
writing, he thought).
    23. Hind (1963: 105)
    24. Set of brass stencils in walnut box
(Museum Collections); related items
include: specimen sheet of Bery (Franklin
Miscellaneous Collection B:F85.93);
receipted bills (Franklin-Bache Papers
BF85.ba, including December 29, 1781
(PH58 1p) and January 12, 1782 (PH62 1p));
and 'Account of family expenses begun
March 15, 1779' (Franklin Papers
F85f6.22); see also Lingelbach (1948:
92–5).

to summarize the general circumstances that might encourage this way
of working. As it is relatively inefficient and without any significant
technical challenges, cutting would, with few exceptions, be common
where rapid and specialized mass-manufacture was unimportant, and
especially appropriate for work that required stencils for 'one-off'
applications or commissions. And if, as might commonly be the case,
the stencils were not to be sold, their making might be as rough or pre-
cise, as conventional or unusual as necessary. Furthermore, cutting
would recommend itself to work done at large sizes and, by implica-
tion, with inexpensive or disposable materials. Echoing several ele-
ments of this summary is the work of William Addison Dwiggins, who
cut stencil letters in a wide range of sizes (figure 10). Many of his let-
ters and alphabets were designed and made for his own satisfaction and
personal use, or for graphic design commissions. They, together with
his tools, materials and methods of work, demonstrate the informality
and invention of stencil work based on cutting.[22]

Etching

While stencil letters cut with simple tools may, through ingenuity and
manual fluency, achieve a considerable measure of sophistication, some
cannot be made in this way and for them another, more technically
advanced method is required: etching. With etching, stencil letters of
almost any form are possible. They may resemble those made by cut-
ting or some other method of manufacture, but in general etching gen-
erates letters whose forms are smaller, finer or more elaborate. To
observe and describe etched stencil letters is, of course, important in
elucidating the likely procedures brought to the work. But the compi-
lation of attributes shared by etched letters is also important in simply
identifying them as such – an often difficult task if the stencils them-
selves cannot be examined. When a stencil letter can be confidently
identified as etched, it allows the technical expertise attained in an
associated stencil-making context to be established, something of
considerable value to the description of early stencilling practices.

    Etching stencil letters from metal probably dates to the first half of
the eighteenth century, though possibly earlier. Before its use in sten-
cil-making, etching is found from at least the fifteenth century in gold-
smithing and in other trades involved in metal-engraving.[23] While in
some instances artisans employed etching only to mark the surface of
metal, as in the decoration of armour, elsewhere it pierced the metal to
create 'cut' work. It is not difficult to extrapolate the application of
etching to stencil-making: a thin sheet of copper or brass would offer
little resistance to a penetrating mordant and so a stencil letter might
be generated with ease and accuracy. That etching was the basis of
stencil-making towards the end of eighteenth century is established by
a quite extraordinary survival from this time. It is a set of stencils –
more than 400 – made by Bery whose Paris workshop was located on
the pont Notre Dame. The set was purchased by Benjamin Franklin
in 1781 while he resided at Passy as a United States diplomat to the
French court and is accompanied by a specimen sheet that advertises
Bery's inventory of stencil letter designs and sizes (figure 11). The
entire collection remains among Frankin's effects gathered by the
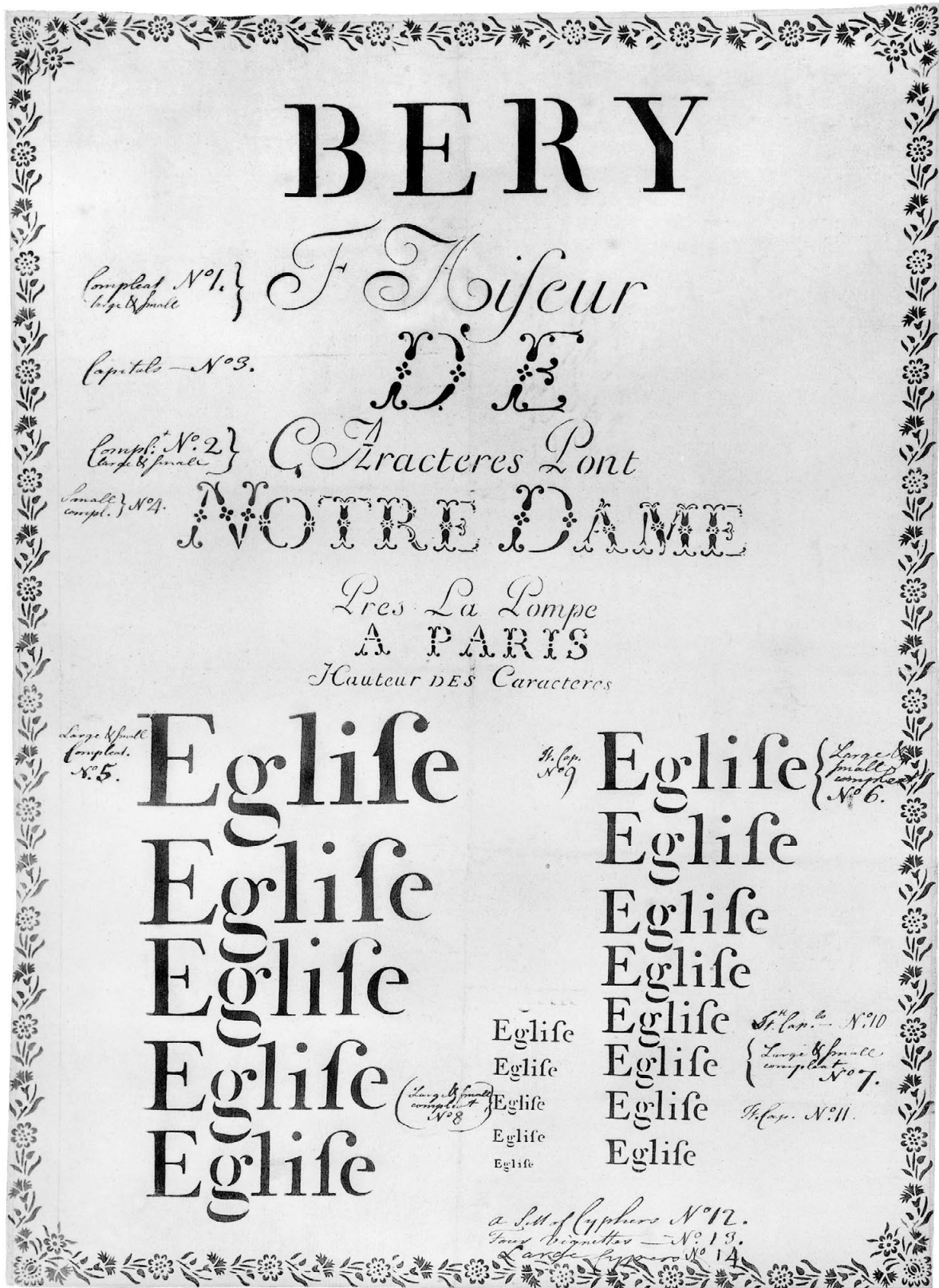American Philosophical Society in Philadelphia.[24]

Figure 11. Stencilled specimen sheet of Bery, Paris, *c.* 1781, reduced to 50 per cent linear. Library of the American Philosophical Society, Philadelphia.

When reviewing the work of Bery, what is striking is as much the expertly designed letters as their highly proficient realization as stencils. The precision with which the complex forms perforate the luminous orange-yellow brass plate demonstrates a craft in a considerable state of advance (figure 12, a–d). In fact the stencils are so well made that there are few obvious indications of just what procedures were employed. The brass shows no evidence of cutting with scissors, knives or chisels, either freely or to an inscribed outline. Nor is any filing noticeable to refine and smooth the edges of the letters. The absence of such features in particular, and the extraordinary fineness of the stencils in general, point to etching as the only method likely to produce such results.
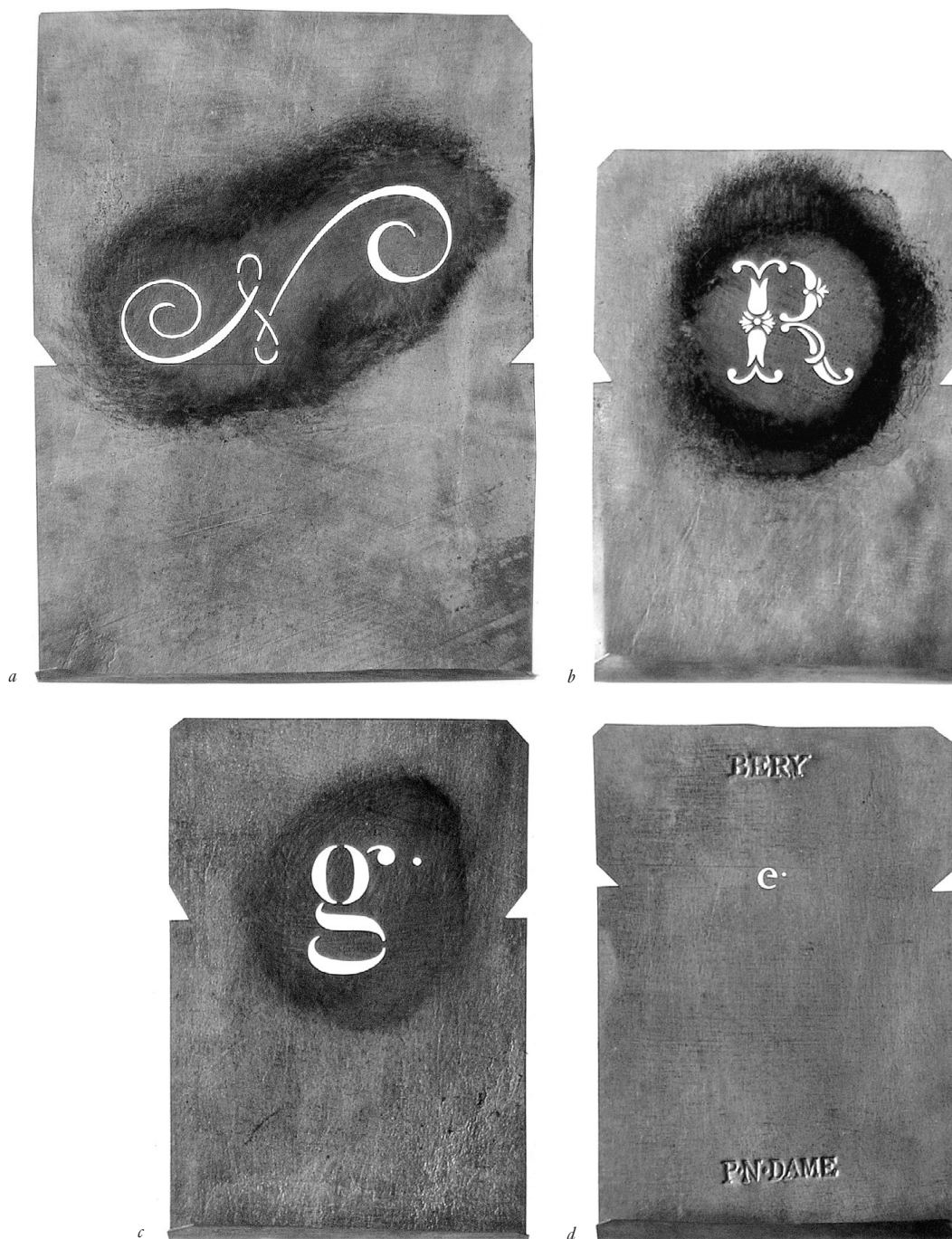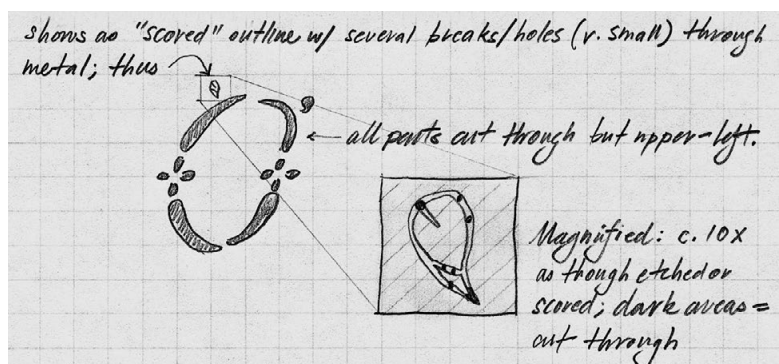
Figure 12. Stencils of Bery, etched brass, Paris, *c.* 1781, American Philosophical Society, Philadelphia. Actual size.
a. No. 1: script (*bâtarde coulée*)
b. No. 4: decorated
c. No. 6: large roman, with spacing dot
d. No. 8: small roman, with spacing dot and maker's marks
(Numbers given refer to specimen sheet annotations in figure 11)

Figure 13. Sketch of O, from no. 3 of Bery specimen sheet.

But exactly how the letters were etched is less clear. Fortunately, one error remains that betrays at least part of the procedure (and further confirms the use of etching). It is found in the stencil of a large-size decorated O. A curved teardrop element at the upper-left of the letter is not removed from the brass plate as intended. Instead, its outline is etched but incompletely: sometimes to a shallow depth, elsewhere penetrating through the plate. Other partly etched lines are also visible crossing within the element (figure 13). This residual error suggests that the letter's outline was inscribed using a template – possibly another stencil. If a previously made stencil did function as a template, then the work might procede as follows: an etching ground would be laid onto the plate to be etched; the template, laid over it, would guide an etching needle scribing through the ground on the plate beneath. A mordant, set onto the plate thus inscribed, would etch along the exposed brass and eventually cut through it. The brass within the outline would fall away (or be pushed out) leaving the space of the letter. Such a procedure, or one like it, explains the inscribed and etched element embellishing the O, its interior still *in situ*, and may be applicable to the other stencils Bery produced. It is, however, only a fragment of some larger process of work whose other features are less obvious if not wholly uncertain.[25]

As a means of generating stencils singly and repeatedly, templates are convenient and efficient. And if it is difficult to ascertain the complete process of work Bery employed, it is easy to assert the advantages of etching in general. In the first instance, it makes almost any form possible at any size. Bery was clearly aware of this and so made numerous roman and italic letters in a great range of sizes, scripts of considerable swash and flourish, and decorated capitals whose delicately cut tendrils and blossoms hardy seem plausible in the context of stencil-making. But it is not just fineness in form-making that etching allows; the process also has few adverse effects on the brass plate itself. Unlike a cutting tool, the action of the mordant is free of forces that distort or bend the plate. In addition, etching may be performed on a group of plates simultaneously and thereby encourages a kind of mass production – not truly so, but certainly by comparison to cutting. Perhaps it made commercially viable Bery's many letter sizes, or his decorated designs aimed at eighteenth-century tastes. In the latter instance, a relationship might even exist between a demand for letters and other decorative material of this kind and the exploitation of etching to supply them as stencils.[26]

25. Remarks made here are based on discussions with Fred Smeijers. Other possible features of template work should be briefly noted. One is the production of an 'original' template. This might be done by freely inscribing a letter into an etching ground laid on a blank plate, then etching the plate; or by employing an inscribing guide made of reinforced paper (a 'pre-template'), its letter drawn by hand or adapted from an engraved letter or a printed type, and cut out with a knife. A second feature of template work involves the correct location of a template over the plate to be inscribed. Residual marks on the Bery stencils may offer some insight: baselines are inscribed across almost all of the stencils and possibly helped locate template positions. But intriguingly, some stencils in the Bery set carrying the smallest sizes of letter (nos. 7 and 8 as marked on the specimen sheet) are also inscribed with x-height, capital/ascender-height and descender-depth lines as required. Their presence undermines the use of templates as their only apparent function would be as guides for letters scribed freely on the plate.

26. The Bery set also includes several large, decorative border stencils (*c.* 70 × 190 mm) carrying fleurons or other modular motifs; each design includes an integrated corner element.
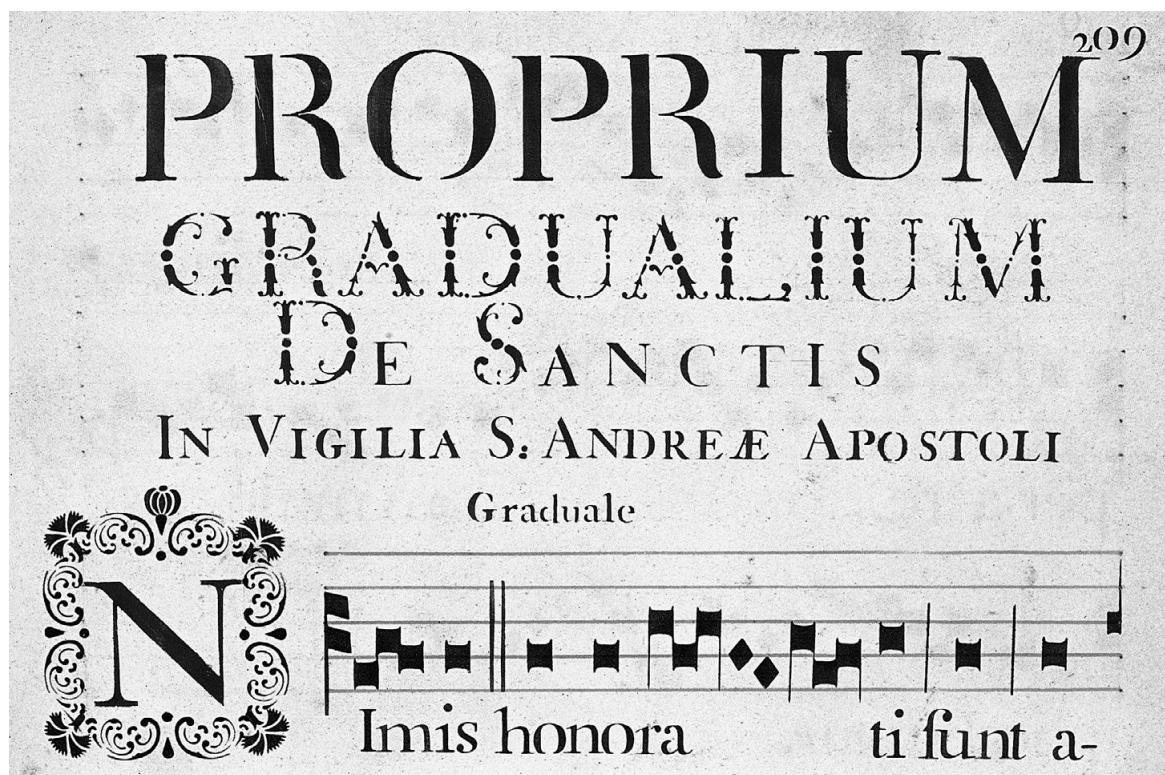
Figure 14. Stencilled letters,
decorated, by U. Boddaert, from
'Graduale Romanum de Tempore &
Sanctus' (detail), Flanders: Abbey
of Loo, 1755, reduced to *c.* 50 per cent
linear. Gilmore Music Library, Yale
University, New Haven.

Figure 15. Stencilled decoration with
handwriting, from 'Chronologie des
rois de France depuis Pharamond',
1751, reduced to *c.* 35 per cent linear,
Wing MS 60. Courtesy of the John M.
Wing Foundation, The Newberry
Library, Chicago.

Given the sophistication of the Bery stencils, it is likely that etching
was already practised before the 1780s. Though no stencils contempo-
rary to or earlier than his are known that might prove this, indications
are provided by stencilled books. For instance, in Boddeart's
'Graduale' of 1755 decorated letters are used extensively (figure 14).
In his dedication, he describes the letters as made from brass sheets
carved or engraved with outlines *(formulis insculptis laminis aereis)*.
While the description is ambiguous, the detail of Boddaert's letters,
in the light of Bery's work, suggests etching. So does another book, a
royal genealogy made in Paris in 1751 (figure 15). On each of its pages,
decorated borders and *fleurs-de-lis* frame written matter. The borders
are of similar detail and complexity to those Bery made as stencils. And

Figure 16. Stencilled choirbook, page from 'Antiphonarium Carthusiense', made by Pater Thomas Bauer, Mainzer Karthause, *c.* 1760, reduced to *c.* 32 per cent linear. Stadtbibliothek–Mainz, Hs. II 137.

27. The stencil work of Pater Thomas Bauer, a monk at the Carthusian monastery in Mainz, was regarded by Fischer von Waldheim as the most accomplished he had seen. Bauer is thought to have been a student of Johann Claudius Renard, also a highly accomplished stenciller who moved to Mainz from Lüttich in the 1730s. Renard subsequently conducted workshops and supervised stencil work at a number of monasteries in the region. Bauer's stencilled liturgical books survive in Mainz at the Museum–Gutenberg and the Stadtbibliothek. See Fisher von Waldheim (1800–4), O'Meara (1933), Gottron (1938), Rodrigues (1973), Rosenfeld (1973).

in other stencilled books from the middle of the eighteenth century, the forms of the letters and the decorative material that accompanies them are such that is difficult to imagine how the stencils used to mark them out were made other than by etching (figure 16).[27]

It is probable, then, that etched stencils were increasingly common in the second half of the eighteenth century in Paris and further afield. Beyond the contexts of secular and ecclesiastical book production, however, their application is not easy to gauge. Little stencilled ephemera from the eighteenth century is known; what is known consists of pharmaceutical labels, bookplates and visiting cards. All were generated from stencils whose letters or decoration appear to have been etched. But in addition to fine and detailed forms, another attribute of such artefacts may also signal the use of etching: the arrangement of several graphic elements in a single stencil, rather than just one character. Decorative borders were perhaps the first instance of large and graphically elaborate stencils. However a *carte de visite* designed by Bery, with the legend 'Mr Franklin' surrounded by a sinuous border, demonstrates more clearly how a variety of letters and decorative elements were brought together to form a composite design for a specific function, to be marked out repeatedly as needed. In the first half of the nineteenth century, billheads, stationery, library and product labels, bookplates and visiting cards were all produced by stencils

Figure 17. Stencilled heraldic device, bookplate of Samuel Wilton Rix, England, *c.* early to mid 19th century. Actual size.

Figure 18. Stencilled monogram, bookplate of William Kirby, England, *c.* late 18th century. Actual size.
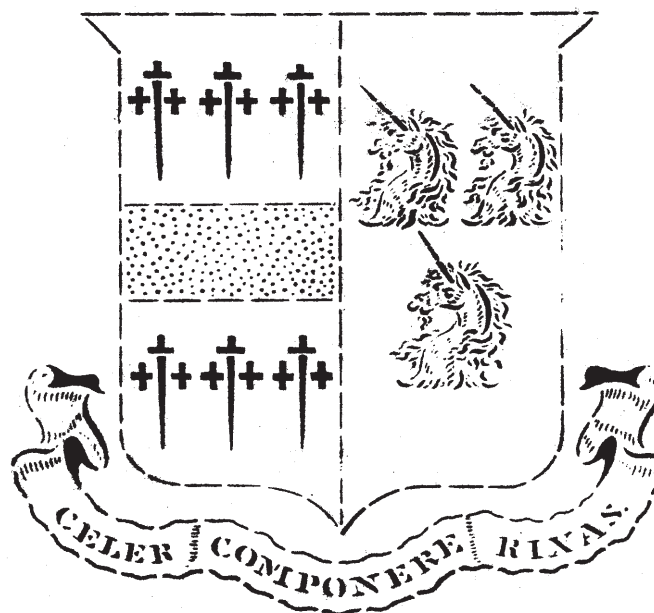
whose complexity points to a method of manufacture capable of finesse and efficiency in equal measure (figures 17, 18). It is among these instances of stencil-making that etching would prove itself suitable, even essential.

By the second half of the nineteenth century, stencil-making increased significantly and etched stencils from this period survive in large numbers. They are typically thin and fine, made of copper or brass (sometimes zinc) and often carry – like their eighteenth-century forebears – letters, monograms and decorative material of considerable delicacy and detail (figure 19).[28] Their manufacture, whether by specialist stencil-makers, engravers or larger companies, also appears to incorporate a procedure wherein the letter is etched along its outline (figure 20). The transfer of the letter onto the blank plate was probably done manually at first, though eventually a photomechanical process may have performed this task. Some stencils were clearly batch-produced from a single large plate later cut into pieces, as confirmed

28. These stencils are less than 0.10 mm thick; they were typically used in gentle circumstances: to stencil a design onto linen as a guide for embroidery. Despite the light handling they probably received, the plates were prone to cockling when used on a soft cloth surface and many that survive are bent inward with broken bridges.

Figure 19. Stencil, etched brass or copper, Johann Merkenthaler, Nuremberg, *c.* late 19th/early 20th century. Actual size.
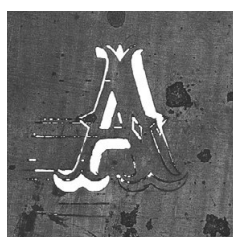

Figure 20. Stencil (detail), etched copper with residual errors, maker unknown, probably United States, *c.* second half of 19th century. Actual size.
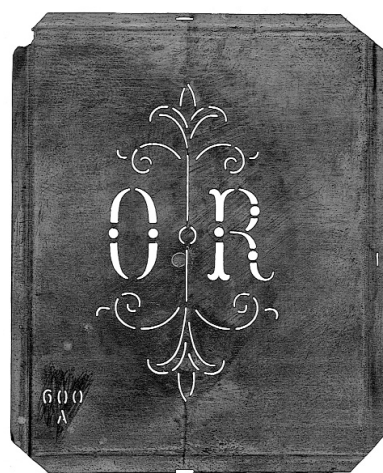

Figure 21. Stencil, etched brass or copper, Johann Merkenthaler, Nuremberg, *c.* late 19th/early 20th century. Actual size.

by edge guides (figure 21). Edges were often crimped or folded to prevent the thin metal from bending, warping or curling.

The manufacture of stencils by etching probably declined in the first half of the twentieth century as the letters and monograms made so effectively by this method fell gradually out of fashion, and as other methods of manufacture were refined or developed. Etched stencils were, however, produced after 1950 in the German Democratic Republic and possibly elsewhere too, and they might still be found today.

Punching

The examples in the preceding section demonstrate that etching made possible stencil letters of almost any shape or size, and some of spectacular delicacy and detail. But neither etching nor cutting were always appropriate for stencil-making. Etching required knowledge of chemical processes and special facilities for them while cutting, at least at small sizes, demanded proficient handwork. Acquiring the necessary skills and techniques may have proved troublesome for many who wished to supply stencils; and stencils so made might be expensive in the time required to make them and thus in the price buyers had to pay. An alternative method of manufacture that resolves issues both of skill and cost is punching. Punching a letter from a blank plate is simpler than etching or cutting: to strike a punch cleanly, accurately and with consistency is the only significant manual skill required. And from its earliest mention as a method of manufacture, punching is indeed assumed to reduce the costs of production, an assumption demonstrated in later stencil-makers' catalogues.

Early instances of punching as a method of stencil manufacture are found in the late seventeenth and eighteenth centuries and are associated with playing cards.[29] In so far as sources on the stencilling of letters and words are concerned, Des Billettes (*c.* 1700) makes no mention of punches, though Breitkopf (1801: 33) does. He describes the work of Malo, father and son, of Paris who made stencil letters in a range of sizes, some as small as *cicero* (*c.* 12 point). Although Breitkopf had been told the stencils were 'pierced by hand', he writes that 'the evenness of the letters and the modest price [of the stencils] make one suspect that they are struck with sharp steel punches.' Breitkopf does not follow up his suspicion, but that he mentions punching at all suggests the method had some currency. Oddly, the *etched* stencils of Bery already described confirm the use of punches. In those with decorated letters (see figure 12b), small dot motifs show a ridge, or bur, on the underside of the plate where a punch was driven through it to form the dot; it allows punching to be identified with some certainty. This is the only part of Bery's letter where evidence of a punch is found, though one may have also made the inter-character spacing dot found to the right of small (i.e. lowercase) letters in some founts (figure 12, c–d).[30]

Since these instances of punching are ambiguous or indicate only a secondary role for the punch itself, uncertainty remains about just when and how an entire letter was cut in this way. It might be that some of the skills were borrowed, if not from the playing card maker, then from the typefounder for whom letter punches were indispensable and so considerably refined; or from artisans in other trades – gold- and silversmiths, medalists and bookbinders – who also made use of letter punches.[31] But to suggest that stencil-makers turned to others for

29. For example Des Billettes (*c.* 1700), Duhamel du Monceau (1762) and Diderot and D'Alembert (1751, etc.). Des Billettes' text includes a section titled 'Printing of playing cards' that describes punches carrying the four suit-signs. These were used to cut stencils of oiled canvas for printing the number, or point, cards (*les cartes de points*) and as illustrated in an engraving by Simonneau, dated 1697, they are flat-faced. Duhamel du Monceau, the general editor of the *Description des arts et métiers* as published from 1761, wrote the fascicule 'Art du cartier' (1762) which was accompanied by five engravings including Simonneau's of 1697 (plate II), now corrected by Patte. Duhamel du Monceau briefly describes the suit-sign punches as made of steel with a sharp cutting edge; they are, however, unaltered in the corrected engraving. In Diderot and D'Alembert's *Encyclopédie*, plate VI of the engravings illustrating the article 'Cartier'

includes suit-sign punches; these are shown with a raised cutting edge or outline. Other trades that used similar punches (though not for stencils) include faux flower-making, and fabric cutting and goffering. Each source given above (despite differences in the engravings) employs the term *emporte-pièce*, a punch designed for cutting out.

30. Bery's punch (or punches) may be associated with etching tools. Hind (1963: 2(8b.),

11) illustrates and describes a 'ring-punch' whose tip was circular and hollow; it was also used by goldsmiths. A ring-punch would easily produce the dots found in Bery's work, while the cutting edge around its hollow tip would help free the struck metal from the plate.

31. cf. Smeijers (1996: 58–62) where letter punches made by several trades are discussed.

Figure 22. Stencil letters carried by punches, from advertising broadsheet of Adoniram J. Fullam, American Stencil Tool Works, 1865. Actual size.
Courtesy of Special Collections, University of Vermont.

guidance in cutting punches is to assume that they did not already possess the necessary skills themselves. Bery's own description on his trade card as a 'maker of letters in brass & steel' (*faiseur de caracteres en cuivre & en acier*) indicates that his work was not confined to stencil-making but possibly extended to engraving and punchcutting, and could imply a lateral application of techniques among his various activities. And if the punches that embossed the maker's marks onto Bery's stencils (see figure 12d) were by his own hand, then the genesis of punches for cutting stencil letters would only be a short conceptual leap away.

Despite these intimations of punching in Europe,[32] it is some decades later in North America that the earliest incontrovertible instances have so far been found. In 1860, Adoniram Judson Fullam established the American Stencil Tool Works in Springfield, Vermont where for the next ten years he manufactured punches for making stencils.[33] In a broadsheet of 1865, Fullam advertised two founts of punches: a large size (1 inch/*c.*25mm) carrying sans serif letters, numerals and basic punctuation (figure 22); and a smaller size whose dimensions and style are not stated or illustrated.[34] Another manufacturer, S. M. Spencer, was also in business in Brattleboro, about 30 miles to the south of Springfield and he, like Fullam, supplied punches, probably in several sizes.[35] Their primary customers were not, it appears, already-established stencil-makers but businesses who needed to regularly generate their own stencils, or enterprising individuals who, though largely or entirely inexperienced in stencil-making, were encouraged to pursue such work that – with punches – required little training or skill but promised decent returns. Fullam, for example, provided a lengthy justification for an investment in his punches and a roster of happy customers who had profited thereby. Punches thus functioned as an easy-to-use tool whose pre-formed letters enabled non-specialists to produce competent stencils, and whose manufacture enriched entrepreneurs who recognised the value in promoting and supplying equipment for what was, in essence, a species of do-it-yourself lettering.[36]

The letters carried by nineteenth-century stencil punches such as those sold by Fullam and Spencer are generally simple and robust in

32. One additional early reference to punching stencils is, though ambiguous, worth noting. In a letter of 1811 to the *Journal of Natural Philosophy, Chemistry and the Arts,* G. Cumberland describes a stencil press devised by the English surgeon James Lind (1738–1812). Cumberland goes on to propose the reproduction of texts using stencils made thus: 'Let us suppose … a kind of copper or brass latten to be rolled thin for the purpose, and the writer to use a very corrosive ink, which in short time would cut quite through the whole body. He would by this means produce a stencil as fast as he could write, by means of which he would be enabled to print the right way. Again let us suppose he were to make use of capital letters only, acting as punches on paper, he would by this method have a paper stencil, that would last as long, perhaps longer, than the latten one … common ingenuity might overcome the difficulties of O and other letters by ties.' Quoted in Rhodes and Streeter (1999: 128–9).

33. Kebabian (1978).

34. Adoniram Judson Fullam, 'Dear Sir:– I take pleasure in calling your attention to my recently invented patent Stencil Dies …', Springfield, Vermont: American Stencil Tool Works, 1865 (Special Collections, Bailey/Howe Library, The University of Vermont). While one might conclude from Fullam's opening address that he invented stencil letter punches, the text of the patent

referred to (Adoniram J. Fullam, 'Punch', letters patent no. 27,793, 10 April 1860, Washington, D.C.: Unites States Patent Office) makes it clear that such punches were already known to him. Note that in North America 'punch' and 'die' are often used interchangeably, though among nineteenth-century manufacturers of stencils and related equipment the latter term was more common.

35. S .M. Spencer, 'Stencil Work!' (advertising circular), Brattleboro, Vermont, *c.* 1860–80 (Special Collections, Bailey/Howe Library, The University of Vermont), reproduced in Kindel (2002); letter from Helen A. Cunningham to her brother Henry E. Blake, April 17, 1866 (Manuscript File, Special Collections, Bailey/Howe Library, The University of Vermont) complaining of a failed transaction with Fullam and stating her optimism that Spencer was a more rep-

utable supplier; and Spencer (*c.* 1890) which illustrates the wide range of punches he offered after transferring his operations to Boston.

36. For Fullam and Spencer, an essential dimension of stencil letter punches was their portability and both clearly intended that they be used for canvassing. Fullam considered visits to farms an especially good means of generating business, while Spencer's advertising circular 'Stencil Work!' could be customized to announce the arrival of a travelling stencil-maker in town. Some of the earliest confirmed examples of punched stencils are name-plates made during the American Civil War (1861–5) for soldiers of the US (i.e. Union) Army of the northern states. They were used to mark a soldier's name and regimental designation onto clothes and equipment and could be acquired from sutlers and pedlars servicing army encampments.
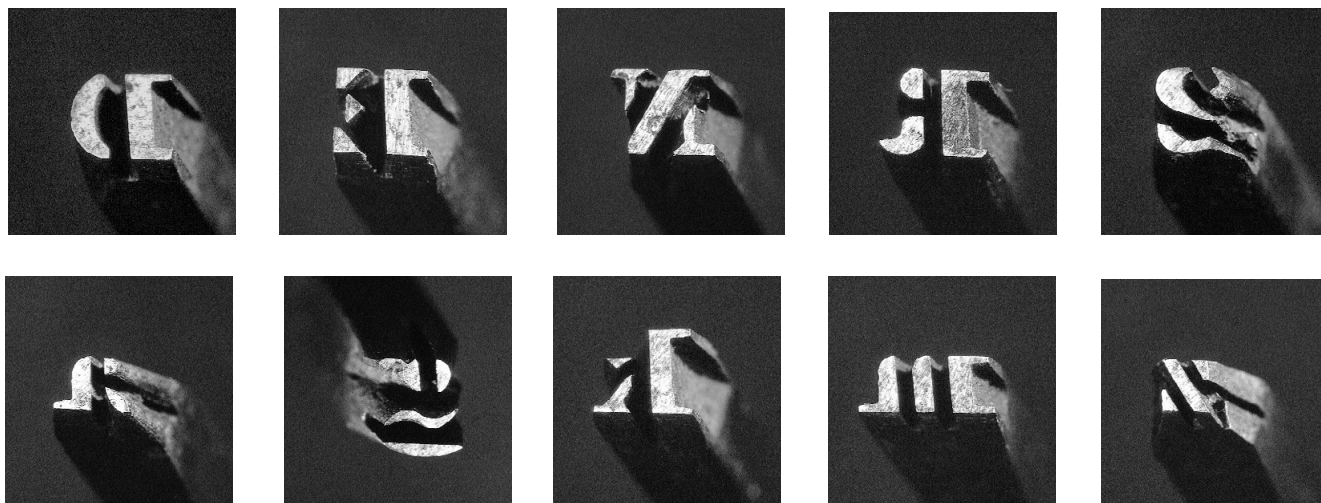
Figure 23. Stencil punches, steel, probably manufactured by S.M. Spencer, United States, *c.* 1860–1900. Capital height: 3 mm.

37. The observations that follow generally refer to serifless letters or those with slab serifs whose capital height is 1/4 inch (*c.* 6.4 mm) or less; the capital height of letters carried by stencil punches typically ranged from 3/32 inch (*c.* 2.4 mm) to at least 1 inch (*c.* 25.4 mm), though Spencer (*c.* 1890) states that punches carrying letters of any size or design could be made to order.

38. For this purpose Spencer (*c.* 1890) sold blocks of lignum vitae, a hard dense oily timber from trees of the genus *Guaiacum* native to the American tropics.

39. Kebabian (1978).

form, serifless or with slab serifs. This is true of both large- and small-size letters, although the latter are in some instances quite unconventional (figure 23), the result of several inter-related factors that are especially characteristic of punching.[37] While in the context of punching, large-size letters suffer few restrictions – their breaks do not drastically alter legibility and the size of the punch makes it sufficiently strong – small-size letters, and the punches that carry them, are subject to degradations in legibility and strength that are increasingly critical as size decreases. Strategies to counter these degradations may be largely responsible for the form of the letter. To demonstrate this, it is helpful to envision the entire work of punching small-size letters. When a stencil is cut with punches, each letter is struck anew, whenever it is called for. Punches are hammered repeatedly through the metal plate into a wood support beneath.[38] To withstand this, a sturdy punch is needed. At small sizes, sturdiness is particularly dependent on the resilience of the letterform cut on the punch. But other concerns also require attention. Like the punch, the stencil it generates must also be durable, and this too depends on the form of the letter. Wide breaks within the letter (as punch) should translate into wide and strong bridges in the stencil. Only then is the stencil best able to withstand the pressures its use will entail. But there are the demands of legibility as well. Now punch and stencil strength must be balanced against the tendency of stencil letters to become illegible as their size decreases. Details essential to the identity of a letter – proportion, counter size and shape, stem and curve thickness, and so on – must each remain expressive as the impulse to simplify form and provide suitably robust bridges push such details toward greater ambiguity.

Thus several complementary factors probably explain the particular forms of some small-size stencil letter punches, forms that are, simultaneously, an instructive demonstration in the coordination of form and function. But compelling though such coordination may be as an explanation, there is one further aspect of punch production that may be involved. According to Kebabian, Fullam trained as a machinist in the 1850s and was busy developing his punches at that time.[39] His patent of 1860, presumably an outcome of the work, specifies the use of
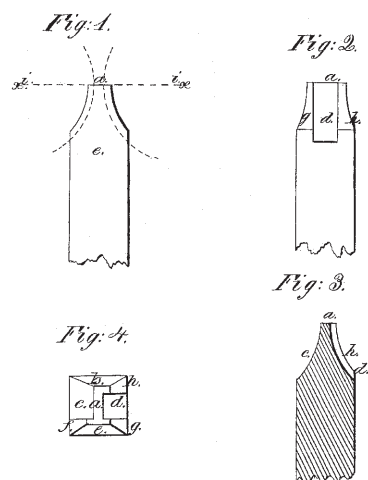
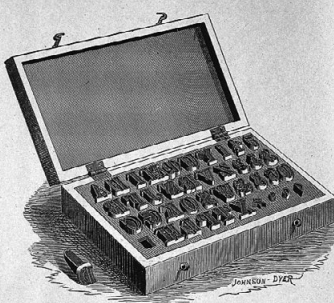Figure 24. Adoniram J. Fullam, illustrations appended to 'Punch', letters patent no. 27,793, 10 April 1860.

Figure 25. Stencil, punched brass, from the set of G.W. Kinnan, United States, *c.* 1860–1900. Actual size. Front (top), and back showing lead stiffening frame.

Figure 26. Stencil, punched 'German silver' (nickel silver), United States, *c.* second half 19th century. Actual size.

a grinding wheel to produce a punch capable of cutting a (metal) stencil without leaving an underside bur (figure 24). Though the efficacy of this particular invention is uncertain, Fullam's grinding wheel would generate repeating forms throughout a fount of punches. And indeed straight and squared-off forms of the same dimension recur in the serifs and stems of Spencer's punches (none of Fullam's punches are presently known), as well as incisions of similar width. If these attributes are evidence of the machine tools used to cut the punches, then the forms of the letters they carry may also be assigned in part to their process of manufacture.

Among nineteenth-century stencils, those made by punching can usually be detected by the form of the letters used, by characteristic irregularities in letter- and word-spacing, misalignments and awkward arrangements of matter, and by underside burs (figure 25). While the quality of design and manufacture of some is decidedly mixed, many show considerable precision and a high standard of finish (figure 26), particularly in the alignment of consecutively struck punches and in the flattening and folding of the metal plate around its lead or zinc stiffening frame. By the early 1870s, one Philadelphia manufacturer who specialized in personal name-plates boasted 'the latest improvements in dies and machinery' (Quaker City Stencil Works, *c.* 1871) suggesting advances in punch design and working methods. At about this time too (though possibly earlier), letter punches appear with cutting

Figure 27. Stencil punches (dies) with cutting edges; and stencil letters available as punches. From S.M. Spencer (*c.* 1890).

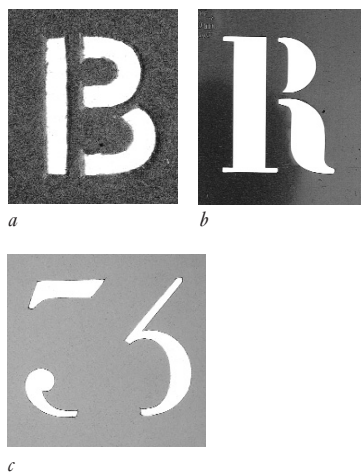*a*   *b*

c

Figure 28. Stencils, punched
a. oil-board (Reeves, UK)
b. aluminium (maker unknown, France)
c. celluloid (Econosign, UK)

40. Andrew J. Bradley, 'Stencil-machine', letters patent no. 494, 546, 4 April 1893, Washington, D.C.: United States Patent Office; and subsequent patents by others; see also Kindel (2001).

edges similar to those exploited by playing card makers (figure 27). In the 1890s, improvements in stencil punching were consolidated and reconfigured in a new patent invention: the stencil machine.[40] It struck well-formed and precisely aligned stencil letters from cardboard or oil-board and could, appropriately, be operated by workers with no stencil-making skills whatsoever. Whether by hand or machine, punching certainly resulted in cheaper stencils. Both Quaker City Stencil Works (*c.* 1871) and Quint (*c.* 1887–95) list the price of some as a third or a half less than others whose overall complexity was not significantly greater. The method of manufacture probably explains the difference: stencils with punched letters were less expensive than those with roundhands and broken-scripts whose finer forms required 'engraving' (probably etching). Stencil machines, of course, allowed stencils to be generated at almost no expense save the cost of the machine and the board it punched.

Stencil-making with punches (in the form of mechanical die-cutting and stamping) continues to the present day in a number of mass manufacturing contexts, though manual punching must be rare, if not defunct. Punched stencils are made of the usual materials of the nineteenth century including brass, zinc, tin, cardboard and oilboard (figure 28a) but also of aluminium, celluloid and plastic (figure 28, b–c), materials introduced in the twentieth century.

Miscellaneous

In addition to cutting, etching and punching, there are several other methods of manufacture that merit a brief description. They were probably all developed in the twentieth century and vary in sophistication. In some cases, the method contributes to the form of the letters, in others it does not.

Figure 29. Stencil, routed zinc, Italy, late 20th century. Reduced to 85 per cent linear.

Routing employs a rotating cutting head guided pantographically by a master letter pattern, or a pattern of letters and other graphic elements combined. The process is analogous to pantographic cutting used in the production of metal and wood printing types, though for stencil-making the rotating head cuts fully through the plate (figure 29). The router head may determine some attributes of form – including an occasion slip from the pattern that breaks the outline of the letter – though not the overall design. While the method is suitable for mass manufacture, it is ideal for producing letters of a quite specific size since adjustments to the pantograph's armature make possible a wide and continuous range of sizes. Routing is commonly used to cut stencils made of aluminium, tin, zinc and plastic. Other methods associated with plastic stencils include various kinds of moulding. These do not in themselves influence form in any noticeable way though the transparency of plastic encourages its use for stencils whose letters are made up of two or more parts. Recently, lasers have been configured for stencil-cutting, commonly with paper or card. Their precision is so great that despite the relative weakness of the material, the complex forms they can render match or surpass any produced by other methods. Stencils made in this way often remain as cut, that is to say, they become decorative objects and are not used for stencilling. Further methods of stencil-making – perhaps a great many – may also be located, some the result of circumstances where expediency and invention are fused to create forms unlikely to arise otherwise (figure 30).
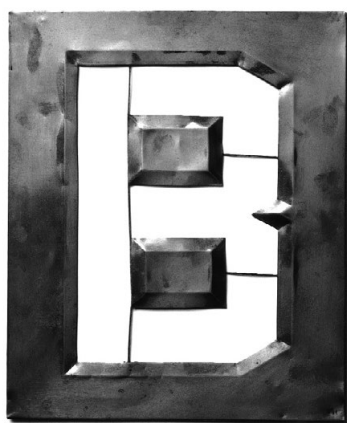

Figure 30. Stencil, cut/folded/soldered, copper and wire, United States, *c.* late 19th/early 20th century. Reduced to 17 per cent linear.

Use

Having considered how the form of a stencil letter is influenced by the various tools and processes employed in its manufacture, similar consideration should be given to how its form is conditioned by the actual activity of stencilling. Of interest here is not only the apparently straightforward procedure by which a letter is stencilled onto some surface, but also those strategies that anticipate the work and their effect on the letter's final form.

Stencilling basics

The tools and materials associated with stencilling, apart from the stencil itself, are relatively few. They include the brush (flat and round rather than pointed) or other implements (a sponge, for instance, or a spray can) used to apply ink or paint, the substrate that receives the ink or paint, and any additional tools used to amend or embellish the form of a letter once it has been stencilled. When stencilling letters, the form the letter takes is partly determined by the characteristics of these tools and materials. For instance, stencilled letters are rarely unmodulated; instead, variations occur within or around the form of the letter. The variations have little or nothing to do with the stencil but are instead produced by the techniques used to apply the letter, and the nature of the ink. Brushes or other ink- or paint-bearing tools may have some influence: a stippling brush, a sponge or spray paint can produce a number of textures; or spray paint may produce irregular edges if it spreads beneath the stencil. Similarly, the ink or paint transparency, opacity or viscosity may create further effects.[41] Substrates too play a role when their unevenness or texture alters the form of the letter. And after the letter has been marked out, the stenciller may amend its breaks with a brush or pen, or embellish it with embroidery.

Compensations: thinning

Attributes of form, then, will arise through individual practices and the use of various tools and materials during and after stencilling. Those practices mentioned above are only suggestive of many others that can enrich the stencilled letter. But it is also instructive to consider strategies of design and manufacture that may anticipate the work of stencilling and compensate for its technical characteristics by adjusting the form of the letter in advance.

It has been argued (e.g. Smeijers, 1996: 121–2) that in the past (and presently) the producers of printing types – punchcutters, designers and manufacturers – foresaw how the types they were creating would appear when printed. In anticipation, compensations were introduced to counter degradations in form caused by how the type was generated or manufactured, and how it behaved during printing. These compensations might, for instance, include 'traps' able to accommodate excess ink captured at a typeform's junctions and angle apexes; or additional or exaggerated elements able to buttress its corners and serifs. Overall, the type as designed might be sharp and fine, even excessively thin, but in the knowledge that subsequent processes of production and printing would soften the form and add weight to it.

While it is uncertain that stencil-makers brought analogous compensations to the form of their letters in advance of stencilling, there are good reasons why they might have done so. A letter well-cut from a plate may seem a success: in negative, it looks well-formed and full. But even if it is marked out accurately, in positive, it appears thinner. This defect, evident in many stencilled letters, occurs because a dark figure will usually appear smaller against a light ground than when the figure-ground relationship is reversed. The thinness of the letter may be exacerbated by its method of manufacture[42] or by the tools and materials used to mark it out: a brush, for example, whose bristles are insufficiently fine for the openings in the stencil, or ink whose thick-

41. The initials and large letters in Thomas Bauer's liturgical books are stencilled with a thick opaque ink, almost in an impasto manner, and rise up from the substrate.

42. Among the several methods of manufacture, thinning often affects stencil letters cut with punches. When a flat-faced punch is struck through a metal plate, some metal is pushed out on the underside creating a flange that is later filed or hammered flat. But in doing so, the size of the cut out area may be reduced: the flange is bent inward, closing up the forms of the letter with attendant consequences for marking out the letter.

ness causes it to accumulate in a stencil's corners. And these effects are compounded by the very breaks of the stencil form that may simply give the impression of a conventional letter imperfectly rendered.

So far there are no instances yet known of stencil-making conducted with thinning in mind though Des Billettes intimates as much. While the letter sizes he recommends and to some extent their form were established by the size of the cutting and filing tools, he was also concerned that the letters be properly marked out. This was ensured if the cut-out parts of the stencil were large enough to accommodate the brush. But he does not go so far as to explicitly anticipate stencilling's effect on the fullness of the letters. One senses that thinning was understood by some stencil-makers, though not by all: a review of eighteenth-century stencilled liturgical books shows substantial variations in the weight of text letters; those that are fuller more convincingly counteract the visual wasting to which stencil letters are susceptible. The work of Bauer (figure 16) is a salutary instance where robust forms give his letters an uncommon strength and presence.

Compensations: multi-part letters

If it is difficult to demonstrate that compensations were consciously devised to counteract the thinning of stencil letters, then another scheme for configuring the final form of the letter is more certain, as it constitutes a specific procedure to alter the letter as it is stencilled. As mentioned, a stencil letter may be amended once it is marked out by filling in its breaks with a brush or pen. This amendment is noteworthy as it is a meagre solution to a worry that has long vexed stencillers: that the breaks in the stencilled letter are evidence of an inferior or incorrect form. But a method of work exists that circumvents the difficulty. It involves stencil letters that are split into two or more parts. The parts are stencilled consecutively in a way that joins them together into a complete letter. The breaks that would otherwise be visible in a 'normally' stencilled letter are thus disguised.

The importance of hiding the stencil letter's most typical attribute is made plain by Des Billettes (*c*. 1700). His proposed method of work is based on rendering the stencil letter without breaks, which he thought 'greatly disfigure[d] the beauty of this (kind of) printing'. Des Billettes had considered filling in the breaks by hand, but imagined the stenciller would find this difficult or tedious and leave it undone, or decide that the breaks were not in fact a defect. His proposal was to split in two those letters that when cut as stencils would normally require bridges. The two halves of the letter would be placed some distance apart on the plate, with a 'guiding-mark' (*repère*) to the right of the first half (figure 31; see also figures 5, 6). This guiding-mark, stencilled along with the first half of the letter, would indicate the placement of the second half and then be covered over when the second half was stencilled. Des Billettes' proposal seems extreme at first since it requires that stencil letters – already wilfully disjoined – be split apart yet further on the plate, wherein the complete letter can no longer be seen. But the underlying aim is hardly radical: to recompose the parts into a single conventional entity.

Although ingenious, there is as yet little evidence that Des Billettes' method of stencilling was commonly practised. But this is not to say
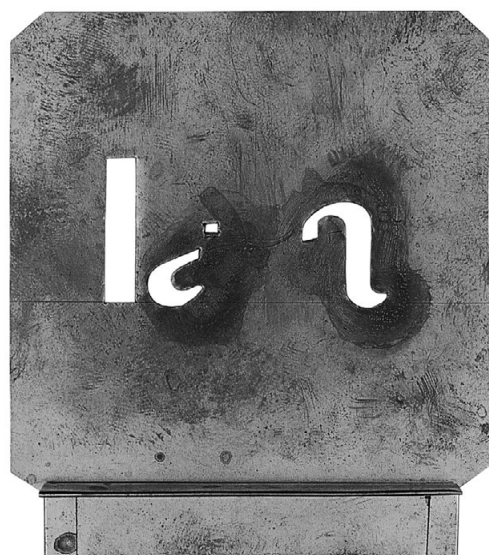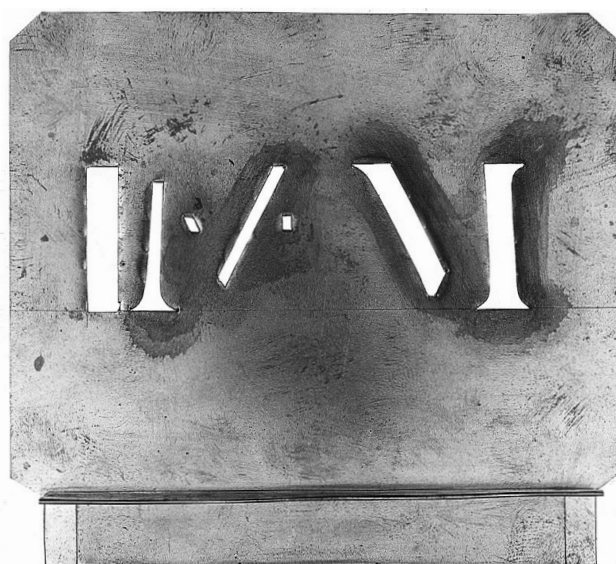
Figure 31. Stencils: multi- and single-part characters with guiding-mark (*repère*) and window (*lumière*) for gauging inter-character space; together with partially and fully stencilled characters; chisel-cut brass. Cut by Fred Smeijers, 2002, based on Des Billettes (*c.* 1700). All figures actual size.

that elements of it are absent from surviving artefacts. Guiding-marks, for instance, are found in eighteenth-century stencilled books: not for aligning parts of a letter, but for regulating distances between letters[43] (see figures 12, 16). Multi-part letters are also common, if usually reserved for large titles, initials, capital letters and similar instances where breaks are most obvious. Such letters, though split apart on the plate and rejoined when stencilled, were probably designed and deployed less programmatically than Des Billettes had specified. Breaks in the small letters in text are, by contrast, only rarely disguised. The work, it appears, was much too troublesome for most stencillers.[44]

Based on Des Billettes' proposal, and on subsequent uses of multi-part letters, it is probable that for many early stencillers the effort to disguise the stencil letter's technical origin was worthwhile if works of greater beauty and esteem were the result. Certainly in liturgical books of the grandest order they are used extensively and consistently. Some letters are of such fluency – that is to say, the breaks have been so cleverly and comprehensively hidden – that they at first resist an attribution of stencilling. Such works imply that in the context of worship at least, and in the production of books whose purpose was to elevate the expression of faith, little should intrude on the form of the letter that might suggest a method of making that was anything less than a full measure of devotion. Sievers (1825: 356) echoes this by quoting a maxim of the Papal Chapel, that 'music well written is already half sung' (*che musica ben scritta è mezza cantata*). This, he asserts, constituted a working principle of the scriptorium and it quite possibly applied to the (stencil) letters as well. But not all stencillers were so dutiful: in some liturgical books are found letters whose forms are entirely unamended. Boddeart, for instance, in his 'Graduale' makes few if any exertions to disguise breaks even among his largest titles and initials, though his efforts were clearly inspired. Perhaps he gloried in the stencil form – his dedication emphasizes how he made the book – free from the anxiety that his letters were in any way unworthy.

Beyond the context of faith and worship, stencil letters probably provoked less worry or concern as their applications widened. While few early artefacts other than books are presently known, Bery's specimen sheet (see figure 11) suggests a more relaxed and functional view of the stencil form. Among all his roman and italic letters, there is no effort to disguise the breaks, nor does the well-resolved design of his large capitals imply that their parts should be joined by the stenciller.[45] Moreover, though Bery advertises his work with a rather generic ecclesiastical reference, using *Eglise* (Church) as the specimen word, the devotion to 'good' form it might imply is absent. Instead, the reference is probably a convenient link to a context many already associated with stencil letters. Indeed, the numerous letter sizes he offers – far more than required for a liturgical book – and his efficient method of manufacture may well indicate his wish to supply a clientele whose applications for stencil letters were also secular and utilitarian. Perhaps for many or even most of his customers, the breaks of the stencil letter were either not thought disfiguring or were simply irrelevant.

By the second quarter of the nineteenth century, the use of stencil letters for making liturgical books was mostly abandoned[46] and so too

43. Comments made by Des Billettes indicate that such guiding-marks (*le point a costé de chaque lettre pour marquer les eloignements*) were in use when he was writing.

44. The sole example so far discovered in which all the breaks – in titles, large initials and text – are disguised is a French liturgical book of the early nineteenth century ('Les vespers de Notre Dame pendent l'avent', The Newberry Library: Wing MS 2Y 74651.6). Its letters are stencilled with exceptional precision: no spacing or alignment apparatus of any kind is visible and breaks are disguised using multi-part letters and occasional rubrications.

45. It might, however, be argued that disguising the breaks would obscure the kind of letter the specimen sheet displays.

46. This assertion is based on a lack of examples after the 1820s; on Sievers (1825: 357), who reports that stencilling had fallen into disuse sometime before his visit to the Papal Chapel; and on Rosenberg (1973: 83), who writes that the stencilling of books in the Mainz region ended when monasteries there were disbanded at the start of the nineteenth century.
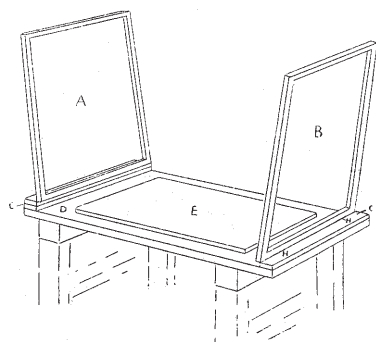
Figure 32. Multi-part letters (right), and an apparatus with two hinged frames (labelled A and B above) for stencilling them. From Hunter (1946).

efforts to conceal the stencil form. But where multi-part stencil letters are generally absent from rest of the nineteenth century, they re-emerge in the twentieth in the work of signwriters. Hunter (1946), describing professional practices stretching back nearly fifty years, records a method of constructing multi-part letters and illustrates an apparatus for stencilling them (figure 32). Other signwriters who were stencillers may have adopted similar strategies, if not necessarily the same equipment. Elsewhere, do-it-yourself signwriting sets such as Econosign and Stencillor were also based on multi-part letters.[47] In some respects, signwriting as devised by these sets resembles liturgical book stencilling: since the letters supplied were often large, their breaks would be obvious if left undisguised. Multi-part letters resolved this failing. By doing so, the sets enabled shop owners to produce signs of greater finesse and formality, even if the objects of worship thus advertised were rather different from those of earlier centuries.

Multi-part stencil letters are still used today, mostly in plastic lettering guides; for stencilling proper, they are uncommon.

Design

It is plain from discussions so far that the form of a stencil letter is closely linked to how and with what it is made, how it should perform and what it should look like once stencilled. But form is not deter-mined by these factors alone. Rather, an additional factor of design – as noun and as verb – also accounts for much. To make clear the nature of design's contribution to the stencil letter, the discussion that follows is divided into two broad strands: adaptive and natural form.

Adaptive form

Many stencil letters are apparently derivative, that is to say they resem-ble models already established in other spheres of letter design but, through subtle or obvious alterations, are adapted to the technical requirements of stencilling. Des Billettes (*c.* 1700) again provides early evidence. When describing stencilling, and thereafter the letters the stenciller should cut, printing and printing types are his paradigm. He ruminates on whether stencilling is more akin to writing or printing:

47. For users of Econosign, coordinating the parts of the letter was simplified by stencils made of transparent celluloid.

'one might … affiliate the art to that of the writer or scribe, as one could as aptly call it [a] scribing process as a printing process[;] but by the same token one could equally well affiliate it to printing: we decided rather more readily to do the latter owing to the specific affinity which exists between it and printing, inasmuch as both employ metal characters instead of a quill [pen].' When Des Billettes refers to the letters required, he states: 'one can distinguish the alphabets by sizes as in printing' and he mentions *gros parangon* and *gros canon*. Similarly, in describing the group of letters, he falls back on the typographical terms 'lowercase' and 'capitals' (*courante et sa majuscule, qui est justement / precisement ce que nous avons nommé dans l'imprimerie le bas de casse, et les capitales*). His measures to disguise the disfiguring breaks of the stencil letter may be taken as simply reinstating the original form of the letters, but they might also be construed as better enabling the stencilled letter to emulate the specific conventions of printing types. And in its entirety, Des Billettes's proposal is based on order and regularity. It de-emphasises skills that rely too heavily on manual fluency and coordination ('eye-balling') and replaces these with repeatable actions that are predetermined by the design and dimensions of the stencils and the equipment used with them.

Such qualities of a suggestively typographic kind are also evident in artefacts, books especially. There, stencil letters are combined in an organised manner to mark out text over many pages, as well as titles and initials. Letter sizes may bear a clear functional relationship to each other and within schemes of modular page construction that integrate musical notation and decorative matter (e.g. figure 16). There is in this an indication that some pre-existing typographic idiom has been adopted. Sievers (1825: 357), in describing the production or replacement of chants (probably in choirbooks), appears to allude to printing as the default model: 'The present scribes of the Papal Chapel have given up this mechanical-artistic method of copying [i.e. stencilling] and write with a pen. Their copies are, it is true, also excellent, and better than one could imagine without having seen them; but without the degree of symmetry that the old copying method produces'. One cannot be certain that printing preceded the stencilling, but 'the degree of symmetry' could imply this. Elsewhere, an *Antiphonarium* demonstrates these practices: most of it is printed with types, but bound in are several stencilled sections and, subsequently, additional handwritten sections.[48]

If it can be established by general comparison and, in a few instances by specific practice, that printing was a model for stencilling, then it follows that some stencil letters were derived from printing types. But while intimations abound, direct connections are fleeting. Des Billettes (*c.* 1700) offers no advice on the models a stencil-maker might follow, suggesting only that letters should be beautifully proportioned and 'the letters one wants to cut'. Stencilled letters in liturgical books usu-

48. *Antiphonarium*, 1614, Gilmore Music Library, Yale University, New Haven. It is probable, judging from the form of the letters used, that the stencilled sections were added in the 18th century. Similar additions are found in printed liturgical books from the Mainz region (Gottron, 1938). While the present discussion emphazises the affinity of stencilling and printing, it is worthwhile to note the features stencilled books often share with manuscripts. They include substrate (vellum), techniques of page layout (pinpricks to mark line ends, scoring to mark baselines and other delineations) and illumination (applications of multi-coloured decoration).

dér R eglR

a   *b*

B

gaedB gaudD RÆ

c   *d*

Figure 33. Adaptive form.
a. unidentified liturgical book frag-
 ment, Gilmore Music Library, Yale
 University
b. Bery, no. 5, *c.* 1781; cf. figure 11
c. Bauer, *c.* 1760; cf. figure 16
d. unidentified liturgical book frag-
 ment, Gilmore Music Library, Yale
 University
All examples reproduced actual size
from sources given.

ally follow the roman model as would be natural in the Roman Catholic
context from which most of these books emanated. The letters are,
however, only generally roman: while they echo the attributes of large-
size missal or choral types, they often exhibit lively idiosyncrasies
(figure 33). A stencil-maker's process of work might be the cause:
existing letters and types would provide a starting point, but these
would pass through a filter of aesthetic pre-dispositions, technical
ingenuity or incompetence, and some or little understanding of the
conventionally well-formed roman letter. The letters so generated
would be distinctly typographic but with irregular or eccentric attrib-
utes, their design not bluntly adaptive – the model left untouched save
the abrupt introduction of breaks – but rather more knowingly or
unwittingly mediated.

Many stencil letters fall within this description, very like printing
types but difficult to link to a specific model. Bery's letters are redolent
of offerings from contemporary French and Dutch typefoundries
though no precise matches are observed. But aligning stencil letters
too closely with printing types may be unwise in some cases: to take
Bery again, his larger decorated capitals and *bâtardes* are detailed and
flourished to a degree rarely seen in printing types; the exuberance of
the *bâtardes*, in particular, is more readily associated with the writing
master and the engraver. And as the applications for stencil letters
widened, especially into commercial ephemera – as much the domain
of the engraver (and later the lithographer) as the letterpress printer –
no doubt the models that guided stencil-makers grew in number. Early
nineteenth-century stencilled bookplates suggest this while among
later stencilled monograms, visiting cards, labels and billheads, letter
styles and forms recognisable from engraving, lithography and print-
ing are all in evidence. Borrowing from a variety of models would be
even more likely if stencil-making was only one of several services
offered by individuals or companies who also worked in other lettering
media.

Among stencil letters made since the nineteenth century, adaptive
form remains the dominant mode. In general, the impulse to adapt

may simply be a matter of convenience, efficiency and habit. But an adaptation may also be a practical reaction to the exigencies of style and fashion dictated from elsewhere, a demonstration that stencilling is a viable and up-to-date alternative to other species of lettering and printing.

Natural form

Stencil letters of natural form are distinct from those that are adaptive in that their contiguity of ground is fundamental to their overall conception rather than imposed on an existing model: the design is 'natural' to the demands of stencil-making.[49] Natural form in this sense is first apparent when breaks are coherently integrated into an existing letter that was originally unbroken. The stencil letter remains essentially adaptive, though the intention is a design that is technically appropriate but not obviously so. Thereafter, an attribution of natural form is increasingly apt as the effects of adaptation disappear or elude detection and fully appropriate when adaptation is irrelevant as a description. Natural form may also be assigned a supplementary feature that adds considerable interest to it: genesis within the work of stencilling. Many letters are made for stencilling but most are adaptive; those that are natural stencil forms *and* designed specifically for stencilling are far less common. While the identification of natural stencil letters made wholly for stencilling will in many cases prove inconclusive, their existence, if established, may illustrate instances where the work of stencilling has made an original contribution to the broader sphere of letter design.

Because decoration and pattern-making – whether on walls, furniture, fabrics, or in books – is often constructed of unjoined elements (i.e. on a contiguous ground), natural stencil letters are encouraged in contexts where they join with decorative inventions. The connection between decoration and stencil letters must be significantly old; again, Des Billettes (*c.* 1700) is the earliest explicit reference: 'in order to ornament this kind of printing [i.e. stencilling] one can also make all sorts of characters bearing fleurons, vignettes, cartouches, etc. which are used in printing, whether to mark them out in one go, in one colour alone, or else to make the outline only, and then illuminate it in different colours with a paintbrush'. Here, decoration embellishes the artefact to which (adaptive) stencil letters also contribute, but the forms of each are independent. This is true of many stencilled books that incorporate decoration.

Less frequent is decoration that builds the letter in its entirety to produce natural stencil letters. The earliest examples so far discovered occur in Boddeart's work (figures 34a, 14). His letters are constructed of straight and curving stems sprouting (rose) thorns and tendrils that bi- and trifurcate at their extremities; they are not merely embellished, they are pure decoration. While the style of Boddeart's work echoes that of contemporary engravers and typefounders, his letters are natural and apparently indigenous to stencilling. Similar letters are found in the following decades in France including Bery's, whose sinuous decorated capitals (figure 34c) are natural stencil forms of great complexity. Thereafter, no similar examples have been located until the middle decades of the nineteenth century, when decorated stencil

49. Natural form refers only to stencil letters that are a single entity with contiguous ground, and not multi-part letters or other exceptions given in note 5.

a. Boddeart (1755); cf. figure 14
b. unidentified liturgical book fragment,
   Gilmore Music Library, Yale University
c. Bery (*c.* 1781); cf. figures 11 & 12b

d. maker unknown, *c.* mid 19th century,
   probably Britain
e. Quint (*c.* 1887–95)
f. maker unknown, *c.* 2nd half 19th century,
   probably United States
g. maker unknown, *c.* 2nd half 19th century,
   probably Germany
h. maker unknown, *c.* 2nd half 19th century,
   Germany

i.–j. Johann Merkenthaler, from an
   advertising circular, *c.* 1900, Germany
k. Georges Auriol, *c.* 1900, France
l. Josef Albers, 'Schablonenschrift',
   c. 1923–26, Germany
m. Econosign, from advertising catalogue
   c. 1930s, Britain
n. Hunter (1946)

Figure 34. Natural form.
a–c, e, i–j, m–n: reproduced from
source given.
d, f–h: marked out from extant
stencil.
All examples reproduced actual size
except e, k, l and n.

letters recur in large numbers in England, Germany and North America (figure 34, d–g).[50] Some continuity exists between these nineteenth- century examples and their eighteenth-century forbears in the furcated terminals and mid-stem motifs; and many are shaded or otherwise three-dimensional in appearance with their breaks subtly resolved into the overall form of the letter. Late nineteenth- and early twentieth-century stencil letters designed as guides for needlework are also nearly natural in form and occasionally, as in 'cross-stitch' designs, are entirely so (figure 34i). But the specific source of their design remains outside stencilling.

Over the past one hundred years or so, other examples of natural stencil letters whose creation may be located within the work of stencilling occur only sporadically. Artists and designers working in the stylistic milieu of Art Nouveau and Jugenstil occasionally devised natural stencil letters to match other pictorial forms and patterns based on separate but fluidly integrated elements (figure 34, j–k). It is likely that some of this work was made for, or encouraged by stencilling, a popular means of decorating at the time. Letters designed along these lines are also found in contemporary lettering and type design compendia, and – suggestively – in stencilling and decorating manuals.[51] Among artists and designers of the modern movement, stencil letters were also of interest, partly for their associations with industry and engineering, but also for their open, constructed forms that aligned well with broader strategies of visual design. One iconic example is 'Schablonenschrift' (i.e. 'Stencil type'), an alphabet devised *c.* 1923–6 by Josef Albers purportedly for stencilling (figure 34l). The design is based around a few simple geometric elements that when variously configured produce an extreme, though still recognisable, rendition of conventional letters. But neither the process of design nor its outcome can be described as adaptive, making Albers' stencil letters largely natural.[52] Other examples leading up to the present day are not difficult to locate, but most are printing types or letters designed for specific (non-stencilling) commissions and may only use natural stencil forms for stylistic reasons. The association of individual designs with stencilling is usually problematic; if a link does exist, as in the case of stencilled signs or graffiti, the design itself may only be ephemeral.

Implications

This recollection of stencil letters suggests that beyond the examples discussed here is a yet larger narrative whose many parts remain unassembled. But by recollecting at least some of the story, the themes that characterize stencil letters come roughly into focus: design that is 'high' or 'low', sacred or vernacular; manufacture that is skilled or rude, mass or customized; applications that are base and functional or a hymn to glory; a technology that offers a mundanely practical kind of lettering or an alternative to printing that embraces the elaborate conceits of manuscript production. Among these themes and others, many matters beg further investigation: the impetus to reproduce texts with stencils, the details of ecclesiastical and commercial stencil-making practices, the evolution and expansion of stencil letter applications, the influences stencillers felt from other trades, and so on.

50. Few nineteenth-century stencil letters from France, decorated or otherwise, have yet been found and thus are not included in this essay; but they are likely to exist in some variety.

51. e.g. Scott-Mitchell (1906), Day (1914), and later Hunter (1946).

52. 'Schablonenschrift' warrants some additional comment as it is both related to later printing types (e.g. Futura Black, Transito, Braggadocio) and is a design that may itself draw on several stencil-related antecedents. Of these, the first occurs in propaganda posters executed by ROSTA artists in the Soviet Union between 1919 and 1922. There, natural stencil letters were constructed from simply cut forms and, as the posters were often stencilled, it is likely that the letters were invented with this use in mind. A second antecedent is found in paintings and graphic work executed by Fernand Léger immediately after the First World War where letters are used. Léger's appear to be an extreme simplification of a Didot-like modern face roman (or fat face), or of stencil letters adapted from them (numerous other artists and designers made subsequent use of such letters, again especially in the Soviet Union). Léger's own debt is probably to Cubist and Futurist painters who before and during the First World War used stencil letters in their paintings and drawings (Georges Braque apparently the first to do so). The particular stencil letter they chose was then and is still commonly used in many parts of Europe. See also Chatelain (1994). In regard to Albers' 'Schablonenschrift', it is interesting to observe that some stencil letters manufactured as punches (see figure 23) are uncannily similar, if less self-consciously unconventional.

At root, stencil letters are frequently disconcerting: convention wilfully disintegrated, disfigured, debased and abstracted. Where its compromises have been unacceptable, the stencil form has been disguised by procedures that return it to more familiar territory. But for those who have seen in the stencil letter's necessary technical expression room for imaginative essays in design, its open figure and contiguous ground are the source of much ingenuity and, in a few instances, truly inventive letters. Both approaches are discerned in artefacts and accounts that survive, as are other approaches less doctrinaire or innovative, adopted through force of necessity using a technology of convenience. To draw together their fuller history, many more episodes of stencil letters should be fixed. The few sketched out here give clues for where to look next.

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