



Opportunities for teaching type design

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Designing type demands wide-ranging expertise. Designers need *aesthetic* skills to devise ways of shaping character elements which satisfy the visual requirements of the type's intended purpose. They must have *practical* knowledge in order to suit their designs to the needs of reproduction processes and contemporary type manufacturing and output processes. Designers must have *interpretive* skills in order to be able to make judgements about proofs and to ascertain what modifications need to be made. Finally, designers need the *perseverance* to repeatedly modify their designs in order to achieve satisfactory results based on aesthetic and practical considerations.

Up until the late nineteenth century, type designing involved punchcutting and matrix justification (the process of carefully shaving the faces of matrices in order to obtain even type height and alignment and to define character spacing). Some designers created type-faces which incorporated new features, but aesthetics generally centred around the imitation or modification of existing letterforms. Attention focused on the practical considerations of cutting shapes on the face of a steel punch and the characteristics of the letterpress printing process. Perseverance and interpretive skills were essential. Using a range of fine tools, the punchcutter would painstakingly remove unwanted steel, leaving a relief character shape in reverse on the punch. This could only be viewed in an approximation of its final appearing form by taking a smoke proof. The punchcutter would have to make interpretations about necessary modifications and have the patience to repeatedly adjust the punch or, indeed, start again, until it was satisfactory.

Type designers for much of *this* century have worked in isolation from their final products. Producing drawings for the mechanical reproduction of type placed heavy demands on designers' skills since they had to try to imagine what their work would look like when reduced and output. When typesetting and printing technology changed they were not always able to take into account the various constraints and limitations of new systems.

In the early days of computer-aided design, systems (like Ikarus) were too expensive for all but the leading manu-

facturers. Only a handful of type designers were able to take advantage of this technology, which allowed them to define their own character masters, and then to view, judge and modify their own digitisations.

Software designed by Richard Southall, for use on a modular computer system, made it possible for a kind of type design to be practised at the University of Reading at that time. But it allowed students to design type only for low-resolution screen display. The computer system was slow and the only means of recording stages of work was by photographing the computer screen. But even with that technology, students could begin to develop an understanding of the processes of designing type.

The last few years have seen a radical shift. Type designers can now work directly on their final products again. Software packages available for use on personal computers (like Fontographer or FontStudio on the Apple Macintosh) have given back to designers low-cost tools to carry out the operations associated with type design and production. Sumner Stone is just one example of a contemporary type designer who has been quick to see the advantages of this technology. Writing in *Fine Print*^{*} about the design of the Stone family of type-faces he said, 'In the process of creating the Stone types I used the computer as a design tool because it was the best tool I had at hand. Some of the advantages are dramatic. For the first time since the punchcutter used smoke proofs, it is possible to get an almost immediate proof of your letterforms. In fact, these proofs are in some ways better than smoke proofs since they are the actual finished product created by the same machine(s) that will generate the type when the design is finished'.

The educational consequence of these tools has been significant. Before Fontographer, students could develop a mainly theoretical understanding of type design (setting aside any historical appreciation). Now students can also develop a good practical understanding.

For the first time in the history of printing, type design can be taught without laborious training in complex craft skills. Digital type design tools bear little resemblance to the tools of the punchcutter, because digital type

demands completely different kinds of character descriptions. Trainee type designers of the past had to spend many years training in the metal-working crafts. Now a student can learn about outline control points and obtain type in proof state in a period of time that will fit within the demands of an undergraduate course.

The software does not alter the expertise required. Software, at the moment at least, cannot make a user into a type

designer. Users have to establish their own preferred methods of working, and learn (by doing, by reading and most of all by looking) what visual judgements need to be made, and how they should be made. I think the use of current type design software can positively encourage an awareness of skills which might not otherwise be developed. The speed with which designs can be digitised, output, and viewed, allows students to obtain a large range of proofs. These can be compared and evaluated

according to their intended purpose. The poor quality of images on screen means that, with proper instruction and advice, work must be output in order that accurate judgements can be made. Output proofs can be kept as a visual record for discussion and reference. In this way students can develop their *aesthetic* skills.

The creation of fonts in PostScript format, in software like Fontographer, allows the student to output proofs via any PostScript-compatible output device. This means that proofs can be obtained in a range of resolutions. In designing type for high-resolution output, the most popular approach is to proof early stages of a design on a medium-resolution laser printer, and then make final sets of proofs on a high-resolution imagesetter. This means that the student and teacher will discuss *practical* issues of designing for different output-device characteristics, and the fundamental principles of outlining, rasterizing, bitmap-editing and hinting. In addition, issues relating to subsequent reproduction can be discussed, and printing experiments carried out using a range of output proofs for comparison.

The period of time spent as an undergraduate design student provides a unique opportunity for exploration and experimentation. Being able to practise type design at this stage means that students have an ideal opportunity to develop skills of *interpretation*. The freedom to try out and modify ideas develops their *perseverance* and staying power.

Even if students are not to become professional type designers, the skills they acquire in type design exercises can be applied to other design tasks; and a specific understanding of type will contribute to a more sensitive approach to its use in the wider field of graphic design.

* Taken from:
Stone, S., *The Stone Family of Typefaces: New Voices for the Electronic Age* in Bigelow, C., Duensing, P.H., and Gentry, L., (eds.) *Fine Print on Type* Lund Humphries Limited, London, 1989, pp.136-139, p.139.

Other sources of information:
Southall, R., *A survey of type design techniques* unpublished paper, 1981.

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Vergetios, Angelos, I, 236.
Versi Sciolti di Tre Eccellenti Moderni Autori, I, 172, 173.
Vesalius, Andreas, *De Humani Corporis Fabrica*, I, 143, 144.
Veterum Mathematicorum, I, 212.
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Vidoue, Pierre, I, 195.
Villa-Diego, Bernardo de, II, 70, 76.

Walker, Emery, II, 211, 212, 213, 216.
Walpergen, Peter, II, 97.
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Walsingham, Thomas, *Historia Brevis*, II, 128; *Ypodigma Neustriae*, 128.
Walton, Brian, II, 92, 99.

Illustration 1
Non-ranging numerals for Times designed for medium-resolution output (left) and

high-resolution output (right) by Christopher Burke, student in the Department of Typography & Graphic Communication.

Illustration 2
Anglo-Saxon characters for Times designed for high-resolution output by Paul Hughes and Paul Weston, students in the Department of Typography & Graphic Communication. These characters were designed in association with the University of Reading's Graduate Centre for Medieval Studies for their forthcoming publication *The Anglo-Saxon Chronicle; Texts and Textual Relationships* by Professor J M Bately (*Reading Medieval Studies Monograph 3*).

Top: Times capitals and small letters followed by the new Anglo-Saxon characters; a manuscript identifier, capital eth, small eth, capital thorn, small thorn, capital wynn, small wynn, capital yogh, small yogh, e-caudata, 'and' sign.

Below: sample setting of Anglo-Saxon texts.

ABCDEFGHIJKLMNQRSTUWXYZ
abcdefghijklmnopqrstuvwxyz
ÆÐðþǷƿƷƷƷ

Ʒ þy ilcan geare Æþelstan cyning Ʒ Ealhhere dux gefuhton on scipum,
Ʒ mycelne here ofslogon æt Sandwic, Ʒ .viii. scipu gefengon, Ʒ þa oðre
geflymdon.

Ʒ him selfum to ecere heolo, Ʒ þy ilcan geare ferde to Rome mid micelre
þeorþnesse Ʒ þær þas xii monaþ puniende Ʒ þa him hamþeard fór, Ʒ him þa
Carl Francna cyning his dohtor geaf him to cuene, Ʒ æfter þam to his leodum
cuom Ʒ hie þæs gefægene þærun. Ʒ ymb ii gear þæs ðe he of Francum com he
gefór, Ʒ his lic liþ æt Ʒintanceastre, Ʒ he ricsoðe nigonteope healf gear.