# Carol Twombly on Type

*by Randy Silverman*

**t**he appeal of an inviting building begins with its solid architectural space. So too with typography, that all-too-often unnoticed "architecture" implicit in the conveyance of the printed word. Viewed under magnification, bold, vertical stems clearly support cross bars like studs; spherical bowls open window-like onto the page; and serifs (or the lack), define the ceiling and foundation of each line. As with the appreciation for a "signature" house, a skilled typographer responsible for the distinctive flavor of the type that makes up even these pages need not remain "faceless" despite the subtlety of their work.

Carol Twombly is one of a few dozen premier U.S. type designers currently working to create original, useful, and above all readable type for display and book work. A product of the Rhode Island School of Design, Twombly captured the attention of her typography teacher, Charles Bigelow, who hired her summers to work in his typographic studio, Bigelow & Holmes. After earning her Master of Sciences degree in digital typography from Stanford University–one of only five to hold this specialized diploma combining graphic art and computer science– Twombly returned to work full time for Bigelow. In 1984 she won first prize in the international Morisawa Typeface Design Competition for her roman face, Mirarae. She joined Adobe Systems, Inc., Mountain View, CA, in 1988 as one of three in-house type designers, and received the Charles Peignot award in 1994 from the Association Typographique Internationale in recognition of her contributions to the field of type design.

The first typeface Twombly designed for Adobe was Trajan, a roman display face in regular and bold weights inspired by the inscription

*Carolingian capitals from "The Benedictional of St. Aethelwold" 960–980 A.D. (Episcopal liturgical blessings).*

carved in Rome in 114 A.D. on the stone base of the Trajan column. Her tools for converting the letter forms known as *capitalis monumentalis* into a digital typeface included examples of the Trajan inscription and an appreciation for classical proportions. "I had studied those letter forms since I was an undergraduate and thought they were incredibly beautiful," Twombly vigorously recalled. "But, when I translated those shapes from the stone inscription into black and white, I found they didn't quite work. They required subtle weight adjustments and proportion adjustments to make them fit together well on the page."

The Trajan inscription lacks the modern letters H, J, K, U W, Y and Z as well as a *(Continued on page 12)*

*"Capitalis monumentalis" from the first century B.C., Rome.*

set of numbers or punctuation. Twombly integrated these missing characters into her Trajan using Adobe Illustrator on the Macintosh. "This was the first time I had a tool I could control that was interactive and easy to use," Twombly remembered with amusement. "I could look on the screen and use my mouse to grab the letters outline and move it around or even draw something from scratch! Before that, I had been working with systems that were much more mathematically oriented. X and Y coordinates were typed in to move points around on the screen, which is really not an efficient way to get things done if you're a visual person used to drawing with a pencil or brush."

"Since then," Twombly continued, "software programs have been created specifically for designing type. Fontographer and FontStudio are set up to organize your drawings and allow you to actually build a working typeface. I begin most of my work by doing sketches or fairly clean drawings first. Then I scan them into the computer with a flatbed scanner. FontStudio allows you to call up that scanned image behind the blank piece of paper on your screen so you can use your own drawing as a template to work from."

After designing Trajan, Twombly worked on two additional titling display faces for Adobe that also derive their inspiration from classical sources. Charlemagne, based on a tenth-century Carolingian manuscript hand, is a strikingly elegant face that commands attention with its dramatic serifs and dynamic juxtaposition of balance and weight. Similarly, Lithos, designed in five weights, is based on Greek stone inscriptions dating from 447 B.C. "I was trying to capture the simple beauty of the Greek forms and, at the same time, make them contemporary," she said.

These projects lead Twombly to her next great challenge; interpreting William Caslon's 18th-century roman and italic text faces for the digital world. This undertaking ultimately resulted in a family of 22 typefaces. For inspiration, Twombly focused her study directly at the source. "I looked at a number of books printed in original Caslon types from the late 1700's," she recounted, "including an original type-specimen sheet printed by Caslon himself in 1738," borrowed from fine press printer Wesley Tanner, then of

Berkeley, California. Next, Twombly made enlargements of the original letterforms for closer scrutiny, but these "resulted in large, blobby shapes" lacking crisp definition because of the way inked metal type offsets onto paper. With the use of a microscope Twombly was able to "get a hint as to the shape of the original metal type as it had been impressed into the paper."

With her research completed, Twombly's creative work began. "I did my drawings based on that study and scanned them into the computer," she remembered. "I made adjustments and ran tests on laser printers and type setting machines to see how the type was going to look when it was used in the digital medium. All the while, I kept asking, 'Am I capturing the shape of this "A" properly, Mr. Caslon?'"

Faithfully capturing the "look" of Caslon was an arduous process; after all, what *is* the look of Caslon, a typeface originally different in every point size? "Trying to come up with one design that could be successfully scaled to different sizes was very difficult," confessed Twombly. The metal type had been hand-cut, and each size was quite different from the next size up." Another problem relates specifically to the digital world. "People sometimes print on 300 dot-per-inch laser printers, and the letterforms come out looking very chunky and black," Twombly explained. "You have to come up with an outline that's going to look like Caslon in that situation as well as the other extreme, when it is output at very high resolution on photo paper. In my opinion, a modern digital type that is an interpretation of metal is always an interpretation—it's never exactly like the metal design." Needless to say, one of Twombly's gifts as a type designer is her ability to capture the aesthetics of well-loved letterforms and convert them into successful digital characters.

These conservative conventions relaxed a bit with Twombly's next challenge; to create an original typeface that places precise control of the face's design variables—weight, width, optical size or style—in the graphic designer's hands, thereby eliminating the need to distort (stretch, squeeze or scale) a face to make it "fit" a layout. "By using 'multiple master technology,' as Adobe calls this new generation of type, we're able to design a 6



ENGLISH ROMAN.

Quousque tandem abutêre, Catilina, patientia nostra? quamdiu nos etiam furor iste tuus eludet? quem ad finem sese effrenata jactabit audacia? nihilne te nocturnum præsidium palatii, nihil urbis vigiliæ, nihil timor populi, nihil consensus bonorum omnium, nihil hic munitissimus
ABCDEFGHIJKLMNOPQRSTVUW

*English Italick.*

*Qyousque tandem abutere, Catilina, patientia nostra? quamdiu nos etiam furor iste tuus eludet? quem ad finem sese effrenata jactabit audacia? nihilne te nocturnum præsidium palatii, nihil urbis vigiliæ, nihil timor populi, nihil consensus bonorum omnium, nihil hic munitissimus habendi se-*
*ABCDEFGHIJ KLMNOPQRSTVU*

PICA ROMAN.

Melium, novis rebus studentem, manu sua occidit. Fuit, fuit ista quondam in hac repub. virtus, ut viri fortes acrioribus suppliciis civem perniciosum, quam acerbissimum hostem coërcerent. Habemus enim senatusconsultum in te, Catilina, vehemens, & grave: non deest reip. consilium, neque autoritas hujus ordinis: nos, nos, dico aperte, consules desumus. De-
ABCDEFGHIJKLMNOPQRSTVUWX

*Pica Italick.*

*Melium, novis rebus studentem, manu sua occidit. Fuit, fuit ista quondam in hac repub. virtus, ut viri fortes acrioribus suppliciis civem perniciosum, quam acerbissimum hostem coërcerent. Habemus enim senatusconsultum in te, Catilina, vehemens, & grave: non deest reip. consilium, neque autoritas hujus ordinis: nos, nos, dico aperte, consules desumus. Decrevit quondam senatus*
*ABCDEFGHIJ-KLMNOPQRSTVUWXYZ*

ADOBE CASLON.

Melium, novis rebus studentem, manu sua occidit. Fuit, fuit ista quondam in hac repub. virtus, ut viri fortes acrioribus suppliciis civem perniciosum, quam acerbissimum hostem coërcerent. Habemus enim senatusconsultum in te, Catilina, vehemens, & grave: non deest reip. consilium, neque autoritas hujus ordinis : nos, nos, dico aperte, consules desumus. De-
ABCDEFGHIJKLMNOPQRSTUVWX

*English roman and italic (about 14 point) and pica roman and italic (about 12 point) from the 1738 specimen sheet. At the bottom is Adobe Caslon.*

point and a 72 point design, for example, and mathematically interpolate everything in between. Each point size is not completely different, but mathematically generated from the two extremes of the design, to better suit the type for use at all the sizes in between. This provides a better simulation of how metal type functioned," she explained. "The idea of mathematical interpolation has been around for quite a while, originating with URW in Germany in the 1960's. Only recently, though, has this been linked with the capabilities in Adobe Postscript to let the user separate custom font variables for themselves as needed. Now, users can choose exactly

which weight, width or size of a typeface they need from among dozens of possibilities." The goal of multiple master typefaces is to provide a framework within which the graphic designer, typographer or desktop publisher can exercise new and ever-more subtle control over their typographic layouts.

The design process to accomplish this objective radically affects the work of the type designer. Simplifying an explanation of her working technique for the sake of clarity, Twombly says, "a one-axis multiple master design, for example, is usually a case where weight is the only variable. You design the light and the bold versions of that face, allowing the user to interpolate the various weights in between. During the design process, you have to continually adjust the two ends (the light and the bold designs) until the interpolated versions in between look the way you want them to." The more variables the type designer wants to control in a design, the stickier the process becomes. "If you want to have both weight and width as variables," Twombly continues, "you are then dealing with a two-dimensional space in which you have to design the four extremes. In this case, the design requires a light condensed, a bold condensed, a light extended and a bold extended. It's quite a visual and an intellectual exercise!" Fortunately, multiple master technology now allows interrelated designs. For example, a "regular" weight can be incorporated along with the "extreme" designs. Nueva, Twombly's original creation and her latest contribution to the Adobe type library, allows this control over two variables, width and weight, providing the user with hundreds of subtle variations between light condensed and bold extended. An exuberant display face that fairly dances on the page, Nueva contains design elements that deeply interest Twombly and continually crop up in her work.

Developing a two- or even a three-dimensional multiple master text composition family requires tremendous work and can take as much as two years to complete. "We generally design not only a roman, but also an italic and expert set fonts which include small caps, old style figures, an extended set of ligatures and other characters useful for book typography," explains Twombly. "Each of those fonts is a separate multiple master typeface in itself, and must fit comfortably with the rest of the type family."

However satisfying, the payoff can be economically elusive. "There is no copyright for typefaces," notes Twombly. "People often steal and re-market a new design as soon as it's released as long as they rename the face and don't steal the actual software data." "It's very discouraging," Twombly confides. "Sometimes it makes me think I ought to be doing something else that I can actually claim as my own."

The type market is depressed as a result of manufacturers issuing cloned packages containing hundreds of fonts of bootlegged type for very little money. "I'm lucky," reflects Twombly. "Personally, I'm affected only indirectly because Adobe employs me, while it assumes the high overhead costs for production, quality assurance, and marketing. Independent type designers have to buy their own software, spend the time to create a viable product, package it, market it, and ship it on floppy disks. They do the whole job themselves. When they get ripped off, it's got to be at least as frustrating and costly for them as it is for us."

As casual "consumers" of type, most of us give little if any thought to using "borrowed" type, but for the designer, it is a real problem. "People have been lobbying the copyright office for a long time, but copyright protection for type design only exists in Europe in countries such as Germany," notes Twombly. "Unfortunately, too many firms in this country have made it their livelihood to rip-off type. They have become powerful lobbyists. Further, the American copyright office seems to believe the alphabet is a utilitarian object; it does not recognize differences between one design and another. They don't see it as having any artistic merit."

This view arguably follows the logic that the "man in the street" is unlikely to be able to differentiate between a Goudy and a Garamond. While this is no doubt the case, it is equally unlikely that this same self-styled expert could distinguish between a gizzard and a gall bladder, even were they his own. This subtlety in our legal code gives rise to concerns about whose rights "we the people" are committed to protect; though, no doubt the issue is clearly spelled out in the fine print. **GAJ**