
A wayward wayfarer's way to T_EX

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1 Introduction

I flatter myself that my introduction to T_EX was a bit unusual, and that it may be just entertaining enough to share with you. Let me say at the outset that my training is as a musician: specifically as an organist (rather like another very distinguished member of the T_EX community...), choir director, and sometime composer—and some would say not nearly sometime enough.

I received a Bachelor of Music Degree in organ from Heidelberg College in Tiffin, Ohio, spent three years studying at the Royal College of Music, London, and am now a whisker away from a Master's degree in ethnomusicology from Brown University in Providence, Rhode Island. Everything was going along smoothly until one day in 1986 when I found myself in the electronics section of a rather fancy department store. Little did I know what an interesting turn life would take...

2 The new love of my life

I rounded a corner and came up against a rather plain display featuring a Mac Plus. Love at first sight. It was so cute! And it in no way corresponded to my preconceptions of what a computer was. It took only a second to get accustomed to the mouse, and in minutes I was drawing (admittedly crude) pictures using MacPaint. MacWrite was a revelation: I could type whatever I liked with no fear of errors as they could be corrected with a simple backspace! Cool! No more whiteout, no more punishing re-typing. Way cool! Moreover, this was my very first experience with a computer.

I am a dyed-in-the-wool Mac user: I'm unhappy if I'm not surrounded by mice, GUI's with dialogue boxes, windows, drop-down menus, and the sleek styling of the computer itself. Microsoft Windows, and the even more arcane, mysterious and mantra-ridden Unix environment are alien to me—or at least they were until a few years ago.

A few months after I saw it in the store, I had my very own Mac Plus. A few months after that,

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I had an early copy of Aldus Corporation's PageMaker.¹ A few months later still, I had an opportunity to see the documents I was designing in PageMaker printed on an Apple LaserWriter. I cannot adequately convey to you the wonder of seeing that first output (it would probably embarrass me now) and the sense of empowerment that my humble little Mac Plus gave me. Not too long after that I made the acquaintance of PostScript and the extraordinary *Colophon 3 Alphabet* created by Adobe in which PostScript was made to do some wonderful things. As the original readme file put it, "Our intent in distributing this [material] is to inspire and inform" and that it did. All you needed at that time was a \$7,000 Apple LaserWriter to see the results!

In 1988 Quark released XPress² in direct competition to PageMaker. I was interested, so I read the reviews and ran across one by Charles Seiter for *MacUser* magazine. At the very end of the review, he mentioned almost in passing with a teasing, throw-away manner that, good as the new page layout programs were, they were nothing compared to the "grand-daddy"³ of them all, T_EX, as exemplified by the program *Textures*.

3 A revelation

Shock! Why hadn't I heard of this T_EX, or *Textures* for that matter? I had to have it! Little, of course, did I know what awaited me.

I discovered that *Textures* at that time was sold by Addison-Wesley. I ordered it and it arrived with more disks than I could have thought possible, a slim user's manual, and, I kid you not, a copy of *The T_EXbook*. I spent an afternoon installing *Textures*, glanced through the user's guide, and with a trembling hand, double-clicked on the *Textures* icon and was greeted with... an empty text editing window. What do I do now? I turned to *The T_EXbook* for some illumination. Bad move. The introduction was a nightmare of sorts: Lies? Jokes? Warning signs? It wasn't until a few weeks later that I sorted things out and actually typeset the story centering on one Mr. Drofnats.⁴

It wasn't long before I created a number of documents in T_EX, PageMaker and XPress in order to

¹ Remember that this was in the early, halcyon days of the Mac, when the PageMaker program resided on one *floppy*, and the system software resided on another *floppy*.

² Founded in 1981, Quark had in its early days developed word processor software for the Apple II and Apple III computers.

³ Seiter's word. I tried to find the original article in the *MacUser* archives but was unsuccessful.

⁴ Until I was preparing this presentation, I had no idea that his first name was Revinu Jitis. Live and learn.

compare them. Without exception, I was struck by how much better the type in the T_EX sample looked. From that point on I was hooked, and a true believer.

I grew very much to enjoy T_EX as embodied in *Textures*: In my childlike naïveté, I thought all T_EX implementations must be like *Textures*. So, when I found out about OzT_EX I got a copy of that. Boy, was that a shock. I can't recall being so befuddled by anything in my life. The whole thing was a nightmare, but fonts were the worst. Fontinst? Afm2tfm? PL files, VF files, FD files? I fled, screaming, back to the loving, comforting embrace of *Textures* and never looked back. I didn't know it at the time, but *Textures* had insulated me against the perilous font misadventures which are a distinguishing aspect of T_EX.

4 And then I wrote a book

Along the way, I discovered a program called Fontographer, one of the first commercially available font editors. Yet again I was overwhelmed by a feeling of empowerment: I could do things easily and quickly with Fontographer that required tremendous resources and time in traditional type design. I digitized several Goudy typefaces that were then unavailable, and edited others to my liking.

I started to keep a notebook, a kind of *vade mecum*, in which I recorded notes about things I had discovered, ways of working, tips and techniques that I did not want to forget. Eventually I kept this information in a MacWrite document. One day I was assailed by an attack of hubris and wondered if others might be able to use this information... maybe I could write a book...

So I worked on the first few chapters, using plain T_EX in *Textures*, and showed them to Earl Allen, head of technical support at Altsys, the company that at that time developed and marketed Fontographer. He was very enthusiastic and encouraged me to finish it and send it to a publisher. I wrote the rest of the book, and sent a sample chapter to a company that was suggested to me, MIS:Press, then a division of Holt.

A few days later I received a call from the publisher, Paul Farrell. We exchanged pleasantries and established that we liked each other, for the nonce anyway. Then the conversation took a serious turn.

He said, "Well, most people on the west coast use PageMaker and most people on the east coast use XPress, so what do you use?"

"Uh... er...," I began articulately, "well sir, I use... T_EX."

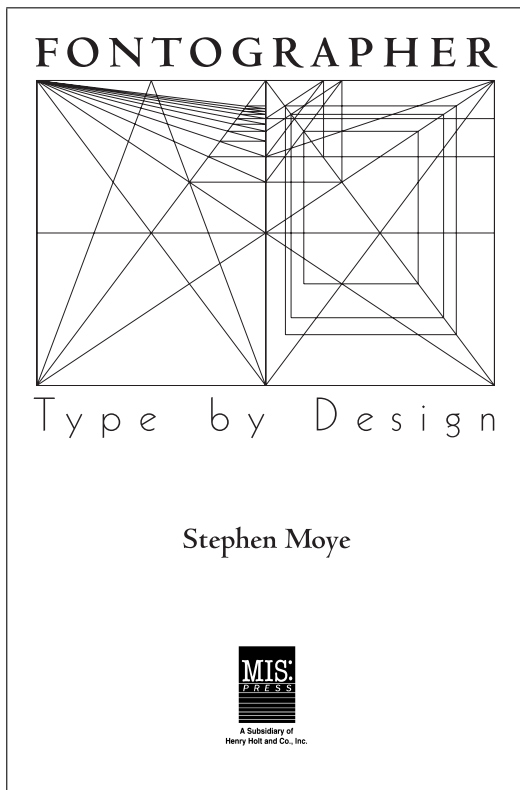


Figure 1: The book

There was a moment of silence so profound on the other end of the line that I thought the connection had been broken. I was just about to say something...

“Oh my God,” he said, “bitmaps!”

It was a herculean task to convince him that $\text{T}_{\text{E}}\text{X}$ had evolved far beyond the use of mere bitmap fonts and that, in fact, he’d already seen the results with his own eyes in the sample I sent him. The book, *Fontographer: Type by Design*, finally appeared in 1995. Sadly, two years later, IDG International bought MIS:Press and promptly destroyed all copies of all MIS:Press books that it deemed would not sell in numbers on a par with *The Joy of Cooking*—all this without ever contacting the authors. Maybe they did me a favor of sorts: I have seen copies of the book sell for as much as \$300, and an asking price over \$1,000. One other note: My book and *The METAFONTbook* share the same Library of Congress call number and sit beside each other on the library shelf.

So, my world seemed happy and stable: I authored a book, typeset concert programs, church bulletins, and all kinds of documents for non-profit arts organizations. $\text{T}_{\text{E}}\text{X}$ was not about to go away,

and Textures had become a valued tool that would be around forever. Wouldn’t it?

5 And then there was Mac OS X

Apple has an annoying habit of shaking up both itself and its loyal customers. OS X is a good example of this: It is not just OS 9 in a party dress. It is radically different to the bone: So different that OS 9 programs (such as Textures, for example) have to be used in an emulation of OS 9 on OS X. Blue Sky was quick to point out that Textures works just fine under “Classic” (the name for the emulation of OS 9 in OS X) and in fact that was true, to a point. What became progressively more irritating as time went on was having to open up Classic at all. Every other piece of software I used had been rewritten for OS X. Equally irritating were Blue Sky’s reassurances given over a period of *years* that an OS X version was in the works, and expected any day now.

And there were problems. It became increasingly difficult to print *reliably* from Textures. In addition, computer typography was moving to Unicode and OpenType; Textures, operating under OS 9, was stuck using standard PostScript fonts with a mere 256 characters. It is a measure of how wonderful Textures was that we stuck with it for as long as we did.

6 “Hey, kid, have I got a job for you...”

The next jog in the road of my journey in $\text{T}_{\text{E}}\text{X}$ land came from a most unexpected source. A choir member, Victoria Ancona, Editor of Book and Journal Production at the AMS (aka *T_{\text{E}}\text{X} heaven*), at the church for which I was organist and choir director approached me. She knew of my interest in $\text{T}_{\text{E}}\text{X}$. She said to me, in essence, “Boy, have I got a job for you... Do you want to work at the AMS?”

I was dumbfounded and at a loss for words—a rare occurrence for me. Here I was being offered the possibility of working in the same environment as two stellar figures in the $\text{T}_{\text{E}}\text{X}$ world: Mike Downes and Barbara Beeton. Actually, as I learned later, I would be working *in the very same department*, the Publications Technical Group. I count it a great loss that I never got to know Mike Downes very well: Tragically, he died before I was able to work up the courage to engage him in conversation—my loss. Getting to know Barbara Beeton has been a treat, even though I know I try her patience from time to time. There is so much to learn!

7 As it was in the beginning...

I started to see mentions of Dick Koch’s new $\text{T}_{\text{E}}\text{X}$ editor and previewer called TeXShop, and it sounded

interesting. At the time I was still using Textures. My various projects that I had going at the time did not really allow me to change my TEX environment. But it sounded promising and I kept an eye out for future developments.

They were not long in coming. Word was circulating about Gerben Wierda’s *i-Installer*, and how it took care of all the painful details of installing and maintaining TEX . Better and better. I downloaded both *TeXShop* and *i-Installer* and put them to work. Lo! and behold, it worked. This was beginning to look a lot like what Textures was to Mac OS9. My deepest thanks to Dick and Gerben! But the best was yet to come...

7.1 St. Jonathan and the blessed $\text{X}\text{Y}\text{T}\text{E}\text{X}$

One day I read something about Jonathan Kew’s $\text{X}\text{Y}\text{T}\text{E}\text{X}$, and it looked almost too good to be true: Unicode, and the ability to use both AAT and OTF fonts out of the box. Using this extraordinarily powerful tool has been a transforming experience, and has re-energized my interest in TEX . Thanks, Jonathan!

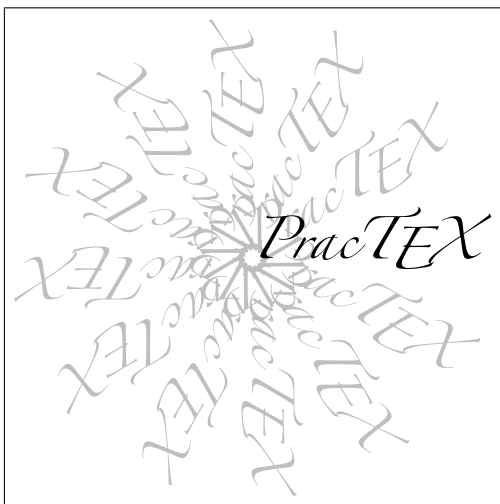


Figure 2: A “fontflake”: a typographic frolic done entirely in $\text{X}\text{Y}\text{T}\text{E}\text{X}$, using its native controls.

7.2 St. Will and the miraculous fontspec

And then there came Will Robertson’s wonderful *fontspec* package for $\text{X}\text{Y}\text{L}\text{A}\text{T}\text{E}\text{X}$. Now, at this point I have to make a confession: I am a plain TEX person. From my perspective, $\text{L}\text{A}\text{T}\text{E}\text{X}$ has become the Microsoft Word of the TEX world. In the work that I have done, fonts are a major design issue, and the ability to change the typefaces quickly and efficiently in a given project or series of projects is an important requirement. Yes, I have spent hours

with *fontinst*, *afm2tfm*, *fd* files, and all the rest of it, but I do not consider it time well spent. I would also point out that I have a love-hate relationship with Computer Modern: sometimes I hate it, at other times I love to hate it. Will’s *fontspec* removes, for me, one of the major barriers to using $\text{L}\text{A}\text{T}\text{E}\text{X}$, and for that I’m, well, if not exactly overjoyed, at least pleurably intrigued. Thanks, Will!

So, at present, I think I can safely say that I am back to where I was when Textures was my TEX tool of choice—indeed, I am much better off, with many more typographic options at my disposal.

8 ... is now ...

Over the years, in addition to the book, I have done a tremendous amount of work for non-profit arts-oriented organizations (programs, pamphlets, order forms, survey forms, and more), and helped a friend to publish genealogical tables nicely formatted—all using plain TEX with Textures and more recently *TeXShop*. I’ve also burdened the CTAN archives with a series of type specimens collectively called *typespec*.



Figure 3: A sample of one of the *typespec* specimens created using plain TEX .

Since coming to the AMS, life has been... *interesting*, to say the least. Not only have I had to

develop my Unix skills (as those skills verged on the ethereally exiguous, this was easy), but I've had to come to terms with something called VMS—ugh. At present we do all of our production work on VMS, though this is shortly to change: we hope to move everything to Unix by the end of this year. This will be accompanied by a complete reorganization of the directory structure for processing our materials, and putting the whole thing under Subversion—oh yes, we've had a lot of fun with that—which will serve as both version control and online archive. We'll have considerably more to say about this, I should think, at PracTeX 2007.

We are also moving *The Notices of the American Mathematical Society* away from Quark XPress and to Adobe InDesign. *Notices* is the publication of record for the business of the AMS: membership, meetings, announcements. It was decided in 1995 to alter the nature of *Notices* radically: It would become a glossy, glamorous magazine that would present current mathematical topics in an attractive and colorful way, in addition to performing its original function. The first issue in the new format appeared in January, 1995. In effect, *Notices* was now to become the product of desktop publishing. This was made possible by the fortuitous appearance of two pieces of software: Quark XPress and Mathsetter. Mathsetter, for those who don't know what it is, is a plugin for XPress (version 4.x only) that converts TeX math to XPress type; it uses the Textures TeX engine to do this. Well, Textures is not exactly what you'd call current at the moment, and the same may be said of Mathsetter, only more so. Moving away from XPress and Mathsetter has meant moving to TeX: all of the math-heavy articles in *Notices* are typeset entirely in TeX. This is rather exciting. It is fascinating, and more than a little disturbing, to contemplate how vital a piece of software can become. When we started to look at alternatives to Mathsetter, it was astounding how much material passed through it: blurbs on the back covers of books, catalogue materials, things we post on the web, marketing and promotional materials of myriad kinds—and *Notices* feature articles and other contributions that use a lot of math.

As if all of that were not enough, we have also replaced our aging film imagesetter with a brand new platesetter from basysPrint of Boizenburg, Germany.⁵ The interesting thing about this piece of equipment (not counting the fact that it is HUGE: seven feet square by five feet three inches in height, and weighing 2.5 tons!) is that it exposes standard,

inexpensive, conventional printing plates using a powerful source of ultraviolet light focused through a solid state chip⁶ that contains thousands of tiny little mirrors that focus the light and create an image on the plate. The chip, alone, costs about \$9,000 to replace, should that ever be necessary.

9 ... And ever shall be?

Given my life thus far with TeX, I trust that you will permit me to venture a few observations. Clearly, we are currently enduring the curse of living in “interesting times”. Whereas we used to live in a simple world divided between plain TeX and LaTeX, we now face an intimidating array of possibilities: TeX and LaTeX; PDFTeX and PDFLaTeX; XeTeX and XeLaTeX; ConTeXt; Omega... and on it goes. All this is wonderful for authors, but a veritable nightmare of sorts for publishers who have to streamline their production for maximum effect, minimum waste, and quickest turnaround.

As a side note, what can be said for flavors of TeX goes double for graphics: the dizzying array of graphics packages (in many versions) that turn out a profusion of graphics formats is becoming a real problem to publishers. But that is a subject for another day...

Our production is based on LaTeX: for journals we require TeX files, and strongly encourage our authors to use the AMS class files (we typeset virtually all of our journals inhouse). For books we require DVI files, though this has begun to shift significantly: If the author is willing to do *all* of the work to format the book to our standards, we will accept a PDF for the project. But how many times have we heard this at the AMS from an author: “I'm using TeXShop which means I have to give you a PDF: TeXShop can't make a DVI file.”⁷ Hmmm... Or received PDF files with missing fonts, or PNG or JPEG files accompanying a DVI file?

And whereas at one time it looked as if PDF files might be a miraculous problem solver, now we need to ask which PDF specification: 1.1, 1.2, 1.3, 1.4, 1.5, or 1.6? Or PDF/X-1a or PDF/X-3... and, again, the list goes on. Is the author using the Jaws PDF tools, or Ghostscript's, or Adobe's? And not all PDFs of the same specification are made equal, as we all know.

From time to time we get angry emails from exasperated authors (often in sciences with less overt mathematical tendencies) demanding testily why we

⁶ Developed by Texas Instruments; also used in large-screen projection televisions.

⁷ Note to Dick: could you please add “and dvi” to the “TeX and Ghostscript” menu item?

⁵ About 100 km east of Hamburg.

are still using \TeX , a tired, old-fashioned, and awkward tool at best. Surely there is something else, more modern, more up-to-date that would be more suitable. Why not Microsoft Word? On those occasions, if I knew how to do a hollow laugh, I'd do one.

Well, I think it's a mess, that a catastrophe is looming as increasing costs, diminishing income, and tightening timeframes for publishers conflict with increasing pressure to publish as much as possible in the smallest period of time, using whatever tools happen to be handy at the moment in the academic community, and an increasing interest in bypassing traditional publishing altogether and going right to the Internet. Working in the field of scholarly publishing right now is a bit like watching a train wreck happening in slow motion.

I don't know the solution to these problems. Publishers are in a difficult position because they have workflows that require a limited variety of input for them to produce reliable output in a timely way. It is my obligation as an author to provide what the publisher requires, particularly if I want to be certain that I get what I want. But I'm lucky: I have wonderful tools at my disposal, and I'm lucky enough to know how to use them, usually.

In large part, I think we can make a start by putting well-designed, versatile, and comprehensible tools into the hands of authors, tools such as TeXShop and Mac \TeX ; and to provide documentation that is as good as the software. Not long ago we dealt with an author, a Mac user, who worked on an important book for the last ten years, and used Textures to put it together. At some point he switched to OS X. His problem was that as OS X developed and grew, Textures did not. Finally, the situation became intolerable for him and he asked the AMS for help. We pointed him in the direction of TeXShop and i-Installer and gave him some pointers for getting started. In about two weeks, the work of ten years was easily handed off to TeXShop with no problems. Another transformative experience and a happy author.

In preparing this presentation, I ran across a wonderful interview with Christina Thiele,⁸ among a number of other very interesting interviews on the \TeX Interviews web page. She makes three points, which I will restate here because they bring what I have been saying nicely into focus.

First, we have to make \TeX easy to install and maintain. And for goodness' sake, do let's fix the

font mess: Using a variety of fonts should not require an advanced degree in computer science and the patience of Job. You won't get a large number of people to use \TeX until it is far more user-friendly, user-comprehensible, and user-supportable. Don't expect anyone necessarily to "RTFM" because, more often than not, they aren't going to, at least not all of it.

Second, I'm sorry to say, we have to abandon the *beautiful documents* argument to try to get people to use \TeX —it just doesn't work. Until I had read Christina's interview, I thought I had been an inept salesman of \TeX 's ability to produce beautiful documents. Fact is, most people just don't care about typographic aesthetics. Users want powerful, effective software that gives the best return on the time and effort they spend to learn and use it: typographic niceties are largely irrelevant.

Finally, we have to do anything and everything within our power to preserve the wonderful, open, empowering, and helpful nature of the \TeX community. Everyone and anyone who uses \TeX has had occasion to use `comp.text.tex` and to come away from the experience a better \TeX user. Help there is free, and often laced with background information that is invaluable to help the learner. The \TeX Users Group, I need hardly say, is a magnificent resource that deserves all the support that we can give it.

10 World without end. Amen.

So it has been a long and never uninteresting road from 1986 to the present, with lots of challenges ahead. Yikes! Can it really be twenty-one years? In some ways it seems like yesterday, in others like a lifetime ago: Just look at how the Internet alone has changed our lives and our thinking in a mere fifteen years. To this day, I never cease to marvel at, and be grateful for, the intoxicating sense of empowerment that I have experienced with the tools on my computer. I can only hope that everyone might experience the same joy with the tools that they use.

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⁸ <http://www.tug.org/interviews/interview-files/christina-thiele.html>