

Don Lancaster's

# RESOURCE BIN

number fifty three

## Selecting your own Actors and Acrobats.

**O**ur usual reminder here that the *Resource Bin* is now a two-way column. You can get tech help, consultant referrals and off-the-wall networking on nearly any electronic, *tinaja* questing, personal publishing, money machine, or computer topic by calling me at (520) 428-4073 weekdays 8-5 Mountain Standard Time.

US callers only, please.

I'm now in the process of setting up my new *Guru's Lair* web site you will find at (where else?) [www.tinaja.com](http://www.tinaja.com) This is the place you go for instant tech answers. Among the many files in our library, you will find complete reprint sets for all of the *Resource Bin* and other columns. Plus a brand new [Synergetics Consultant's Newtwork](#) & lots of links to unique web sites.

You will get the best results if you have both [Netscape Gold](#) and [Acrobat Reader 3.0](#) installed. This new reader does utterly amazing things online.

### Actors and Acrobats

What are the most important tools for publishing information today? As hard copy or to the net? This month, I thought I'd go over the software pub tools that I personally use.

The real biggie, of course, is ...

### PostScript

PostScript wears two hats. First and foremost, it is an incredibly powerful general purpose computer language. Second, PostScript excels at dirtying up otherwise clean sheets of paper. To the extent that PostScript is *the* way to do desktop publishing.

PostScript offers *device independence*, meaning that it runs on any host and drives any PS compatible printer. You can write PostScript on your Mac, edit it on a PC, and publish it on a Unix or other workstation.

PostScript's device independence also can guarantee you get the best quality your output device is capable

of. The very same file that outputs at 300 DPI on an older printer can give you 2600 DPI typesetting off a high end premium machine.

PostScript is great at typography. In fact, there is *absolutely* nothing even *remotely* in its league when it comes to high quality type. This comes about by using powerful *Bezier cubic splines* to smoothly do flowing curves.

PostScript is Forth's second cousin. Three times removed and five times disowned. You can think of PostScript as Forth without the religion.

I once had this irate caller unjustly complain that "*Forth is not a religion! It says right here in chapter 7, verse 23 of the Book of Moore that...*"

PostScript is in reverse Polish. It is both threaded and reentrant. Handily, all of the PostScript procedures can be redefined at any time. PostScript is also inherently object oriented.

My personal preference is for me to use PostScript as my main computing language. I do all of my tech writing, circuit layouts, magic sinewaves, and stock market analysis with PostScript. Using a PostScript computer that can output to page, return data to host, write to hard disk, or interact with a

**NEXT MONTH: Don shows us some great new ways to pick a peck of PIC's.**

real-world PIC interface.

One current goal around here is to be the first one on my block to use a 5SiMX as a hot tub controller.

It sure amazes me how many folks refuse to even think about using one of the most powerful general purpose computers they own.

Just because some epsilon minus at the factory has stupidly stuck a badly misleading label onto the case of their computer. A really dumb label which

says *printer*. Instead of calling it the superb *computer* it really is.

Other users may elect to keep their PostScript hidden and out of the way. By using such PostScript generating packages as *Pagemaker* or *Illustrator*.

But learning raw PostScript could completely eliminate any need for any of these expensive packages.

At least it does for me.

Even if you mostly use these fancy apps, the more PostScript work you do and the better you understand its innards, the more it can deliver.

The newest developments on the PostScript front involve...

### Acrobat

Acrobat is both a simplified and a more powerful way to *distribute* high quality documents originally written or rewritten in PostScript. Both for on line document distributions and for on-demand publishing. Acrobat, in its latest *Bravo* livery is revolutionizing the net. Utterly and totally.

Before we can understand either of these, we do have to look at some of those earlier bits and pieces that have merged to become Acrobat...

### Distiller

PostScript is a powerful language. This is both its greatest strength and its Achilles' heel. It is quite easy to write PostScript code that is so bulky and so bloated that it takes forever to run. Not to mention blowing up on older machines or when combined in premium typesetters.

That dreaded *vm error*.

If you're only distributing a doc, all you will need to know is *where to make marks on the page*. It does not matter how fancy your fractal math or those justification procs first used. All you end up doing is making marks. So, it turns out that you really only need *four* PostScript operators to mark the page: *moveto*, *lineto*, *curveto*, and *closepath*.

A *Distiller* is any way of simplifying PostScript code. Reducing it down to "Just the facts, Ma'am" essentials.

If you use the broad definition of a *compiler* being *anything you do ahead of time to make your run time code faster and more efficient*, then you can think of distilling as PostScript compiling.

I've got some early distillers from Adobe and some I wrote myself up on *Genie PSRT*. These should eventually be moved over to [tinaja.com](http://tinaja.com)

Distilling of a fancy five page tech story takes a minute or so.

### Multiple Master Typefaces

What about fonts? With PostScript, if your end user does not have a close copy of the fonts you are using, their results can end up dismal.

One obvious option is to only use the standard 35 typefaces. But that's no fun. A second is to tow along the exact needed fonts. But that makes for long files. And in some cases may be illegal. Due to site restrictions.

A third route is to take each letter you actually use and reduce it down to elemental PostScript *moveto*, *lineto*, *curveto*, and *closepath* routines. Which works great for a few fancy letters on a logo. But quickly gets bulky.

A few years back Adobe introduced *multiple master technology*. Instead of being a single font, multiple masters could generate a theoretically infinite number of related fonts.

Every font uses one or more tools called an *axis*. The axis is a slider that controls something. Such as how bold the font is. Or how condensed.

By using a pair of multiple master fonts (with and without serifs), you can sort of fake most fonts. *While you preserve full text justification*.

With care, the multiple masters can give you the best of all worlds. If your customer has your fonts, they can use them for an exact reproduction. If not, a multiple master sits in and can give you "good enough" results.

### Hypercard and Hypertext

Most books are *linear*. Intended to get read page by page in sequential order. If you want to skip something or pick up more details, you are often left to do so on your own.

A *Hypertext* simply means "beyond text". Promoted first by pioneering computer guru Ted Nelson. And later popularized by *Apple Computer* as the *Hypercard* on the Mac.

One model of hypertext is a room full of *Rollodex* machines. Besides the

"next card" or "previous card" access, certain points on any card magically let you move *sideways* to any other card on any machine in the room. Or, for that matter, to use the net to leap anywhere in the world.

For instance, you might be reading stuff on whoever that obscure group was that Paul McCartney had before *Wings*. At any point, you could flip into the history of the guitar or the economics of music production. Or pick up multiple levels of content. All depending on how deep into a topic you want to go. Or how technical.

The key tool that makes hypertext possible is the *link*. A link is a button you push or an area on the screen you click on that carries out some action. For instance, you could click on a text mention of [figure three](#) and magically end up viewing the actual figure.

Links might be visible or invisible, depending on their use. Visible links are obviously marked. Invisible links should perform some expected action without being noticed till used.

Links can be *internal* or *external*. An internal link goes somewhere else in your current document. Such as to the next page. It may also change the size of what you are observing. Switching you, say, from a full page down to a single figure. Or letting you zoom in for detail. Or out for the big picture.

One important link concept is the *thread*. As you can see here in *Nuts & Volts*, articles tend to wrap themselves around their figures and nearby ads. Good magazine layout should always make continuity obvious.

But viewing might not be obvious on an online screen display. Especially when your resolution limits you to smaller text blocks. It can be a real pain to try and reach the top of your next column on a screen.

Or worse, go to "continued on page 197." Instead, threads are made up of *beads*. A bead is a convenient length chunk of text. Clicking on the top or bottom of a bead will automatically send you in the expected direction.

An external link will move you to a different document. Perhaps on to the next chapter. Or to a related subject. External links also leap tall buildings in a single bound. Letting your net surf around the world.

Thankfully, there is usually a "go back" arrow around somewhere that lets you pick up the pieces any time you like. Links can also handle such non-obvious tasks as playing a movie, running a sound clip, dialing a phone

## new from DON LANCASTER

### ACTIVE FILTER COOKBOOK

The sixteenth (!) printing of Don's bible on analog op-amp lowpass, bandpass, and highpass active filters. De-mystified instant designs. **\$28.50**

### CMOS AND TTL COOKBOOKS

Millions of copies in print worldwide. THE two books for digital integrated circuit fundamentals. About as hands-on as you can get. **\$28.50** each.

### INCREDIBLE SECRET MONEY MACHINE II

Updated 2nd edition of Don's classic on setting up your own technical or craft venture. **\$18.50**

### LANCASTER CLASSICS LIBRARY

Don's best early stuff at a bargain price. Includes the CMOS Cookbook, The TTL Cookbook, Active Filter Cookbook, PostScript video, Case Against Patents, Incredible Secret Money Machine II, and Hardware Hacker II reprints. **\$119.50**

### LOTS OF OTHER GOODIES

Ask the Guru I or II or III	\$24.50
Hardware Hacker II, III or IV	\$24.50
Micro Cookbook I	\$19.50
PostScript Beginner Stuff	\$29.50
PostScript Show and Tell	\$29.50
Intro to PostScript Video	\$29.50
PostScript Reference II	\$34.50
PostScript Tutorial/Cookbook	\$22.50
PostScript by Example	\$32.50
Understanding PS Programming	\$29.50
PostScript: A Visual Approach	\$22.50
PostScript Program Design	\$24.50
Thinking in PostScript	\$22.50
LaserWriter Reference	\$19.50
Type 1 Font Format	\$16.50
Acrobat Reference	\$24.50
Whole works (all PostScript)	\$380.00
Synergetics Surplus Catalog	FREE
Technical Insider Secrets	FREE

### POSTSCRIPT SECRETS

A Book/Disk combination crammed full of free fonts, insider resources, utilities, publications, workarounds, fontgrabbing, more. For most any PostScript printer. Mac or PC format. **\$29.50**

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Ongoing details on Book-on-demand publishing, a new method of producing books only when and as ordered. Reprints, sources, samples. **\$39.50**

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For most individuals, patents are virtually certain to result in a net loss of sanity, energy, time, and money. This reprint set shows you Don's tested and proven real-world alternatives. **28.50**

### BLATANT OPPORTUNIST I

The reprints from all Don's Midnight Engineering columns. Includes a broad range of real world, proven coverage on small scale technical startup ventures. Stuff you can use right now. **\$24.50**

### RESOURCE BIN I

A complete collection of all Don's Nuts & Volts columns to date, including a new index and his master names and numbers list. **\$24.50**

### FREE SAMPLES

Check Don's Guru's Lair at <http://www.tinaja.com> for interactive catalogs and online samples of Don's unique products. Searchable reprints and reference resources, too. Tech help, hot links to cool sites, consultants. email: [don@tinaja.com](mailto:don@tinaja.com)

FREE US VOICE HELPLINE

VISA/MC

**SYNERGETICS**  
Box 809-NV  
Thatcher, AZ 85552  
(520) 428-4073

Write in 146 on Reader Service Card.

## A FEW ACTORS AND ACROBATS

**Adobe Developer Assn.**  
PO Box 7900  
Mountain View CA 94039  
(415) 961-4111

**Apple Computer**  
20525 Mariani Ave  
Cupertino CA 95014  
(408) 996-1010

**Ghostscript/Aladdin**  
Box 60264  
Palo Alto CA 94306  
(415) 322-0103

**MicroPhone/InterCon**  
2907 Claremont Avenue  
Berkeley CA 94705  
(510) 644-3232

**Synergetics**  
Box 809  
Thatcher AZ 85552  
(520) 428-4073

**Adobe Systems**  
PO Box 7900  
Mountain View CA 94039  
(800) 833-6687

**Download Mechanic**  
3655 Nobel Drive  
La Jolla CA 92037  
(619) 587-4668

**Java/Sun Micro**  
2550 Garcia Ave  
Mountain View CA 94043  
(415) 960-1300

**Netscape Gold**  
501 E Middlefield Rd  
Mountain View CA 94043  
(415) 528-3777

**Transverter Pro**  
1463 Warrensville Cntr Rd  
Cleveland OH 44121  
(800) 777-8930

**Adobe Plug-in Source**  
411 First Avenue S  
Seattle WA 98104  
(800) 685-3547

**GENie**  
401 N Washington St  
Rockville MD 20850  
(800) 638-9636

**Lightwave/NewTek**  
1200 SW Executive Dr  
Topeka KS 66615  
(800) 847-6111

**Nuts & Volts**  
430 Princland Ct  
Corona CA 91719  
(909) 371-8497

**Verity Systems**  
1550 Plymouth Street  
Mountain View CA 94043  
(415) 960-7600

number, sending email, or ordering a coconut-anchovy pizza.

Other hypertext features do include *thumbnails*, *notes*, and *bookmarks*. The thumbnail is a low resolution icon of an entire page. These can be useful for document navigation.

A note is the electronic equivalent of a *Post-it Note*. An icon that, when clicked, gives some marginal message to your readers. These are handy for messages between writer, editor, and publisher. Or to convey some tutorial or how-to help. Where needed.

A bookmark works like an entry in any table of contents. Clicking on its nearby description jumps you to the relevant place in the file. Bookmarks can be nested as topics and subtopics.

### Search Engines

It is a real pain to write an index for a book. So much so that I find it *much* easier to write actual book than do the index for it. Getting just the right level of index content in terms meaningful to your readers can be a problem.

An possible alternative is to simply search the full text of your *entire* book. Besides taking too long, you are likely to get lots of irrelevant *false hits*. And problems with hyphens or numbers.

Your task gets even stickier if you search the entire library. Hundreds or even thousands of documents might be involved. And I sure would like to be able to go back through everything I have ever written to find when I last wrote on mass teleportation, synthetic kale, or lost wax mapping.

There's some new electronic *search engines* evolving that powerfully solve this problem of rapidly scanning an entire library. Some enhanced with fuzzy logic or even AI.

The key secret here is to create a separate search document containing only *key words*. The keywords can be

placed in alphabetical order for rapid finding. Just like any plain old book index. Only when the word or phrase is found do you have to worry about actually finding it in your main text. Thus, most search engines will create a separate *searching document*.

Key words can be *limited* or *rich*.

With limited keywords, you try to second guess what your reader will be looking for. With rich text, you list *every* occurrence of *every* word in your original file. But taking out all of the most common structure words. Such as *a*, *an*, and *the*. You can go through your list and throw away everything useless or unneeded.

Yeah, the size of these documents gets humongous. Sometimes bigger than the original even. But, what is a few terabytes among friends?

With use of these specialized search documents, you can now do all sorts of neat tricks. Such as *Boolean* searches that include *and*, *or*, or *but not*. Or one that I like best of all: *near*.

Even neater is *relevance ranking*. A word that shows up once in a book is likely to be a false hit. If it happens ten times in the same paragraph, the chances are this is the key place to go for the info you are after. You begin your main search starting with the highest priority hits.

*Verity Systems* is one supplier of rich text search engines.

### Plug Ins

At one time, typical software was a *closed system*. In which the internal data structures and even the I/O was kept totally secret. On the theory that they would have to come to you.

The deadly flaw in such misguided thinking is this: The more access that you give your app users to the actual source code, the more they should be able to do while using it. And the

more popular and the more successful your product will become.

The ultimate arrogance of closed system thinking ignores this obvious fact: Many of your readers are *much* smarter and *vastly* more motivated than you are. To ignore this resource is sheer folly.

Instead *open systems* fully document data structures, the I/O, and your key modules. At one time, these modules were subroutines. These days, they are more likely to be *objects*. Which is just another name for a very carefully controlled subroutine that behaves in an exactly known manner.

One big problem with a fully open system is that someone else can trash it. And ruin your integrity. One useful new workaround is the *plug-in*. Using plug-ins, you can set up certain areas in your code that any third parties can intercept. And interact with Altering the performance of input, output, and chosen internal results.

Besides greatly expanding software capabilities, plug-ins also can resolve compatibility problems. Letting you freely export or import files from once incompatible systems.

Adobe is especially strong on using all sorts of plug-ins.

### And Back to Acrobat...

Acrobat combines all of the above. Acrobat is basically a fast, compact, and device independent way for you to distribute high quality docs.

Unlike HTML and similar klutzy and primitive web tools (HTML is *not* a language; it is a *crayon*), Acrobat gives you *total* and *exact* control of what your end viewer will see. With all typography and all photos and all illustrations and all text preserved. And working with most *any* modern printer or typesetter.

The key to Acrobat is a more or less



conventional ASCII textfile known as a .pdf file. Short for *Portable Document Format*. Options permit compression and various data formats.

You read or print any .pdf file by using a free *Acrobat Reader*. These are easily found. [www.adobe.com](http://www.adobe.com) is one source. I've got a hot link there on my [tinaja.com](http://tinaja.com) web site.

There are two main ways to create an Acrobat .pdf file. Certain apps will include a *pdf writer* plug-in or other module that will give you the option of directly generating the file.

Otherwise, you can use the *Acrobat Distiller*. Which accepts any standard PostScript input and converts it down into just the needed essentials.

Your PostScript code must operate properly before you can distill it. On the other hand, distilling dramatically simplifies and (usually) shortens the code. So much so that an Acrobat file can easily print to an older printer or fancy typesetter that blows up on the more complex original.

Distilling can give you lots of font options. Including multiple master substitution, replacement with outline procs, or towing entire fonts along.

To create .eps PostScript code from most applications, you simply use the app's *print to disk* option.

Once you have an Acrobat .pdf file, you can modify it by use of *Acrobat Exchange*. Exchange lets you add all sorts of new hypertext features. Such as links, bookmarks, beads, threads, notes, security, and thumbnails.

Exchange also lets you print back to disk as standard PostScript. This can be handy if your ultimate destination is *not* Acrobat friendly.

Adobe does charge for the Distiller and Exchange modules. Sample short term evaluation copies may be found on the [www.adobe.com](http://www.adobe.com) web site.

Plug-ins for Acrobat are available for most major application packages. Yes, there is an Acrobat plug-in for Illustrator. There is an insider secret trick to getting your Acrobat file into Illustrator: *Make sure the .pdf plug-in is installed!* It is that simple.

Be certain to read the fine print on app compatibility. Many more apps will let you input .pdf files than can generate them as output.

Similarly, there are plug-ins offered for Acrobat as well. There is a *Acrobat Catalog*. It has a powerful full-library and rich-text search engine.

These special catalog files are in a new .pdx format.

One one-stop source for plug-ins is

the *Adobe Plug-in Source*.

Acrobat Amber is a newer version. Amber is way more net friendly. It directly plugs into *Netscape Navigator*. You can now *directly view* such things as electronic schematics.

First quality and top rate.

Amber also supports and interacts with the new *Java* scripting language from *Sun*. Other features include full screen viewing and anti-aliasing for greatly increased legibility.

Great stuff.

And *Bravo* is so new I can't tell you all that much about it. Except that it further melds PostScript and Acrobat into a totally net-friendly solution.

### And Some Related Software...

Let's briefly run down some of the related publishing software which I personally use. *NetScape Navigator*, of course, is *the way* you access the web. Navigator Gold also includes a great web page editor. It is offered free from [www.netscape.com](http://www.netscape.com). Amber plugs *directly* into Navigator.

One alternative to PostScript is the freeware version of *GhostScript* from *Aladdin Systems*. This directly lets you view PostScript files on screen.

I've got a GhostScript access hot link on [tinaja.com](http://tinaja.com)

A second useful PostScript screen viewer is *Transverter Pro*. Which also gives you lots of format conversions. To and from PostScript. And to and from nearly everything else.

The *Adobe Type Manager* is the way you display PostScript onscreen fonts. Whenever you have the choice, *always* use PostScript fonts.

Over on the Mac side, I like to use *Download Mechanic* to rapidly send or receive PostScript files. And good old *Microphone* for more traditional BBS or online service access.

Back here on my IIE main machine, I use *AppleWriter* and WPL scripting language. *AppleWriter* is available free at A2PRO on *Genie*.

Over on the Amiga, the *LightWave* software associated with the *NewTek Video Toaster* still is outstanding. And is finally available for use on both Mac and PC platforms.

The *Adobe Web Presenter* is some new web authoring software. Being offered in free Beta test. I haven't had time to test it yet, but it looks like a great "Illustrator for the web". Be sure to check this one out.

*Update: Amber is now Acrobat 3.0 and is shipping. It offers better legibility, tight compression, and faster online viewing.*

### For More Information

Your most important Acrobat book is the *Pewter* book. Otherwise called the *PDF Reference Manual*. And good starting points on PostScript are the red *PostScript Reference Manual*. Or the blue *PostScript Tutorial & Cookbook*. I stock these here at *Synergetics*. Along with my own PostScript books, and *The Whole Works*. It's got one each of everything by every major PostScript author at a bargain price.

If you get serious about Acrobat, there's an *Acrobat Developer's Group* available through Adobe. Cost is \$500 per year withrobat CD ROM mailings.

Free Amber readers and the brand new Web Presenter are available on Adobe's [www.adobe.com](http://www.adobe.com) net site. Free Netscape navigators are available at [www.netscape.com](http://www.netscape.com)

I've got hot links to these sites on my [www.tinaja.com](http://www.tinaja.com) Along with great heaping bunches of PostScript files and ap notes. PostScript-as-language utilities are especially big here.

This site also serves as an Acrobat showcase. To show you this exciting new way of publishing information.

### This Month's Contest

For our contest this month, just tell me about any publishing or authoring tool you happen to like or dislike.

There will be a largish pile of my new *Incredible Secret Money Machine II* books going to the dozen or so better entries, plus an all-expense-paid (FOB Thatcher, AZ) *tinaja quest* for two that will go to the very best of all.

Send all your *written* entries to me here at *Synergetics*, rather than to *Nuts & Volts* editorial. ♦

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*Microcomputer pioneer and guru Don Lancaster is the author of 33 books and countless tech articles. Don maintains his no-charge US tech helpline found at (520) 428-4073, besides offering all of his own books, reprints, and consulting services. Don also has two free catalogs full of his resource secrets waiting for you. Your best calling times are 8-5 on weekdays, Mountain Standard Time.*

*Funding and time constraints restrict this helpline service to US callers only.*

*Don is in the process of setting up his Guru's Lair at <http://www.tinaja.com>*

*Full reprints and preprints of all Don's columns and ongoing tech support appear here. You can reach Don at Synergetics, Box 809, Thatcher, AZ 85552. Or send any messages to his US Internet address of [don@tinaja.com](mailto:don@tinaja.com)*

