In-house Typesetting on a Tight Budget

Daniel Eisenberg

The trailing edge of technology
can be cheaper and less problematic.

This article is not for those publishers large enough to have a production department or a full-time graphic designer. It is, rather, directed at small and tiny publishers. For us, $500 to buy a program such as Ventura Publisher, the disk space to store it, and most of all the time needed to understand and manage it, are resources not lightly committed.

It is also not for those who use Macintosh computers. Emotions run surprisingly high over the relative merits of Macintosh and IBM-compatible computers. Beyond saying that both have advantages and limitations, and that everyone has benefitted from the competition, I am not going to address this issue. Aldus PageMaker, a high-end Macintosh, and an Apple LaserWriter printer constitute a very good, though expensive system. Many of us have to make do with less, and IBM-compatible computers are much cheaper. Also, many have already invested money and time in the IBM-compatible family, may be committed to it because of other software or because of its flexibility, or dislike using the mouse that the Macintosh requires.

IBM-compatible computers are the standard in small business and government. In the IBM-compatible family, no one company controls the market, and there are a dizzying variety of options.

Can it Be Done?

It is indeed possible to save significantly by doing in-house typesetting, and produce a product of acceptable or better than acceptable appearance. Word processing software, without increasing in price, now has the [p. 206] ability to handle electronic type and complex page design. The prices of laser printers have dropped substantially. While those within small publishers' budgets cannot create type that is quite as sharp as the optical equipment could, they also avoid the varying density of photographic output and the alignment problems of hand paste-up. Specialized type is easier to get or create.

It is all much more complicated than advertisements for so-called 'desk-top publishing' systems would have one believe. It understandably takes more in-house effort and time, more rolling up one's sleeves and reading the manuals, than turning paper manuscripts over to an outside typesetter. Yet the problems can be solved, the frustration kept manageable. What results is not only a savings in money but a tightening-up and speeding-up of the whole publishing process. When one no longer needs an outside typesetter, when one is independent even of specific pieces of hardware, the sense of autonomy that results is quite bracing. The whole typesetting shop can be shrunk, genie-like, into a floppy disk box or two, and recreated wherever some common equipment is available.

An Intermediary Step

As hard- and software improve and decline in price rapidly—in what other industry is this so?—I recommend as leisurely a conversion as circumstances permit. There is a logical way to break the process into stages. Start by getting all your copy into a computer, which you will

have to do in any event. Send the files via disk or modem to a service bureau, of which there are many, to be turned into type. By working temporarily with a service bureau you will not have all the benefits of being self-sufficient, but you also avoid many of the problems. You also get the services of an experienced digital typesetter, someone to answer at least some of your questions.

There are three ways of getting copy into the computer. The fastest, cheapest, and most accurate is to have the author supply the file via disk or modem. Because of technical incompatibilities and authorial inconsistency, this has its own set of complications, which I will examine in a subsequent article, 'Processing Electronic Manuscripts.'

A second alternative is to have manuscripts digitized by a scanner and optical character recognition software. Good scanners and software are still out of the price range of small publications, though there are service bureaus to do that also. Fortunately I am able to use, at no cost, a Kurzweil Discover 7320 scanner, model 30, belonging to my department. Software supplied with the scanner analyzes letter shapes and is thus able to handle almost any font. It also reads foreign language material well (but not bilingual [p. 207] material). Results have been fairly good, but it takes practice to set the scanner up, and time to check and correct its output. As its output is an electronic file similar in some respects to one sent by an author, it requires some of the same treatment as authorial electronic manuscripts.

Scanners work best with manuscripts typed on a typewriter, much less well with dot-matrix computer printouts or typeset material. The Discover garbles proper names and other words not in its internal dictionaries, although it does so consistently throughout each manuscript. Ells are confused with ones. Handwriting on a typescript makes things worse. While the Discover recognizes underscore it cannot distinguish italic or superscript, and thus cannot recognize footnote numbers unless they are surrounded by parentheses or some similar characters.

Finally, manuscripts can be input by having someone keyboard them on a computer. In my location those who know how to do this, and have a suitable computer, are too busy to do irregular jobs on an

hourly basis. It is necessary to supply a computer to the worker, and provide basic training. An older, two floppy drive computer is used for the purpose, and a single-page sheet of instructions provided. The sheet covers cursor movement commands, how to save a file, and basic formatting, such as to separate paragraphs by one carriage return plus tab. It ends with an instruction to ask me about anything else.

Know Yourself, Typographically

If one is ready to proceed with typesetting, one must know or learn what one wants from it. Typesetters who work with small publishers tacitly do a lot of designing, guiding their customers towards house typographic designs. In-house typesetting means doing without that guidance, and direct control permits errors to be made that an outside typesetter would at least question. Therefore, part of the conversion process is learning more about type and design.

Those unfamiliar with the trade commonly underestimate the complexity of typesetting and the importance of good page design. Type is a tool for communicating with the reader, and one is always conveying a typographical message whether one knows it or not. The book or journal with proper type and design is like the job candidate properly dressed. It says 'You must take me seriously,' 'I can help you,' and of course 'Buy me.' Scholarly publications make these points with great subtlety.

Good design conveys confidence and maturity. Good design says 'I'm such an important piece of scholarship that someone took the time to make [p. 208] me look good!' It soothes the reader by avoiding visual monotony. By providing headings and other guides to the contents, and readily accessible notes and (where appropriate) illustrations, it allows the reader to save time, more quickly reading, skimming, and locating the desired page or passage.

Type is efficient as well. It allows more words to be placed on the page, while enhancing their readability. (Typed manuscripts, from which books are sometimes reproduced, must be double spaced.) Yet type is an unusual tool. It exists in almost infinite varieties, and there

is no clear line dividing good and poor typography.

If type and design are unfamiliar topics, the prospective typesetter must start educating him- or herself. A classic starting point is Adrian Wilson's *The Design of Books* (Salt Lake City: Peregrine Smith, 1974).[1] Observe and make notes of publications whose appearance and arrangement you would like to imitate. Also note those whose appearance is unacceptable. What are their differences?

The wider a variety of type faces one needs, the more one will have to pay. Most small publishers, though, have a single set design. What type faces and sizes do you want to use? How often do you expect to make changes in these selections? If your publication is now produced by an outside typesetter, what type faces and sizes does he or she use?

A need less often considered is foreign language characters and symbols. Advertisements for type seldom specify how many characters are included in the font offered; this is especially significant with font cartridges, less so with type stored on computer disk. Will your authors never write mañana, façade, Thaïs, Übermensch, Ávila? Printing 'manana' and 'facade' will annoy many readers. Would you add diacritics by hand, with a pen (as I once did)? Will you need other alphabets?[2]

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[1] For a quick introduction oriented toward personal computers, see 'From Verbal to Visual. How to Use Type as a Graphic Element on your Pages,' by Clifford Burke, *Publish!*, October 1989: 65–9, followed by 'A Publish [sic] Illustrated Glossary of Type,' pp. 70–1; and Edward Mendelson, 'Elements of Type Style,' cited below (note 8). The book of Daniel Will-Harris, also cited below (note 18), is very helpful for those using WordPerfect.

[2] SoftCraft, mentioned in note 13, offers some unusual alphabets. A software package called Multi-Lingual Scholar provides the widest selection: fonts for Greek, Russian, Arabic, Hebrew, International Phonetic Alphabet, and a long list of other exotic alphabets, including dead languages. An alphabet design tool is included, and manuscripts can and have been scanned and turned into alphabets for use with this program. Its output can be printed

Selecting Hardware and Software

Choosing equipment in a fast-changing market is difficult. Advertisements inevitably stress the features and never mention corners cut or incompatibilities created. They also stress the easily quantifiable. (24 Mhz! 0 wait states!) These specifications are a poor choice for choosing a particular configuration. (The most important speed of a computer is the hard disk speed.)

There is no shortage of advice, but knowledgeable and impartial advice is in short supply. A knowledgeable and trustworthy dealer is a valuable resource, as is a campus computer center with emphasis on personal computers. Either may be able to recommend a local consultant. Time is on your side; use it to learn the field, and to install, test, and experiment with whatever you [p. 209] select. Computer magazines are a valuable source of information (see references).

Realize that you won't make an ideal choice. By the time one has gathered the information needed, it is out of date. It is hard even to identify all the points one should base a decision on. Finally, the ideal choice requires one to predict the future: buying the equipment that will become out of date slower. In sum, it comes with the territory that sooner or later you will realize you could have got something better. Whatever you buy will cost less a year later, and be worth less, too, a distressing reality one learns to live with.

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directly, and it is the standard for laser typesetting for exotic alphabets, especially when used bilingually, as in the scholarly world. The output from Multilingual Scholar can also be saved as a 'graphic' (illustration) in a form which can be used by all the major programs discussed in this article. This program is quirky and difficult to use; see my review, in *Hispania*, 72 (1989): 466–7. Multi-Lingual Scholar is published by Gamma Productions, 710 Wilshire Blvd., Suite 609, Santa Monica, CA 90401.

General Principles

Keep things as standard and ordinary as possible. Standard equipment is cheaper and often simpler to install. There are more sources for help. Service for unusual hardware can be surprisingly expensive and hard to find. Sometimes such hardware must be shipped for service.

Be on the trailing edge of technology, where things are cheaper and problems have been solved. Don't be among the first to use a new program, program revision, or piece of hardware. Resist impulses to show off or make 'personal statements' through purchases of computer equipment. It is not only possible but easy to do junky typesetting with expensive equipment; complex equipment and software no more guarantees good output than a fancy camera guarantees good pictures. Complex equipment, in the hands of someone who does not know how to use it, may produce poorer results than simpler equipment.

Consider comfort, ease of installation, return policies, and availability of parts and help as well as features and price. A printer with lots of lights, read-outs, and buttons can be far easier to set up and keep running than one with only an on-off switch.

Allow in your budget money to purchase publications to help you learn to use your hardware and software. Unfortunately computer books and videos are expensive, since they age very quickly. All the same they provide instruction and tips the software publishers and hardware manufacturers are not going to provide, even if we think they should. A free source of help are computer user groups and bulletin boards, of which there are now many. Many universities have them; local dealers probably have information about community groups and boards. Online services such as CompuServe [p. 210] and its many imitators sponsor users' groups on many hardware and software topics. Finally, there are national users' groups for specific products; manufacturers and publishers provide their addresses.

Choosing a Printer

One needs to select a printer, type, a program to control these, and a computer to run them.

300 dot per inch laser printers, whose resolution is adequate for anyone on a tight budget,[3] come in two well-established main families: the Hewlett Packard LaserJet Plus compatible printers (henceforth: HP)[4] and the PostScript printers. There are many manufacturers of HP printers, which are now available for under $1000.[5] They have very limited built-in type and require an external source. They accept type sent from storage on the computer's hard disk, and have slots for standardized plug-in type cartridges. As the type creation is separated from printing the set-up has more steps, but the printing is faster. PostScript printers, which come with a large selection of type and typographic special effects built in, are slower and considerably more

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[3] An easy improvement in resolution is to print larger than final size. The amount of type held on a 6 x 9 page can be expanded to 140% and still print on an 8.5 x 11 page; it is later reduced to the desired size. This produces the same improvement as a $4000 add-on board which increases resolution to 600 x 300 dots per inch. Of course, the add-on board's output at 140% is even better.

[4] These include the Hewlett-Packard LaserJet Plus, the Hewlett-Packard LaserJet series II, and the Hewlett-Packard LaserJet 2000. The page command language used by these printers is an informal standard, emulated by many other manufacturers. The very first Hewlett-Packard LaserJets did not accept downloaded type.

[5] It seems pointless to recommend specific models when such advice will be out of date within six months. The computer magazines mentioned at the end review laser printers, have survey articles about once a year, and the *Computer Buyer's Guide & Handbook* regularly issues an issue on laser printers. Models differ in their additional features above the minimum, ease of use, and speed of printing.

expensive.[6]

PostScript is now the standard in computer-based typographic shops, and is essential for the complex and eye-catching designs of popular advertising and magazines. The more elaborate and changeable the designs, the more one needs a PostScript printer. Doing only text, with a standard design that seldom changes, an HP printer will do just as good a job. The 512 kilobytes of memory found in the base

[6] The division between these two families is not rigid. Most PostScript printers have the ability to emulate the simpler HP printers. In 1989 there came on the market a number of products which either package the PostScript fonts and language processing ability in new forms (plug-in printer cartridges or computer boards), or emulate them through software; thus one can print PostScript-coded files on HP or even dot-matrix printers. Some of these products significantly increase hardware requirements to work at all or to work at an acceptable speed. Requirements vary from product to product, but among the various requirements are a 80286 (AT) chip or higher, extra computer memory, a math co-processor, and two megabytes of printer memory. The software emulators occupy three to four megabytes of hard disk space. The difference between true PostScript (which requires licensing agreements and fees) and emulated PostScript is reported to be significant. According to reviews, many of these products have shortcomings: slow speed, inconvenience of use, and/or decline in type quality. See 'PostScript Emulation Boards and Other Alternatives' and 'Pacific Data Products PacificPage,' *Desktop Publishing Buyer's Guide and Handbook* (*Computer Buyer's Guide and Handbook*, No. 49], 1989: 73–9; Ron White, 'PostScript Power without the Price,' *PC Computing*, July 1989: 98–105; Ed Shropshire, 'Font Scaling,' *WordPerfect Magazine*, January 1990: 48–51; Bill Crider reviews three software PostScript emulators, which he reports have 'painfully slow print speed,' in 'PostScript: A Matter of Interpretation,' *Publish!*, November 1989: 72–5; he previously reviewed Freedom of Press, one emulation program, in the February issue: 70–1. Helmut Kobler with Bob Weibel survey PostScript add-on boards in 'Clones: The PostScript Impersonators,' *Publish!*, November 1989: 58–69. A short introduction to PostScript is provided in 'Inside PostScript,' *Buyer's Guide to Laser Printers* (*Computer Buyer's Guide and Handbook*, No. 47), 1989: 35–7.

model is quite sufficient for scholarly book and journal production.[7]

Choosing Type

An HP printer requires a supply of type.[8] It is easy to make a recommendation. All purchasers of WordPerfect and MicroSoft Word receive from Bitstream an offer of basic serif (Dutch Roman) and sans-serif (Swiss) faces, for $25. Included is the software to create and install these fonts in any size from 6 points up, including a wide selection of symbols and virtually any diacritic or character within the Roman alphabet. This is unquestionably the 'best buy' in digital type. Packages of four additional Bitstream faces list for $200 and are available discounted to about $125. The quality of Bitstream type has

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[7] Salesmen will invariably tell you that more memory is needed to do 'graphics' (illustrations), such as electronic clip art. Scholarly publications of course seldom use clip art. Illustrations are usually sent to the printer as photographs, not computer printout. My only use of graphics has been for author-supplied drawings, which are scanned. On printer memory requirements see Ted Nace and Michael Gardner, 'Laserjet Express,' *Publish!*, April 1989: 60–3, remembering that scholarly printing is what they call a simple document.

[8] Type for HP printers was the topic of a series of articles by Edward Mendelson in the June 13, 1989, issue of *PC Magazine*. The treatment of each product is brief and often superficial, as the flippant and misleading subtitles suggest, but the survey of products is very broad. The articles are 'Elements of Type Style' (pp. 206–15); 'Font Cartridges: Plug 'n Play Typography' (pp. 217–32); 'Soft Fonts: Less Pain, More Gain' (pp. 237–50); 'Font Generators: Starting from Scratch' (pp. 253–70); 'Font Utilities: Faster Access, More Control' (pp. 273–82); and 'Font Editors: New Life for Old Fonts' (pp. 287–92).

been called 'impeccable,'[9] 'consistently the best-designed of all fonts for the [HP] LaserJet.'[10]

One must run Bitstream's installation program and tell it what sizes, typefaces, and character sets are desired. This program I found easy and [p. 211] quick to use. (Using exotic symbols takes several extra steps.) The program then creates the fonts and installs them in the word processing program. This unattended process takes from a few minutes to several hours, depending on the size and number of faces chosen. In order to add new sizes later, the installation program must be run again. It occupies about a megabyte of disk space, and can of course be erased when installation is concluded. Permanent storage space is required for the fonts. Those we use—eight sizes each of Dutch Roman and Italic, from 6 to 24 points, using the Roman-8 character set—occupy 650 kilobytes of disk space.

The sizes needed must be sent from the computer to the printer each time they will be used. This has proved faster and less bothersome than it sounds. Type cartridges plugged into the printer do not require this step and are thus more convenient, but they are far more expensive, come in fixed sizes and character sets, and are particularly unsuited for the large type of titles.

Choosing Software

There are two software choices for PC-based typesetting. One can use a word processing program, or one can use a word processing program plus a page layout program. The two leading page layout

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[9] Roger C. Parker, 'From Typewriter to Typesetter,' *PC Resource*, October 1989: 28–32, at p. 30. David Dean ('Focus on Fonts,' *PC Publishing*, September 1988: 44–8) compares fonts by Bitstream favorably, in variety of sizes or shape quality, with fonts by ConoFonts, Glyphix, LTI, Mephistopheles, Qume, and VS. Bitstream was found superior to a newer entry in the field, Digi-Duit (*PC Computing*, January 1990: 52).

[10] Mendelson, 'Font Generators' (see note 8, above): 256.

programs are Ventura Publisher and Aldus PageMaker. Like the PostScript printers, page layout programs are most useful for designs that change frequently. Graphic design is much easier with either of these programs.[11]

If one is using a standard layout which changes infrequently, a lot of time, expense, and complication can be spared by using either WordPerfect or Microsoft Word. Both of these programs have imitated features of the page design programs, such as style sheets, use of illustrations, and (in the case of WordPerfect) kerning. They are pooh-poohed by graphic designers, and *for a designer* the limitations of even an advanced word processing program are chafing.[12] Yet for the novice, needing to create designs only infrequently, the deficiencies of the word processing programs are much less significant. A few extra steps are necessary (less with each revision of the programs), but many more steps are saved. One can do virtually everything one can with the page design programs, plus some things those programs can not do.

If one uses Ventura Publisher or Aldus PageMaker, one must use a word processing program as well. Neither is suitable for editing. One must thus learn and keep up with two complicated, constantly-changing programs rather than one, and one must switch between them frequently and deal with [p. 212] their occasional incompatibilities. It is most convenient to use a single program for both editing and output.

WordPerfect or Microsoft Word?

Major vendors of digital fonts supply programs to install their fonts in WordPerfect and Microsoft Word. Programs to install other fonts are

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[11] For a comparison of them, see 'The PC Page Layout Personality Profile Quiz,' *Publish!*, January 1990: 58–63.

[12] Christopher O'Malley and Jack Bell, 'The Outer Limits of Word Processing,' *Personal Computing*, January 1990: 104–12.

available for purchase.[13] No other word processing programs are so supported; for PC-based typesetting, these are therefore the choices.[14] Both are wonderful programs.

Microsoft Word and WordPerfect are engaged in a 'features' derby, from which all have benefitted. Comparisons of their features go out of date frequently, and each has features that the other does not. Good typesetting can be done with either. There is little reason to abandon Microsoft Word if the user is familiar and comfortable with it.

For those without a commitment to either program, WordPerfect is recommended. It has maintained a slight edge in the 'features' derby

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[13] The publisher is SoftCraft, 16 N. Carroll St., Suite 500, Madison, WI 53703, (608) 257-3300. The LaserFonts manager, which installs any soft font, costs $95. A variety of other related programs provide typographic special effects (shadow, outline, curved, etc.), and a Font Editor creates and edits fonts, reported to be a tedious process. (The Font Editor is reviewed favorably by David Dean, 'Font Editors, Part II: Creating and Editing Signature and Logo Fonts,' *PC Publishing*, July 1988: 43–53, and by Edward Mendelson—note 8, above—: 269 and 292.) Some of these programs are combined into a 'Font Solution Pack' at a discounted package price of $495, available from Editor's Choice Software, P.O. Box 9096, Seattle, WA 98109, (800) 641-1116. SoftCraft also offers, for $15 per disk, hard-to-find HP fonts such as Hebrew (serif and sans serif), Cyrillic, International Phonetic Alphabet, Dingbats, and others. In contrast with Multi-Lingual Scholar (note 2 above), SoftCraft does not provide a means to see the fonts on the screen, although this can be done with screen fonts from other suppliers.

[14] There is some support for font installation in WordStar 2000 and XyWrite/Nota Bene; see Mendelson (note 15, above): 238, 269, and 277. Kerning is not currently supported with these programs, nor with Microsoft Word (Mendelson: 238). It is with WordPerfect.

over the last few years.[15] It is—partly in consequence—the more complex and difficult of the two programs, but its publisher offers unlimited free phone assistance using 800 numbers. It has excellent macro capability, an [p. 213] important feature for serious users.[16] For languages using the Roman alphabet, WordPerfect's foreign language and keyboard customization capabilities are also superior. Its documentation has been called '[among] the best in the industry.'[17] More third-party material (books, videos, magazines, macros to carry out specific tasks) is available than for any other program.[18] WordPer-

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[15] 'WordPerfect has the greatest depth and range of features, the fullest control over the printer, and the best technical support in the industry.' (Edward Mendelson, 'Two Aces and a King. The Big Three Word Processors Raise the Ante,' *PC Magazine*, November 28, 1989: 97–128, on p. 128. The other word processors discussed are Microsoft Word, which the author recommends, and DisplayWrite, which he does not.)

[16] Macros are collections of commands executed as a group, thus automating repetitive operations. A growing number of vendors are selling WordPerfect macros to simplify design tasks, forms creation, addressing envelopes, and the like. Creating simple macros is not difficult, yet advanced users can write macro "programs" with complex procedures. (The topic is discussed by Neil Rubenking, 'WordPerfect Offers a Bona Fide Programming Environment,' *PC Magazine*, October 31, 1989: 295–315.)

[17] *PC Resource*, February 1990: 10.

[18] All purchasers of WordPerfect receive information about *WordPerfect Magazine*. Among the many books on WordPerfect I have found the most helpful to be Daniel Will-Harris' *WordPerfect 5: Desktop Publishing in Style. The Expert's Guide to WordPerfect and Graphic Design* ($21.95; Peachpit Press, 1085 Keith Ave., Berkeley CA 94708, 1988, 800 283-9444). A WordPerfect 5.1 version is planned for February 1990; the same publisher has related books, with overlapping contents, for Ventura Publisher and HP printers.

fect is the standard for compatibility.[19] It has by far the most active users' group,[20] and has a good record in user relations.[21] It is sold at a large discount to higher education faculty and staff.[22] Finally, it is 'the de facto standard in business and government offices,'[23] and the principal product of the financially healthy WordPerfect Corporation.[24] It sometimes seems as if the owners, directors, and workers see software publication as a spiritually significant enterprise. All the same (and they're getting a copy of this), there are many ways WordPerfect

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[19] Ed Shropshire—note 6 above—is described as "a WPCorp third-party compatibility specialist." The company furnishes at nominal charge a package with all technical information needed for compatibility with WordPerfect. This policy has been favorably commented on by other software manufactures who also want to be compatible. No other word processor is this cooperative.

[20] WordPerfect User Support Group, P.O. Box 1577, Baltimore, MD 21203. Dues of $36 per year include a subscription to its publication, *The WordPerfectionist*.

[21] 'WordPerfect's customer support is by far the best in the industry.' (Mendelson, 'Two Aces and a King'—note 15 above—: 128.)

[22] At present the price is $135. An Educational Software Direct Order Form is needed (WordPerfect Corporation, 1555 N. Technology Way, Orem, UT 84057, (801) 225-5000).

[23] *New York Times*, December 3, 1989, Section 3: 14.

[24] 'WordPerfect is the industry standard and also the flagship of a company dedicated to maintaining its dominance. WordPerfect's control over the printed page makes all other word processors look crude by comparison.' (Mendelson, 'Two Aces and a King'—note 15 above—: 128.)

could be improved.[24A]

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[24] [A][This note, present in the author's manuscript, did not appear with the article.] Dear WordPerfect Corporation, your updates always cause us more trouble than you seem to realize. When you do issue an update, please provide exhaustive as well as summary descriptions of the changes; provide a list of changes arranged by function key; provide purchasers with a good and easy way to update their macros and keyboards; offer a downward conversion utility, with downward macro conversion, to users who do not purchase the update. Please publish the documentation for your printer drivers; include a print pause command (WordStar's ^KC); allow columns of text to be moved without setting tab stops; allow dashes, slashes, and ellipses to break lines automatically; allow the substitution of 'Italics & Other' for 'Bold & Underline' on the screen colors menu. Please tell us when bugs are fixed so we don't have to test each interim release for ourselves; please don't charge $500 to attend your conventions (a $25 charge ought to keep out the rabble); please include a font installation utility; put the tilde (ASCII 126) on top of the character, not in the middle; improve page preview, which in Spanish crawls; include hide and reveal commands within the outliner, and allow moves of outline families; allow one to type within a block, as WordStar does; include non-printing place markers, like Word-Star's Control-K 0 to 9, but savable from one editing session to the next; open files at the place where last saved, with outline hide and reveal as when last saved; allow searching and replacing for specific overstrikes, advances, fonts, and similar codes; allow true case-specific searches; allow more than two files to be open; provide automatic suppression of blank lines when paragraph and page breaks coincide; make the macro language easier for non-programmers; supply a keyboard oriented towards typesetting, with italics instead of underscore, bold and block switched, and automatic pairing of quotation marks; allow keyboards with two- and three-letter command strings, thus permitting emulation of WordStar and Microsoft Word keyboards. Include these keyboards. Devote even more resources to directly reaching and educating users. Sincerely, Daniel Eisenberg.

Choosing Computers

There are three main subgroups within the IBM-compatible family. In order of increasing price, these are the XT-compatible (sometimes referred to by its main processor chip: 8086, 8088, V-20), the AT-compatible (80286), and the 80386 machines. All commonly come with 512 or 640K of memory and a hard disk of 20 to 30 megabytes; the higher figures are recommended. There are many manufacturers of each, offering very similar products.

This writer endorses the AT-compatible computer reluctantly. It is the poorest-conceived and most manipulative of the IBM family, and the model which fell furthest from realizing its considerable potential. Nevertheless, the planned obsolescence introduced with this model has been successful.

The ability to read many types of authorial (and in-house) disks is crucial to a computerized publisher. There are three types most commonly found on the IBM family: the 360 kilobyte and 1.2 megabyte 5.25" drives, and the 720 kilobyte 3.5" disk drive.[25] A dealer can add a 3.5" drive to any machine. The two types of 5.25" drives are so problematical that for full compatibility one must have both.[26]

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[25] Recent Macintosh computers can read and write 3.5" IBM disks. I have not found a means to read and write Macintosh disks on an IBM-compatible, although I have been told that such exists. If any reader has the solution a note would be appreciated.

[26] A 1.2 megabyte drive can read 360 kilobyte disks, but contrary to the AT's documentation cannot create them reliably, so there is only one-way compatibility between the two sizes. We have used the program CPYAT2PC, available for $79 from Editor's Choice Software (note 13 above), to write 360 kilobyte disks on an 1.2 megabyte drive. The cost of adding a 360 kilobyte drive is only slightly higher, and it is more convenient. At present we have one AT computer with three floppy disk drives, two 5.25" and one 3.5", used primarily for conversions.

Without a modification which would void a warranty,[27] both can only be installed on machines of the AT class and higher, and thus the publisher must have access to one such machine. Others can be of the XT class, which are otherwise satisfactory for word processing and other office tasks, offer a better value, and have keyboards many users find preferable. If more than the minimum can be spent, the newer and much superior '386' machines are already replacing the AT class, leaving the XT and the 386 as the survivors.

An EGA color monitor offers the ability to identify type size and face by color, a great convenience. The EGA monitor also permits the display of [p. 214] twice the number of characters as standard monitors. WordPerfect works well with EGA and the slightly more expensive VGA monitors.[28]

A network is not needed for a small office. We transfer files to the computer connected to the printer by putting them on a disk and carrying it across the room. Also unneeded for the near future are MS-DOS 4.0 and the advanced operating systems OS/2, Windows, and Presentation Manager. However, a backup program faster than the simple program included with all IBM-compatible machines will soon become necessary. We do an incremental backup daily and a full backup about once a month, with disks stored at another location as protection against fire or theft. For this purpose we have been using the program Fullbak; though recommended in an article comparing backup programs, it is surprisingly difficult to use. We expect to change to an external tape backup system, movable from one computer to another. Indispensable aides have been guides to MS-DOS, a standard package of PC software tools (we use the earliest, those offered by Peter Norton Computing), and a collection of high-

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[27] Disk controller chips to permit 1.2 megabyte disks to be installed on an XT-compatible have recently become available from Datadisk, P.O. Box 157, Dixon, NM 87527; (505) 579-4496. It may become possible to purchase a new machine with this chip as standard.

[28] The VGA monitor offers a trivial improvement, again introduced to create incompatibility and force users to upgrade.

memory (resident) utilities, such as Sidekick.

Common Errors in Computer Typesetting

The following is a list of errors seen with some frequency in computer typesetting. Proper use of the software, and more human intervention, can eliminate these. Traditional proofreading is just as necessary as it ever was.

Typewriter-style ("") instead of typographic quotation marks ("").[28A]

Use of two hyphens (--) instead of an em dash. Even worse, yet not unknown, two hyphens split by a line end.

Ellipses with too much or too little space between the periods. Ellipses split over two lines have also been spotted.

Double spaces after a period.

Blank lines separating paragraphs.

Ragged right (unjustified) text.

Too many indented quotations. Use them sparingly; they fatigue the reader's eye and can be counterproductive.

Lack of hyphenation or infrequent hyphenation, resulting in excessive interword space or letter spacing. Hyphenation frequency can be controlled by setting hyphenation zone and interword space parameters.[29]

Incorrect hyphenation of proper names, foreign words, or newly-coined words ("lo-vemap," a word invented by sex researcher John Money, so hyphenated in the *New York Times*, January 23, 1990, p. B5). All the [p. 215] programs discussed provide hyphenation help, but proper hyphenation always requires some human intervention. The programs permit intervention

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[28] A[In *Scholarly Publishing*, these quotation marks were not printed as specified, so the point was lost.]

[29] Microsoft Word does not permit this (Mendelson, 'Two Aces and a King'—note 15 above—: 112).

but will do their erroneous best without it.

Improper page breaks. Page breaks require manual inspection and fine tuning.

Erroneous homonyms (spelling errors a spell checker cannot find).[30]

Insufficient variety of type sizes. Titles in the same size or nearly the same size as the text.

Too much variety of type faces. Two styles of type on a page is enough in anything but advertising.

Too much interline space (leading). Reducing the amount of interline space also allows more words to fit on each page.

A constant leading regardless of type size.

Measure too long for type size. A 7" measure (as on an 8 ½ x 11" page) is too long for 10 or 11 point type. Use two columns instead.

Using underscoring instead of italics. The underscore does not belong in typeset material.

Using bold type for emphasis. Use it very sparingly, and not as an alternative to italic.

Using all capitals in titles and headings. Capitals are relatively illegible.

Notes at the end rather than at the foot. All the programs mentioned will do footnotes well. If the note is worth printing it's worth making it convenient to find. Above all, don't force the reader to consult the table of contents to find what pages the notes are on.

No running heads, or uninformative running heads. Merely putting the author's name on each even page, and the book title on each odd page, tells the reader nothing. If you're going to have heads at all, put the chapter titles in them. If you must put notes at the end, put the numbers of the pages annotated in the heads. With journals, it is helpful to put the article

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[30] See Norwood B. Gove, 'Catch That Spilling Error,' *Scholarly Publishing*, 21 (October 1989): 27.

author, journal abbreviation, volume, and year on the even page, and the article title (or an abbreviated form of it) on the odd page; thus this data will appear on photocopied pages.

Inadequate tables of contents. Not itemizing book reviews in the table of contents. Tables of contents with erroneous page numbers. [This point did not appear in the published article.]

Mechanically produced indexes. For most applications an unassisted program cannot produce a satisfactory index. Of course, even an imperfect index is better than none.

Missing diacritics. The ASCII character set is insufficient. The PC-Graphics set is much better, but does not include Á, Í, Ó, Ú, ã, õ, and many other characters. More are found in the Roman-8 set used by Bitstream and [p. 216] other type suppliers, and in the PostScript set. Write diacritics in by hand if there's no other choice.

Placing diacritics on a dotted rather than dotless i.

Using ells instead of ones. They have different widths and usually different shapes: compare 456l956 with 4561956.

I will discuss procedures for avoiding many of these errors in 'Processing Electronic Manuscripts.'

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References

Computer Buyer's Guide & Handbook, $4.50 single issue, $32 per year. P.O. Box 318, Mt. Morris, IL 61054-9942.

PC Computing, $2.95 single issue, $19.95 per year. PO Box 58229, Boulder, CO 80321-8229.

PC Magazine, $2.95 single issue, $29.97 per year. P.O. Box 51524, Boulder, CO 80321-1524.

PC Publishing, $3.95 single issue, $36 per year. Hunter Publishing, 950 Lee Street, Des Plaines, IL 60016.

PC Resource, $2.95 single issue, $27.97 per year. IDG Communications/Peterborough, Inc., 80 Elm Street, Peterborough, NH 03458.

Personal Computing, $3.00 single issue, $11.97 per year (new subscribers). P.O. Box 420110, Palm Coast, FL 32142.

Publish!, $3.95 single issue, $39.90 per year. PO Box 55400, Boulder, CO 80322. *Publish!* is produced on Macintoshes and oriented towards that computer.

WordPerfect Magazine, $16 per year. 270 West Center St., Orem, UT 84057.