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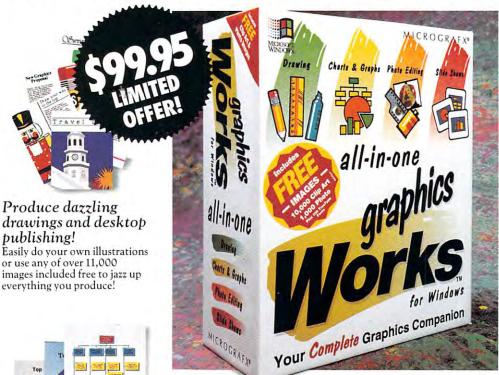
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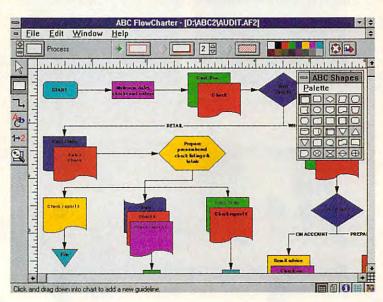
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VOLUME 15, NO. 4, ISSUE 151

FEATURES

TEST LAB

Edited by Mike Hudnall Get ready for the tax man! We look at ten taxpreparation packages.

25 TOP WINDOWS TIPS

By Clifton Karnes, Jan Altman, and Herb Tyson The favorite tips from three Windows experts.

THE BIT, THE BYTE, AND THE WORD

By Anthony Moses The Bible meets the computer.

74

PRODUCTIVITY CHOICE By William Harrel

Graphics Works from Micrografx. 76

MAKE ME AN OFFER

By Tom Campbell How to buy and sell used computers and software.

COLUMNS

EDITORIAL LICENSE

By Clifton Karnes Online's new look.

34

NEWS & NOTES

By Jill Champion Top computer news.

FEEDBACK

Answers to tough questions.

TIPS & TOOLS Edited by

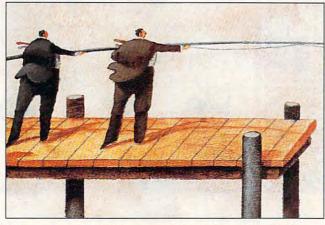
Richard C. Leinecker Tips from our readers.

WINDOWS WORKSHOP

By Clifton Karnes Windows fonts revealed.







Creative and digital photo illustration by Nexvisions/Guy Fery

58

PROGRAMMING POWER

By Tom Campbell Get into database programming!

60

HARDWARE CLINIC

By Mark Minasi How to handle interrupts in the real world.

66

INTRODOS

By Tony Roberts Tune up your startup files.

SHAREPAK

By Steve Draper Shareware treasures. 24

PERSONAL PRODUCTIVITY

By Daniel S. Janal Making policy: software for the growing business.

86

ART WORKS

By Robert Bixby Power presentations.

MULTIMEDIA PC

By David English Start your own video production studio.

136

NEWS BITS

By David English CES show report. ENTERTAINMENT

DISCOVERY CHOICE

By David Sears The Island of Dr. Brain from Sierra.

PATHWAYS

By Steven Anzovin Dissection software can be cheaper and cleaner than the real thing.

ENTERTAINMENT CHOICE

By Anthony Moses The Lost Files of Sherlock Holmes from Electronic Arts.

96

GAMEPLAY

By Paul C. Schuytema At the movies: Major entertainment corporations put the moves on computer software.

SOUND OF THE FUTURE

By Paul C. Schuytema Now computers can talk, listen, and play.

> REVIEWS 105

Quattro Pro for Windows, Print Shop Deluxe. Draft & Print. Diamond SpeedStar 24X,

Global Effect. Eclipse FAX. Diamond Technologies

486DLC-40. MicroExpress

ME 486DLC/40, DeltaGraph Professional

> for Windows, Planet's Edge,

Mike Ditka Ultimate Football, and ZooKeeper.

ADVERTISERS INDEX

See page 121.

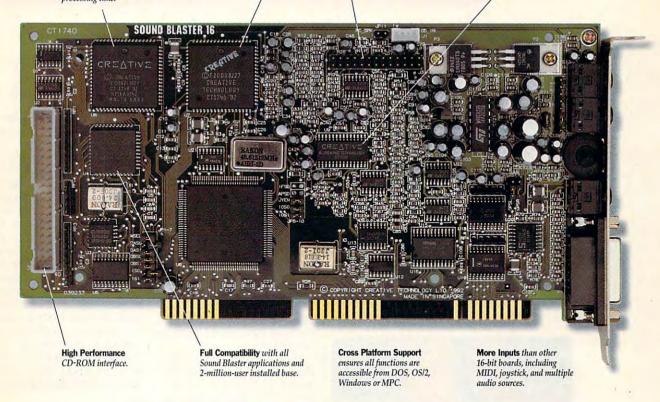
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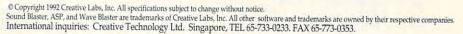
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Clifton Karnes

ace it: If you're not wired into a network like CompuServe, GEnie, MCI Mail, America Online, BIX, DELPHI, or COMPUTE's own under-development COM-PUTE/NET, you're working too hard, and you're only tapping a fraction of your computer's power. I know that telecommunications is a challenge and it can be expensive, but it's also the most exciting arena in computing today.

What makes telecommunications so great? First of all, information flows over your phone lines at the speed of

Online

flows at

information

the speed of

light, so news and data travel fast. You can get files from an online service days, weeks, or sometimes even months before they're available else-

Speed is one thing, and it's great, but the sheer quantity of information and pooled resources available online is an even better reason to get connected. All of the networks mentioned above have tons of data-everything from the latest shareware to the latest product information to hot pictures to encyclopedias, and all of it is ready to be downloaded into your machine at home or work. And the services' members are an ever-growing source of information when you have questions on almost any available topic.

If telecommunications is so great, why isn't everyone doing it? Well, before long, everyone will be. And the reason is a new breed of online software. If you tried telecommunicating a few years ago, you should try it again, because things have changed. Now there's a good chance your favorite online service offers a Windows interface that's as easy to use as a potato peeler.

First on this list of online GUIs is WinCIM, a Windowsbased front end to Compu-Serve. With WinCIM, you can do everything you can do while communicating with CompuServe in character mode, but you can do it faster and easier. Browsing through files, searching databases, and sending mail are all indecently easy with this beautifully designed program. If you're a fan of the Compu-Serve Information Manager for DOS, try the new Windows entry-it's even better.

If you've used MCI Mail, you know that the interface is about as friendly as a damaged boot sector. But even with this Spartan interface, MCI is very powerful and probably connects more businesspeople than any other network. Great news for MCI users comes from Swfte, heretofore famous as an electronic type foundry. The company's new offering is called The Wire, and it's a Windowsbased front end for MCI Mail that makes sending and receiving mail a snap. The Wire gives you all of MCI Mail's power, including multiple attachments and group routing, but in an easy-to-use, point-andclick environment. If you use MCI Mail and Windows, The Wire's a must.

Next is BIX, a sanctuary for programmers and technical users. For programming information, especially multiple-platform information, BIX has always been hard to beat. But its menu system has never really had that come-hither look. Enter BIXnav, a Windows interface for BIX. BIXnav isn't as full featured as WinCIM—as its name suggests, it's primarily a navigator-but what a difference it makes to BIX! You can navigate through BIX's scores of conferences and download files in all of them with a few mouse clicks. The first version is good, and I expect future versions of BIXnav to be even better.

These are just three of the excellent new online interfaces available. They all make using online services much easier, but there's still a problem with them. The problem is that you can't use WinCIM with BIX and you can't use The Wire with CompuServe. All of these programs are dedicated, proprietary communications tools.

For each online service you access, you'll have to use either a boring terminal program or, if you're luckier, a dedicated front end, like the ones just discussed. But if you telecommunicate much, you'll find yourself using half a dozen communications programs a day.

This is the problem the online industry needs to solve. Online services are, at their heart, databases, and the problem of universal access is a problem of protocols. With a standardized protocol system for all telecommunications, one Windows-based interface would work with any online service. When that happens, we'll have crossed the final online frontier.

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Edited by Mike Hudnall

t's that time of year again when throughout America people stay up late, wrestle with piles of bank statements and old receipts, and begin to mutter to themselves as they attempt the 1040 two-step. It's tax time.

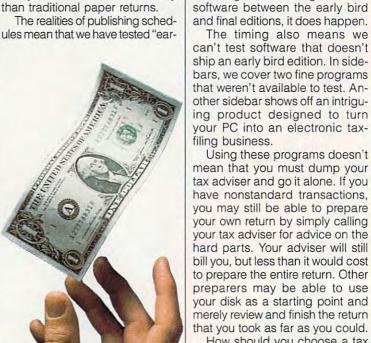
Although nothing can really ease the pain of paying taxes, your PC can convert your annual tax-preparation session from a befuddling ordeal to an efficient, almost pleasant exercise. Or, if you use a paid preparer, this might be the year to take your fiscal fate back into your own hands with the capable assistance of your faithful PC.

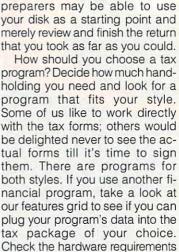
In Test Lab this month, we focus on ten tax-preparation programs. Tax software is getting to be so good that you can rely on it to guide you successfully through the often confusing maze of forms with their arcane instructions—as long as you don't have truly unusual transactions.

These tax-preparation programs range from lean, form-filling speed demons to multimegabyte masters that gently interview you and handle all the forms and schedules. The amount of instruction and help these programs offer ranges from little or nothing to extensive handholding every step of the way (including IRS instructions, plain-English explanations, and lists of tax-saving tips).

Most of the programs contain the basic feature set, which includes IRS instructions, at least 35 forms and 10 schedules, the ability to print IRS replica forms for at least the 1040 itself on laser or dotmatrix printers, an electronic filing option, and available add-on software for state returns. You can assume that these features are there unless we tell you otherwise. The features grid also lays out the nittygritty details for you.

New this year is the exciting Form 1040PC, not offered by all the programs. The 1040PC bypasses printing IRS replica and substitute forms, which, after all, are mostly composed of lines with no dollar entries. The 1040PC prints only lines which contain data. Returns eligible for the 1040PC—the vast majority—print on a single page. The IRS believes it can process the 1040PC significantly faster and more accurately than traditional paper returns.





ly bird" or "head start" editions of

the software. Developers tradition-

ally release a preliminary version

in the late fall. When the IRS and

Congress finally approve the

forms and finalize the rules in Jan-

uary, developers ship the final ver-

sion. Although developers rarely

make significant changes in their

Then, buy the program that best fits your needs and let it simplify your life.

to be sure your PC will run the pro-

gram. Compare the forms in your

last year's return to the software's

list of forms to ensure that it han-

dles all the forms you'll need.

RICHARD O. MANN



AM-TAX PERSONAL-2 1040

AM-Tax Personal-2 1040's barebones approach to tax preparation works well for those who know their way around tax returns and want their computers merely to accumulate the information on the forms, do the necessary math and table lookups, and print the returns. The program is also a godsend for users who must work without a hard drive or with limited memory.

AM-Tax Personal-2 runs from two 51/4-inch floppy drives or one 31/2-inch drive, a rarity in today's world of multimegabyte programs. It needs only 512K of RAM. Its companion product, AM-Tax Personal-1, is less expensive, prepares fewer forms, and runs from a single 51/4-inch disk in only 400K of RAM. Both are excellent choices for users with limited hardware.

The reason AM-Tax Personal-2 can work within these Spartan disk space and memory requirements is that it offers no help, no interviews, no checklists, no audits—in fact, no frills at all. (I can just imagine my crusty old

AM-Tax Personal-2 1040 IBM PC or compatible; 512K RAM; two 5¼-inch floppy drives, one 3½inch floppy drive, or a hard drive— \$65 (\$45 renewal) for Personal-2; \$40 (\$25 renewal) for Personal-1

AM SOFTWARE 1500-B NW Vivion Rd. Kansas City, MO 64118 (816) 426-8361

tax professor saying, "Whatya want all those sissified gewgaws for, anyway? Real men go right to the tax forms.")

If you can get the right data on the right lines of the right forms, however, the program does everything else masterfully. If you have self-employment income, for example, you put the raw data into Schedule C. AM-Tax Personal-2 totals it, posts the total to the 1040, and completely fills out your Schedule SE. You don't have to remember to fill it out and may not even know the program has filled it out until you print the return.

AM-Tax Personal-2 takes a logical approach to the forms. It starts at the top of the 1040 and works you down the form. As you

Les Comments of the Comments o

come to lines that present totals from other forms, a quick strike of the F6 key whisks you to the appropriate form or schedule. Fill that out, and AM-Tax returns you to the next line on the master form. This process can sometimes have you two or three forms deep, but AM-Tax manages to keep everything straight for you. As long as you aren't trying to learn how to prepare tax returns as you go, AM-Tax is easy to learn and use.

AM-Tax Personal-2's form and schedule count is respectable, and it offers enough copies of multiple forms to handle any remotely normal return. AM-Tax Personal-1 handles only 19 fewer forms and schedules. Of the forms left out, only the Form 1040A would be useful for simple returns. Most taxpayers would use the other forms infrequently.

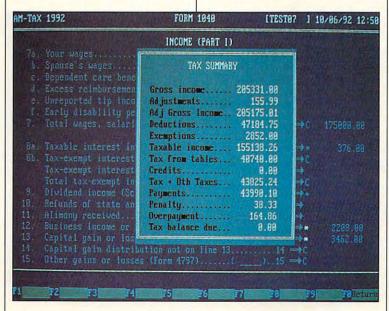
AM-Tax Personal-2 prints graphic replica forms (see forms sidebar) for only the 1040 itself, with approved substitutes for all other forms.

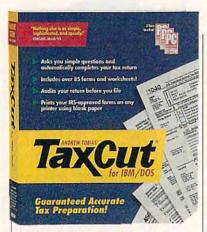
Unfortunately, AM-Tax Personal-2 doesn't support the new Form 1040PC or electronic filing—these are available only with the professional version:

At \$65, AM-Tax Personal-2 1040 isn't a particularly good buy, compared to the featurerich competitive products in the same price neighborhood—unless you need it for its miserly use of hardware resources and its lightning speed.

RICHARD O. MANN

Circle Reader Service Number 371





ANDREW TOBIAS' TAXCUT FOR DOS

Andrew Tobias' TaxCut for DOS and its sibling Windows product (reviewed separately below) hold your hand from the minute they take control of your screen.

The opening screen has a dialog box asking if you want to go directly to the interview. If you choose not to use the interview, the opening screen displays the message *Start Here!* and warns you not to go to the top of the 1040 to start. (The personal-background screens gather the information needed for the top of the 1040 and other forms at the same time.)

While you can go directly to forms and worksheets to enter your tax information, TaxCut provides the ultimate in handholding. This year's interview walks you through the entire process, from importing data from last year's tax program and this year's checkbook program all the way through printing or electronic filing.

And what an interview it is! TaxCut asks you the questions in the top of the screen and uses the bottom of the screen to explain the question and your options in answering it. Its explanations and advice are in chatty, easy-to-understand English, using examples liberally when they'll help make a point. If you know the answers to the questions, you can whip right through the interview, because the help is

Andrew Tobias' TaxCut for DOS IBM PC or compatible, 640K RAM, hard drive; supports mouse—\$79.95 (\$29.95 renewal)

MECA SOFTWARE 55 Walls Dr. Fairfield, CT 06430 (800) 284-3694 (203) 256-5000

not in your way. If you need the help, it's right there where it can be the most useful. And even when you think you know what you're doing, having the explanations and cautions in view as you go may help you notice certain errors you've been making.

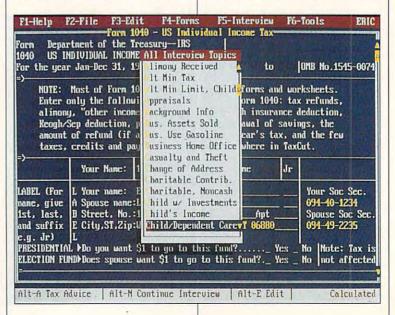
The interview uses artificial intelligence techniques to ask only questions that matter to you. The program helps you with your answers, telling you that most people answer a question no, for instance, then listing common exceptions.

The interview is especially helpful if you plan to file your return electronically. It tells you about the special formatting requirements for electronic filing as you enter the data so that you can enter things in the right format from the start. The interview provides an extremely thorough first line of help. IRS instructions are available onscreen, as are explanations of the purpose of each form. These explanations include the details of how the program performs certain calculations. You can also get help from a long, alphabetical topic list, and you can print any help topic for later reference.

The advice and help throughout the program are down-toearth and clearly explained. At one point, the program warns you against cooking up some "clever dodge. The IRS has been around a long time, and they've seen it all." The program feels like your kindly uncle (with a Harvard law degree) at your side helping you.

TaxCut explains this year's changes in the law, allows you to mark fields as estimated until you can find the exact answer, provides a detailed flow chart showing the information flow between forms, and has an extremely thorough audit function. As you work through the auditor's findings, you can jump to the questioned location in the forms, fix the problem, and jump back to the next audit question.

TaxCut prints the new Form



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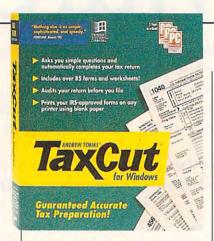
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1040PC. It checks your return in detail to see if it fits the stringent 1040PC requirements and helps you make necessary changes.

A clever new feature is designed for people who have access to a laser printer only at work. You can prepare the return at home and print a file onto a disk. Take the disk to work and run TCPRINT from it to print your return on the laser printer (this feature is available in the DOS version only).

You can also find the right tax form from an alphabetical list of tax topics or use the shoebox function. In shoebox mode, you work from a list of possible sources of tax information. If you pick a source such as your employer, it then lists the possible kinds of documents that come from employers. Pick the one you need, and it takes you to the right form to enter the item.

In general, I believe that Andrew Tobias' TaxCut for DOS and its Windows version are the best tax programs you can buy. Novices get the maximum amount of handholding help, while experienced tax preparers can whiz through a return with the assurance that the program won't let them forget anything important. I test all the tax programs every vear and always end up using TaxCut for my own return. (For a variation on this program, however, see the sidebar on Kiplinger's TaxCut, which also comes in both DOS and Windows versions.) RICHARD O. MANN

Circle Reader Service Number 372

Andrew Tobias' TaxCut for Windows IBM PC or compatible (80286 compatible), 2MB RAM, EGA or VGA, Windows 3.1, hard drive—\$79.95 (\$29.95 renewal)

MECA SOFTWARE 55 Walls Dr. Fairfield, CT 06430 (800) 284-3694 (203) 256-5000

ANDREW TOBIAS' TAXCUT FOR WINDOWS

Andrew Tobias' TaxCut for Windows takes the basic TaxCut for DOS program and presents it in a classy Windows format. By moving to Windows, you lose a little and gain a lot, but the basic tax program with its friendly yet sophisticated interview remains the same.

TaxCut for Windows will not print on your office laser printer from a disk file as the DOS version does, and you have to exit Windows and run a small, separate program to electronically file your return with the clearing-house. The DOS version can

hook up to the clearinghouse from within its menu structure.

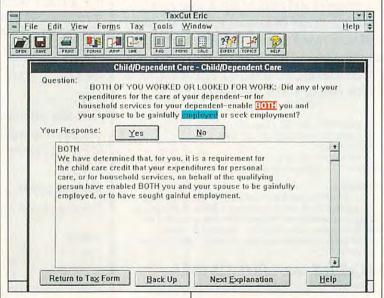
The gains come with the graphical nature of Windows. TaxCut for Windows prints all the forms and schedules in IRS-identical replicas, but takes a lot longer to do it. It uses TrueType to accomplish this miracle, allowing you to scale down the font size and thus scale down the WYSIWYG images of the forms to suit your fancy.

TaxCut for Windows has a useful toolbar across the top of the screen, providing quick, one-button access to a dozen functions, including the interview, the graph, the forms list, and the calculator, among others.

You can have several forms open on the screen simultaneously and click back and forth among them. A colorful tax-summary graph presents a pie chart showing the distressingly large wedge of your pie that goes out in taxes each year.

In short, Andrew Tobias' TaxCut for Windows is the same topflight program as its DOS version, with the added advantages of WYSIWYG forms and the easier-to-use Windows interface.

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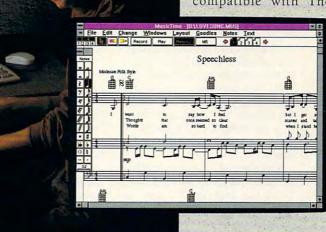
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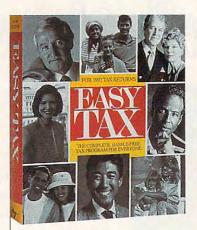
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EASYTAX

SoftKey Software Products annually sells \$22 million in professional tax-preparation software. This year, the company decided to tap its 12 years of tax-software experience to create a consumer's tax program. It bought the EasyTax name from Timeworks and went to work.

EasyTax tries valiantly to follow in the footsteps of market leaders TurboTax and TaxCut with an easy-to-use program full of helpful features for tax novices, but it falls short of the polish and power of those two programs. It feels like the TurboTax or TaxCut of two years ago—not a bad achievement for a first-time effort.

Take the taxpayer interview, for example. EasyTax has a thorough interview that will successfully guide you to the right places for your tax information, but it isn't as slick and effortless as it could be. You answer yes-or-no questions, for instance, by hitting the space bar to cycle between yes, no, and question marks (which denote a question you haven't answered yet). Why can't you just type a Yor an Nas you do in hundreds of other programs?

The interview misses opportunities to use simple artificial intelligence to streamline. It asks, for example, if you sold any depreciable business assets during the year. If you answer no, it should then skip the next few questions.

EasyTax

IBM PC or compatible; 640K RAM (500K free); monochrome, CGA, EGA, VGA; hard drive (2.5MB free); supports mouse—\$79.95 (\$39.95 renewal)

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which elicit details of such sales. Instead, you have to answer those questions as well.

Also, I found an instance where the program should have compared two figures and carried the lesser to the next line but failed to do so.

But aside from its minor failings, which are primarily inefficiencies that won't affect the accuracy of the tax returns it produces, EasyTax has many laudable features. It prints all 41 of its forms

and schedules in IRS replica form on most dot-matrix and laser printers without any additional software. It supports the new Form 1040PC and provides for electronic filing of your return through a central clearinghouse for a \$19.95 fee.

EasyTax opens with a checklist that shows you in what order you should attack the pile of forms. The shoebox entry system lets you enter individual transactions in any order; identify the type of transaction, and the program takes you to the right line on the right form to enter it. Its context-sensitive help has hypertext links to any term that's explained elsewhere.

EasyTax estimates your 1993 taxes and supports four what-if scenarios for analyzing the current year's return. It offers an online set of 60 tax-saving tips and a few screens of year-end tax strategies that can be helpful. It checks the integrity of the data when you're finished, highlighting odd relationships between piec-

KIPLINGER TAXCUT

Test Lab evaluates only software that is actually shipping to retail customers. Unfortunately, this worthwhile tax program was available only in a beta (prerelease) version. We thought you'd be interested in it (and J.K. Lasser's Your Income Tax, treated in a separate sidebar), even if we couldn't tell you exactly what it will be like when it is finalized.

Undoubtedly the best buy this year is this variant on the Andrew Tobias' TaxCut programs. Kiplinger, the highly respected publisher of personal finance books and Kiplinger's Personal Finance Magazine, purchased the rights to use MECA's best-selling Andrew Tobias' TaxCut software. Kiplinger adds its own advice files full of tax-saving tips to the already excellent TaxCut and packages the program with a copy of the popular book Kiplinger's Sure Ways to Cut Your Taxes. To sweeten the deal, the company adds

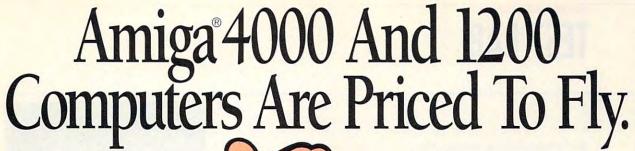
Kiplinger Tax Estimator software, which Kiplinger says helps you analyze your tax situation and make planning decisions. (We did not see a beta version of the Estimator.)

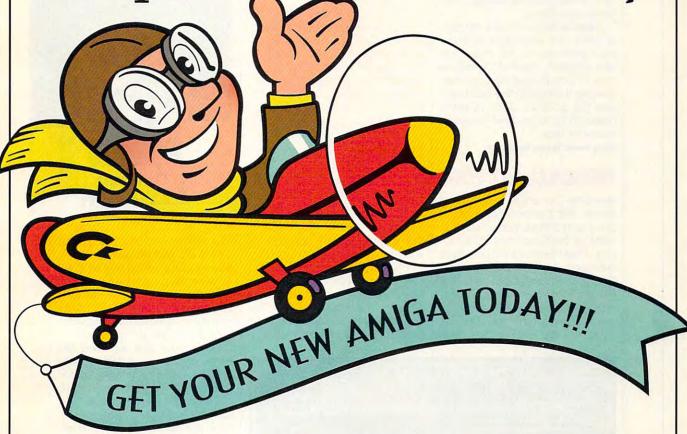
But the big news is that Kiplinger sells it for \$39.95 (plus \$7.50 for shipping and handling)—a special introductory price for the program's first year. You get the TaxCut software with the extra Kiplinger helps, the Estimator, and the book (\$12.95 in bookstores) for about half the list price of Andrew Tobias' TaxCut. This is a true bargain. (Kiplinger's full price in future years will be \$89.95, but registered users will get a discounted update price.)

Kiplinger TaxCut software is available in both DOS and Windows versions. This software is not available in stores. To get it, call Kiplinger's toll-free number, (800) 365-1546.

-RICHARD O. MANN

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es of information, as well as other suspicious items.

EasyTax's developers certainly have the expertise to back their venture into the consumer tax program market. Within a year or two, they should be challenging the best in the business, but the product doesn't quite measure up to the best this year.

Circle Reader Service Number 374

PERSONAL TAX EDGE

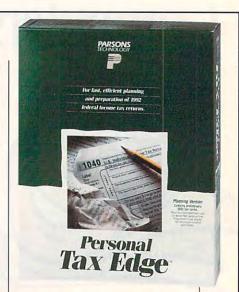
Personal Tax Edge is the price leader, with the lowest advertised price, and still has many of the features of higher-priced competitors. These features include audit warnings, a what-if estimator, tax tips, plain-English explanations of IRS publications and instructions, an estimate flag, notes, a tally of entries, tax-planning suggestions, and unlimited free technical

Personal Tax Edge IBM PC or compatible; 640K RAM (520K free) for DOS version, 1MB RAM for Windows version; hard drive (4MB free for DOS version, 6MB free for Windows version); supports mouse in both versions— \$49.00 for DOS version (\$24.50 renewal), \$59.00 for Windows version (\$24.50 renewal)

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third among personal tax-preparation programs in user popularity.

You can enter information by using forms, interviews, and the new organizer, which resembles MECA's shoebox. Personal Tax Edge supports six more forms this year, but there's still no 1040X sup-

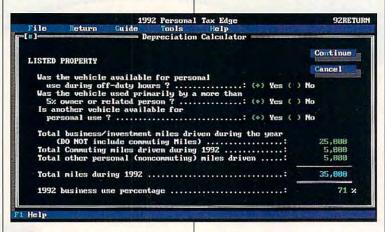


four windows to be open at one time in the DOS version and multiple windows limited only by available memory in the Windows version. Pull-down menus that you can use simultaneously with your mouse and keyboard facilitate your use of the program.

At no extra cost, Personal Tax Edge provides electronic filing software, which is integrated into the program with low-cost (\$10 per return) transmission charges. All forms supported may be printed in IRS-approved facsimile format on a wide variety of printers. The graphics-output format approved by the IRS finds support on all signature forms. While the appearance of laser-generated graphic IRS format is important on mailed paper returns, the paper appearance of electronically filed returns is inconsequential.

The program automatically saves return files after you exit all forms. Personal Tax Edge has been criticized in the past for being slow and for having poor, white-on-black graphics. A Parsons representative claims that the program is faster this year than last and that the graphics have been improved. Parsons has a sophisticated pop-up financial calculator which rivals those hand-held calculators made by Hewlett Packard and Texas Instruments.

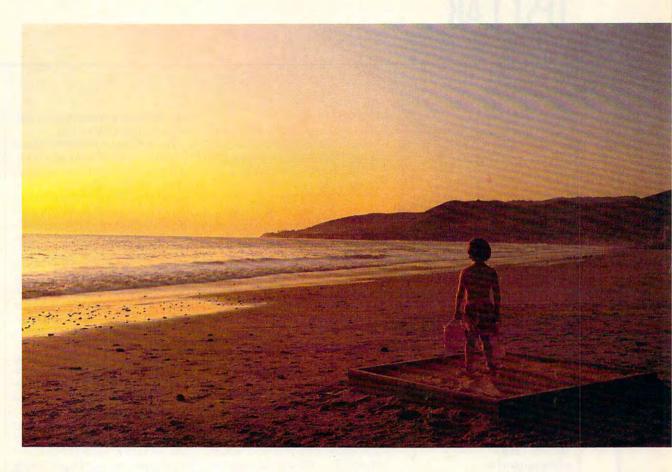
Personal Tax Edge has a wide variety of forms, features, and



support by fax, phone, and online services. The real price news about Parsons' product is the \$19 price for either the DOS or the Windows version by mail, direct from the company.

Personal Tax Edge targets personal and professional preparers who want to save money on their tax preparation and electronic filing and don't mind the printing and slower processing of facsimile forms. Industry analysts I've consulted rank Personal Tax Edge port. The what-if estimator, with 1992 and 1993 rates, calculates both 1040ES and W-4 to give wage earners control over their with-holding. Comparisons of 1992 data to national averages and last year's taxpayer data help to identify inconsistencies. Analyses flag missing data, wrong values, taxsaving suggestions that apply to your data, and the legal filing status that gives the best benefit.

The interface is a windowing environment that allows three to



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help for a low price and should be a worthy challenger for the industry leaders. The Windows version, released in January, is a new and exciting advance which demonstrates Parsons' commitment not to be left behind in the features race.

ALFRED C. GIOVETTI

Circle Reader Service Number 375

TAXPERFECT-PC

TAXPERFECT-PC is a no-frills taxpreparation package that has been on the market for ten years. Even though it produces no state returns or supporting worksheets, TAXPERFECT-PC produces as many federal forms as required for any situation, limited only by available hard disk storage.

This program actively targets as customers both professional and personal preparers, with separate versions specifically designed for each group. Each version allows you to prepare both individual and small business taxes. A related product line helps you prepare the 1120 corporate tax form for both the C-type and S-type corporations.

TAXPERFECT-PC has only one (form-based) style of data entry. However, it allows you to print a customizable interview sheet or organizer, similar to the organizers used by high-priced professional tax-preparation packages, of up

TAXPERFECT-PC

IBM PC or compatible, 640K RAM, EGA or VGA, one floppy drive (720K or 1.2MB) and one hard drive with 1.5MB free—\$99.00 (\$49.50 renewal) for personal version, \$199.00 (\$99.50 renewal) for professional version

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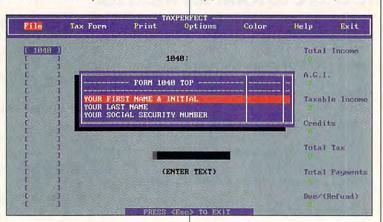
to 100 pages. The printed organizer can be used as an input sheet that helps you organize information logically in preparation for entering it into the computer. The paper organizer provides a permanent paper record of the source and computation of all information put into the return, should the IRS ask for explanations after you file the return.

The program has an inviting and encouraging feel, with keyboard-activated pull-down menus

pensive laser software to print IRSapproved graphic forms.

For detailed information about how to use the software, you'll consult the 125-page user manual, which contains short, one-paragraph explanations of the uses of the forms supported by the software. The online, context-sensitive Data Integrity Check feature looks for inconsistencies, omissions, and errors, and it prompts you to correct them. An override feature lets you override any calculated field. Active only at the forms-tree area of the program, the help function provides a short explanation of the form, its application, and its use similar to that found in the manual. The manual references IRS publications that should be reviewed if you need further information.

TAXPERFECT-PC supports no state tax form preparation and has no online audit-trail features as do the other packages. There are no user-selectable notes, supporting schedules, or item tallies that you can save to disk. The popup, full-function calculator, which



and screen-prompted input, but no mouse support. A forms tree helps you select and keep track of the forms-preparation process. A view mode allows you to view forms exactly as they'll look when printed. The program supports a full range of dot-matrix and laser printers to print IRS facsimiles, but it requires a font cartridge and ex-

imports results to numerical-input data fields, prints a paper tape from the computer printer but doesn't allow the user to label the numbers printed to the tape. The program has no standard or IRS worksheets to support or assist in the calculation of data that goes on the official IRS forms.

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anticipation loans are available through Financial Services Marketing Corporation (FSMC) and Nelco (an electronic filing company) at an additional software price of \$200 and a transmission cost of \$5.95 per return. You can file returns by modem, by fax, or the old-fashioned way—on paper via the mail. The program has a builtin what-if planner with 1992 and 1993 tax rates. Where alternative tax treatments or methods can be legally used, the software automatically selects the most advantageous method. The software recalculates the whole return in under two seconds.

TAXPERFECT-PC is recommended for professional preparers who are willing to pay extra for laser printing and electronic filing and don't require support of state tax return preparation. The personal preparer will find the pricing on laser printing, electronic filing, and refund-anticipation loans prohibitive even though the personal program costs are affordable.

ALFRED C. GIOVETTI

Circle Reader Service Number 376

TAX PREPARER

HowardSoft's Tax Preparer is a speedy tax program with excellent documentation and highly responsive telephone support. This program has professional features and supports unlimited numbers of depreciable assets, rental properties, stocks, bonds, and accounts, although Schedules C and F are limited to five forms each. State-tax preparation is available for only one state, California, with an extra-cost add-on.

Tax Preparer allows three separate styles of entry: interview-based (called Road Map), batch (not recommended for nonprofessional preparers), and a hybrid of the form-based and interview methods. There's only one version of Tax Preparer: the professional one. Personal preparers can use this inexpensive professional program to prepare their

Tax Preparer IBM PC or compatible, 256K RAM (512K recommended), hard drive with 2MB free—\$295 (\$99 renewal)

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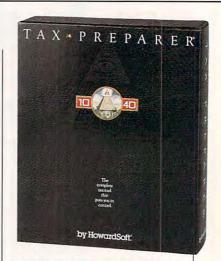
own returns and those of family members.

If you have a less-than-muscular computer system, take note: Because of its small size, Tax Preparer is one of the few remaining programs that will process forms on a single-floppy-drive computer system, such as an IBM PC Junior, without a hard drive.

Since Tax Preparer is a professional program, many features included at little or no cost in other packages must be purchased at relatively expensive prices, which put them out of reach for the personal preparer. These prices include \$295 for the electronic filing option and a \$50 minimum cost for laser printing of signature forms in IRS-approved graphic output.

While many other software companies have gone the way of sophisticated on-disk, context-sensitive help routines, tax tips, and IRS instructions, Tax Preparer has maintained manual-based support of these services; and it easily has the best manual of those programs compared in this Test Lab. The popular 600-page manual has over 100 pages of IRS instructions and publications, with plain English explanations and tax tips.

Another area where HowardSoft shines is telephone support. The company actually has its own expediter assigned to make sure that customers don't wait more than a minute before getting to talk to a real human being when they call in. Not only does the staff place a high priori-



ty on service, but an alarm alerts HowardSoft's personnel to any caller who has been waiting for more than a minute. HowardSoft's staff is trained to provide callers with IRS publication numbers and pages that relate to their tax questions and provides support that is just short of the legal definition of tax advice.

You can install the program under Windows, using the Windows PIF Editor utility. Once the program is installed under Windows, you can use the Clipboard utility of Windows to import and export data from any Windows application. Tax Preparer should be used only in Windows' enhanced mode with 4MB of RAM and with 10–15MB of free hard disk space.

HowardSoft has redesigned Tax Preparer's printing to work with a full range of dot-matrix and laser printers, which will print your information on the form, eliminating the need for extra supporting statements. However, laser printing requires a tax-font cartridge to print with standard IRS-form spacing. IRS-approved graphic forms can be printed from a variety of printers. Form 1040PC is supported by the package.

HowardSoft's user base, according to the company's spokesperson, is composed of 17,000 mostly part-time professional preparers who have another job and prepare between 50 and 400 returns per tax filing season, as well as about 7000 personal us-

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ers who have fairly complex returns with passive losses or numerous K-1s. Most sales are reported in Texas, Florida, California, Oregon, and Massachusetts. Tax Preparer should continue to appeal to its user base, as it has shown unusually high acceptance by professional tax preparers since 1979.

ALFRED C. GIOVETTI

Circle Reader Service Number 377

TAX SOLVER

Tax Solver, new this year, turns your high-powered spreadsheet program into an impressive tax-preparation tool. If you're fairly competent with any release of Lotus 1-2-3 above 2.3, including the 3.x series and the Windows version, Symphony 3.0, or Excel 4.0, there's a version of Tax Solver for you.

Tax Solver is intricate, complex, and powerful, yet it's really nothing more than a series of linked spreadsheet template files, one for each form or schedule of the tax return. The complex formulas, combinations of data, comparisons, and links between forms are all built into the worksheets. You enter your data on

Tax Solver IBM PC or compatible; 117K RAM (in addition to your spreadsheet's requirements); CGA, EGA, or VGA; hard drive; Lotus 1-2-3 2.0 or higher, Lotus 1-2-3 for Windows, Excel 4.0, or Symphony 3.0; supports mouse—\$79.95 for individual version, \$129.00 for business version, \$495.00 for professional version

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the right lines of the right forms—which appear onscreen in exact replicas of the IRS forms—and the computer calculates, posts to other forms, and does the table-lookup work.

Tax Solver isn't a program (it's just templates), so it cannot offer anything you can't do with a spreadsheet. Thus, you don't get most of the consumer features offered by stand-alone programs. There's no help, no online tax advice, no handholding at all. It does, however, compare your deductions with national averages in a series of attractive graphs (be-



cause you can do that in a spreadsheet).

Because it's spreadsheet-based, it has some unusual abilities. Its laser-printed forms are magnificent: crisp, sharp, and actually of better quality than the IRS's printed versions. And all 104 of its forms and schedules are replicas of the IRS forms—you don't need extra-cost laser software.

Spreadsheets also give Tax Solver a special power: what-if analysis. Spreadsheet jockeys know that they can set up a series of values to plug into a spreadsheet cell and list the results from each possible value in a table. You could, for instance, set up a spreadsheet with an amortization table for proposed mortgages and have the what-if function print out the net tax liability that would result from each possible mortgage interest rate. Any input to the tax return could be similarly analyzed.

Other limitations include the difficulty of setting up additional forms. If you need separate copies of Form 4562 to feed into Schedule C and Schedule E, for instance, you have to copy the Form 4562 file, rename it, and manually link its total to the right form. This is not child's play.

Tax Solver can tax your hardware's abilities. If your return involves too many individual forms

J. K. LASSER'S YOUR INCOME TAX

For over 55 years, J. K. Lasser's book of the same title, with its familiar large format and yellow cover, has been a bestseller during tax season. Its publisher, Simon & Schuster, developed a fairly good software package to go with it a few vears ago and sold them together. During the 1992 off-season, Chip-Soft, the developers of TurboTax, bought the rights to the name and the software but not the book. Chip-Soft will sell the software without the book this year, although a discount coupon for the book will accompany the software. There will also be a reduced-price coupon for the software in each of the millions of copies of the book.

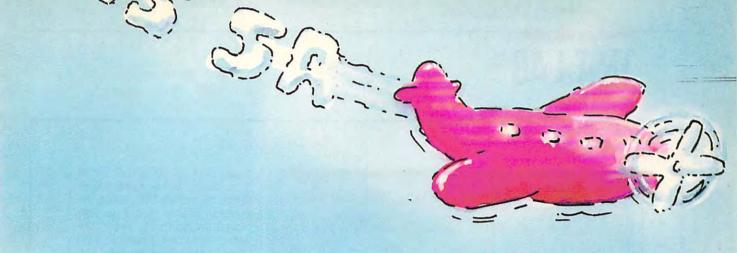
This year's J. K. Lasser's Your Income Tax software sells for \$29.95 to new users. You can purchase it with the coupon from the book, but it will not be sold in stores.

I was not able to see a shipping version, but ChipSoft says the software will be similar to last year's version, featuring a form-based approach. A yes-no interview checklist helps you determine which forms to fill out. There are a number of helpful worksheets to assist you in accumulating the necessary information before putting it on the forms. Adequate help, including the text of the IRS instructions, is available.

Buy the Lasser book and order the software with the coupon, or contact ChipSoft (800-964-1040) for purchasing details.

—RICHARD O. MANN

Circle Reader Service Number 382



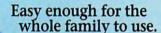
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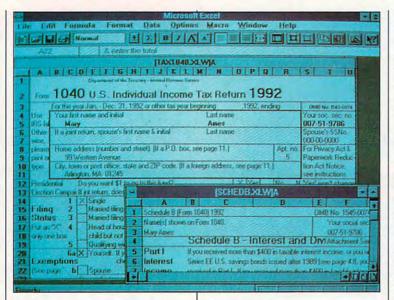


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and schedules, you'll run out of memory as you try to open them all. The manual warns that you must have all the forms open at once or amounts may not transfer between forms correctly and advises manually checking the numbers on the printed return. In my opinion, that's not an acceptable solution.

Tax Solver offers more forms than any other tax-preparation software, all laser perfect; gives you a superb what-if analysis capability; and lets spreadsheet masters customize things at will. Spreadsheet masters who also understand tax forms will love it; ordinary taxpayers may be in over their heads.

RICHARD O. MANN

Circle Reader Service Number 378

TURBOTAX FOR DOS

TurboTax for DOS has all the desired features of any full-featured personal tax program at a moderate price: accurate, guaranteed computations; voluminous online, text-sensitive documentation and help; multiple interactive data-input modes; and a winning track record.

ChipSoft—the producer of Tur-

boTax for DOS, TurboTax for Windows (the old SoftView MacinTax for Windows), and MacinTax products—dominates the tax-preparation software field and has just acquired J.K. Lasser's Your Income Tax (covered elsewhere in Test Lab) and SPEED>S, an electronic filing company which services Nelco and three other professional tax-preparation software companies, including PencilPushers and Tax Byte.

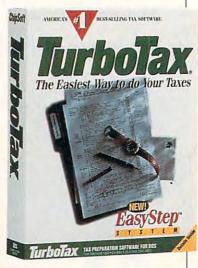
The 574,000 users of the Chip-Soft and TurboTax family of products range from the personal home computer owner to the professional who prepares individual and small business income tax returns. Every effort has been made to make TurboTax useful to a wide range of tax preparers. It provides cross compatibility be-

TurboTax for DOS IBM PC or compatible, 640K RAM (512K free), hard drive with 2.5MB free; supports mouse—\$79.95 (\$39.95 renewal)

CHIPSOFT 6330 Nancy Ridge Dr., Ste. 103 San Diego, CA 92121 (619) 453-8722 tween professional and personal products, as well as a professional referral system that allows the personal user to take a partially completed return to a local Chip-Soft professional preparer, who can complete or review the preparation of the forms.

New for this year is a bright, aqua-colored series of pop-up mouse- or keyboard-controlled menus in the DOS version of TurboTax. This new EasyStep interface, which is a hybrid of the interview and checklist forms of input, overlays the old, popular, white-on-black facsimile forms approach, adding an income tax return walk-through to the program. TurboTax for DOS also contains five new forms, including the 1040PC, 17 new or improved worksheets, and a heroic attempt to translate IRS language used in instructions and publications into plain English. Electronic filing software comes with the package at no additional charge, other than the transmission and processing fee of \$19.95 per return.

TurboTax for DOS has a new filing cabinet feature, similar to the shoebox feature of MECA's TaxCut, which lets you enter data in any order. When additional information is found or comes in late, the filing cabinet will allow you to add it to already proc-



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Here's How To

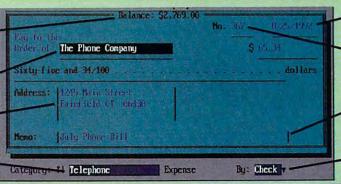
Organize Your Finances And Have Time To Relax!

current balance after every transaction.

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Memo. Enter a brief description or a memo of any length.

By. Pay bills by check or electronically via CheckFree.®



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Well Within Your Grasp

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Here's A Quick Tour

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All rights reserved. System Requirements: DOS — IBM PC, XT, AT, PS/1, PS/2, or IBM compatible. DOS 3.0 or later. 512K RAM. Hard disk. Macintosh — System 6.0.2 or later. System 7 compatible. Mac Plus or later. 2MB of memory recommended. 3 MB of free hard disk space for installation. Macintosh version does not perform all of the functions in DOS version.

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essed information. The program's alphabetical listing of expenses and income categories allows you to jump to the appropriate form or schedule where the receipt belongs.

The routine for the preparation of the 1040X (amended return) allows you to prepare any year by simply inputting the figures calculated by hand or spreadsheet into the generic form, or for the current year by inputting the information from the 1040. People who find errors or omissions in returns for prior years will appreciate the ability to print a 1040X for those years.

A sophisticated what-if tax planner with 1992 and 1993 tax rates built in will allow you to explore the tax consequences of different financial situations and to prepare accurately the 1040ES, estimated tax vouchers, to avoid underpayment penalties for 1993.

ChipSoft is offering new taxplanning software for the preparation of 1040ES and W-4 documents as a \$49.95 add-on to the 1040 program. Where taxpayers are wage earners who may have income that does not have adequate withholding, the choice to increase the withholding instead

As we enter our first worksheet, the entire look of the screen had the getting-down-to-business for from here on out. So let's get. Type in the Taxpayer's FIRST NAM middle name or initial if you was return: "John James" or "John J.	as changed. This is rmat we will use down to business. ME. Include a ant that on your	TaxHelp PrgmHelp Itemize EasyStep	Note
Personal Info	ormation Worksheet		1992
Your Name: First Name Last Name Social Sec No Occupation Date of Birth: MM/DD/YY Work Phone	Spouse Name: First Name. Last Name. Spouse SSN Spouse Occup. Date of Birth: MM/DD/YY Work Phone		
PERSONAL INFORMATION WORKSHEET			ANTEN TEXT

of filing estimated taxes may be more advantageous. The Turbo-Tax tax-planning add-on allows accurate preparation of the W-4 based upon needed withholding and not on the less accurate method of equating dependents with withholding allowances.

TurboTax for DOS has an au-

dit feature that reviews the return for inconsistencies and also compares the deductions to the national average and the taxpayer's prior-year deductions in the same categories. Variation from the national average or last year's figures may lead to a greater chance for audit; it may also alert

OPERATE YOUR OWN TAX SHOP

The people at TenKey Publishing are betting that any PC owner with the desire to run a home-based business can make money running a business filing tax returns electronically. With TenKey's new \$69 software package, Operate Your Own Tax Shop, you can be the electronic conduit from the taxpayer to the IRS.

To run this software, you'll need an IBM PC or compatible, 640K RAM, a hard disk, DOS 3.0 or higher, and a Hayes-compatible modem (1200 or 2400 bps).

It takes no special tax knowledge to enter information from a tax return that the taxpayer has prepared at home into your computer. Tax Shop software checks the return for accuracy, then files it by modem. You can charge \$25 to \$30 for this service. With a little experience, you can en-



ter and transmit two to three returns per hour.

Electronic filing can speed up the taxpayers' refunds by four to six weeks, so even those who prepare their own tax returns—including

the brief 1040EZ and 1040A returns—will gladly pay for electronic filing services.

Tax Shop comes with a marketing guide to help you find customers and order forms for a variety of advertising materials. Be aware, however, that you must register with the Internal Revenue Service before offering this service; registration takes 30 to 60 days.

Do you have the urge to make money at home? This might be a good opportunity. There's a ready-made market, and the startup costs are next to nothing. To order the program, call TenKey Publishing at (800) 448-1415, or write the company at 7650 Municipal Drive, Orlando, FL 32819.

-RICHARD O. MANN

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	TAX PACKAGE FEATURES						
	AM-Tax Personal-2 1040	Andrew Tobias' TaxCut for DOS	Andrew Tobias' TaxCut for Windows	EasyTax	Personal Tax Edge		
State editions	(22)1: AZ, CA, CT, DC, GA, IL, IN, KS, KY, MA, MD, MI, MN, MO, NC, NJ, NY, OH, PA, SC, VA, WI—\$30.00 each, \$20.00 for updates	(23): AZ, CA, CO, CT, DC, FL, GA, IL, IN, MA, MD, MI, MN, MO, NC, NJ, NY, OH, OR, PA, TN, VA, WI—\$24.95 each	(23): AZ, CA, CO, CT, DC, FL, GA, IL, IN, MA, MD, MI, MN, MO, NC, NJ, NY, OH, OR, PA, TN, VA, WI—\$24.95 each	(24): AL, AZ, CA, GA, IA, IL, IN, KS, KY, LA, MA, MD, MI, MN, MO, NC, NJ, NY, OH, OK, PA, SC, VA, and WI—\$29.95 each	All states requiring returns except Hawaii—\$49,00 each		
Federal forms	(32): 1040, 1040A, 1040ES, 1099R (5), 1116, 2106 (2), 2119, 2210, 2441, 3800, 3903, 4136, 4137 (2), 4255, 4562 (23), 4684, 4797, 4835, 4868, 4952, 4972 (2), 5329 (2), 6251, 6252 (10), 8283 (3), 8453, 8582, 8606 (2), 8615, 8814 (5), W-2 (25), W-2G (5)	(41): 1040, 1040A, 1040ES, 1040EZ, 1040X, 1116, 2106, 2119, 2210, 2441, 2688, 3468, 3800, 3903, 4136, 4137, 4255, 4562, 4684, 4797, 4835, 4868, 4952, 4972, 5329, 6198, 6251, 6252, 8271, 8283, 8453, 8582, 8606, 8615, 8801, 8803, 8814, 8815, 8822, 8824, 8829	(41): 1040, 1040A, 1040ES, 1040EZ, 1040X, 1116, 2106, 2119, 2210, 2441, 2688, 3468, 3800, 3903, 4136, 4137, 4255, 4562, 4684, 4797, 4835, 4868, 4952, 4972, 5329, 6198, 6251, 6252, 8271, 8283, 8453, 8582, 8606, 8615, 8801, 8803, 8814, 8815, 8822, 8824, 8829	(35): 1040, 1040A, 1040ES (2), 1040EZ, 1040PC, 1099MISC (4), 1099R (4), 2106 (2), 2119, 2210, 2441, 2688, 3800, 3903, 4137, 4255, 4562 (40 assets), 4684, 4797, 4868, 4952, 4972, 5329 (2), 6251, 6252 (4), 8283, 8453, 8582, 8606 (2), 8615, 8814, 8822, 8829 (5), W-2 (8), W-2G (4)	(27): 1040, 1040A, 1040Es 1116, 2106 (8), 2119, 221 2441, 2555, 3903, 4562 (49 4684, 4797, 4835, 4868, 4952, 5329 (2), 6251, 625 (6), 8283, 8453, 8582, 860 (2), 8615, 8814 (5), 8829 (10), 9282		
1040 schedules ²	(15): 1, 2, 3, A, B, C (5), D, D-1, E-1 (5), E-2, EIC, F, K- 1 (23), R, SE	(15): 1, 2, 3, A, B, C, C-EZ, D, D-1 (short term), D-1 (long term), E, EIC, F, R, SE	(15): 1, 2, 3, A, B, C, C-EZ, D, D-1 (short term), D-1 (long term), E, EIC, F, R, SE	(13): A, B, C (5), C-EZ (5), D- 1 , D-2, E-1, E-2, EIC, F (5), K-1 (15), R, SE (2)			
Data import/export	Imports from prior year's AM-Tax Personal-1 or -2 only	Imports from prior year's TaxCut (DOS and Windows) and TurboTax (DOS and Windows), as well as from Quicken for DOS 5.0 and 6.0, Quicken for Windows 2.0, Managing Your Money 8.0 and 9.0, Microsoft Money 1.0 and 2.0, CheckFree 3.0, Fidelity On- Line X-press 2.0, and any other program that outputs in Tax Exchange Format (files with TXF extension)	Imports from prior year's TaxCut (DOS and Windows) and TurboTax (DOS and Windows), as well as from Quicken for DOS 5.0 and 6.0, Quicken for Windows 2.0, Managing Your Money 8.0 and 9.0, Microsoft Money 1.0 and 2.0, CheckFree 3.0, Fidelity On- Line X-press 2.0, and any other program that outputs in Tax Exchange Format (TXF)	Imports from Managing Your Money, Quicken for DOS 5.0 and 6.0, and ASCII files; imports 1991 information into 1992 package; multiple- returns capability, limited only by hard disk space	Imports from software that supports Money Counts, Mar aging Your Money, Quicke (DOS and Windows), Microsoft Money, and ASC format; imports 1991 in- formation into 1992 package		
Technical support	Free support via toll call; fax- back service with 24-hour turnaround (toll call)	Free support via toll call; February 1 through April 15, 9:00 a.m. to midnight (EST) Monday through Friday, 10:00 a.m. to 4:00 p.m. weekends; 9:00 a.m. to 6:00 p.m. Monday through Friday the rest of the year; 24-hour fax support via toll call; CompuServe forum	Free support via toll call; February 1 through April 15, 9:00 a.m. to midnight (EST) Monday through Friday, 10:00 a.m. to 4:00 p.m. weekends; 9:00 a.m. to 6:00 p.m. Monday through Friday the rest of the year; 24-hour fax support via toll call; CompuServe forum	Free support via toll call, toll call to fax	Free support via toll call, to call to fax, smart fax, CompuServe, or GEnie		
Audit trail	Supporting worksheets available for any line, up to a total of 50	Miniworksheets provided for items needing off-form calculations; scratch pads available for any field	Miniworksheets provided for items needing off-form calculations; scratch pads available for any field	Unlimited schedules and notes for all numeric-input fields	Unlimited schedules, notes, minispreadsheets fo all numeric-input fields		
Electronic filing	Not available with personal versions ³	No additional software required to file with clearinghouse by modem or mailed disk at \$14.95 per return	No additional software required to file with clearinghouse by modem or mailed disk at \$14.95 per return	Nelco electronic filing via mail, or direct to Nelco via modem with transmission within two days for \$19.95 per transmission; no external software purchase needed	\$10.00 for single return, \$75.00 for each group of te returns; no additional software purchase require electronic filing software included in the price of th program; mail paper signature forms to Parson and transmit via modem of mail data disk and Form 8453		

¹Here and throughout this grid, the numbers in parentheses show the number of forms available.

²Most manufacturers also offer supporting schedules for short forms of 1040.

³Electronic filing is available for the professional version of the product. The software, which includes the professional version, costs \$395.00. The filing fee is \$6.00 per return.

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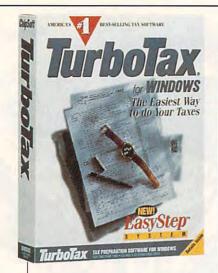
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the taxpayer to possible inaccuracies in his information.

TurboTax for DOS is a highly rated, best-selling program, the industry leader in personal and professional tax preparation. More than 550,000 people use this program. This number represents over 60 percent of the software units sold in this market. TurboTax for DOS ranks high on the list of recommended software.

ALFRED C. GIOVETTI

Circle Reader Service Number 379

TURBOTAX FOR WINDOWS

TurboTax for Windows combines all the advantages of the Windows interface with the most advanced personal tax-preparation software features, such as multiple data-input modes, advanced printing options, electronic filing, and online context-sensitive help—all at a moderate price.

TurboTax for Windows does a great job of implementing Windows' onscreen and printing font features. Onscreen forms and their printouts are identical to the IRS forms found in the post office. The program supports a wide range of laser printers and 9- and 24-pin dot-matrix printers, without any special fonts or memory requirements.

This Windows version of Turbo-Tax has both the classical formsTurboTax for Windows IBM PC or compatible, 2MB RAM (1MB free), Windows 3.0 or higher, hard drive with 4MB free, mouse— \$79.95 (\$39.95 renewal)

CHIPSOFT 6330 Nancy Ridge Dr., Ste. 103 San Diego, CA 92121 (619) 453-8722

based input and the new hybrid of interview and checklist that ChipSoft refers to as the Easy-Step system (discussed in my review of the DOS version). In this version you'll find many of the same features of the DOS version and more-specifically, the file cabinet, planning mode, W-4 and 1040ES tax planner add-on module, data import with Tax Exchange Format and Dynamic Data Interchange technology, compatibility with the professional version, audit flags, and taxsaving suggestions.

The big difference between the DOS and Windows versions of TurboTax is the true windowing environment and presentation of onscreen forms that look just like the forms you can get from the post office. TurboTax for Windows supports only 15 states, while the DOS version supports all 43 states that have income tax

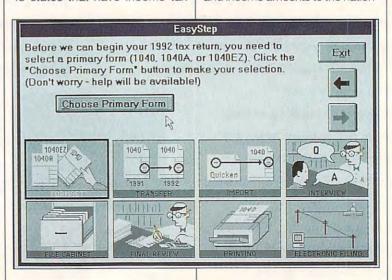
THIS MONTH'S REVIEWERS

Richard O. Mann, C.P.A., C.I.A. (Certified Internal Auditor), of Roy, Utah, is an internal auditor with a large international religious organization in Salt Lake City. He has over twenty years of accounting experience as a C.P.A. in public practice and as a corporate controller and financial vice president. Rich has written nearly 200 articles over the past four years.

Alfred C. Giovetti, C.P.A., Ph.M., of Catonsville, Maryland, is, among other things, a professor of accounting at Catonsville Community College, a partner and senior accountant with Giovetti and Giovetti Accountants, and a lecturer in continuing education for accountants. In addition to being a contributing and associate editor for Free State Accounting Journal and other publications, Al has written well over 100 articles published over the last year.

and even prepares the Florida personal property tax return. The Windows version supports basically the same federal forms and schedules as the DOS version but has 10 more worksheets than the DOS version for a total of 100 forms, schedules, and worksheets.

Not only does TurboTax for Windows compare your deductions and income amounts to the nation-



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Feature Highlights:

- · Supports new AGA" colors and resolutions
- · Freely redistributable runtime player included
- Controls full motion video devices and CD-XL motion video files
- Plays a MIDI file out to a MIDI device or Amiga audio channels
- New resolution-independent transitions
- Streamed-in animations and sound files mean faster loading and reduced memory usage
- Word and character recognition allow hypertext browsing in text windows
- Enhanced object editor now has control panel functions
- · Additional database functions

C Commodore AMIGA

TAX PACKAGE FEATURES							
	TAXPERFECT-PC	Tax Preparer	Tax Solver	TurboTax for DOS	TurboTax for Windows		
State editions	(0)1	(1): CA—\$125.00	(3): CA, MA, NY—\$39.95 each	(44): AL, AR, AZ, CA, CO, CT, DC, DE, FL, GA, HI, IA, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NJ, NM, NY, OH, OK, OR, PA, RI, SC, TN, UT, VA, VT, WI, WV—\$49.95 each	(15): CA, CT, DC, IL, M/ MD, MI, MN, NC, NJ, N OH, OR, PA, VA—\$49.9 each		
Federal forms	(40): 1040, 1040A, 1040X, 1041, 1116 (U), 2106 (U), 2119, 2210, 2439, 2441, 2555 (U), 3468, 3800, 3903, 4136, 4137 (U), 4255, 4562 (U), 4684, 4797, 4835, 4868, 4952, 4972, 5329 (U), 5884, 6198, 6251, 6252 (U), 8283, 8396, 8582, 8586, 8606 (U), 8615, 8803, 8814 (U), 8815, 8828, 8829	(19): 1040, 1040ES, 1040PC, 2106 (5), 2119, 2210, 2441, 3468, 3800, 3903 (3), 4562 (15), 4797, 5329 (2), 6251, 6252 (5), 8582, 8606 (2), 8615, 8829 (5)	(92): 1040, 1040A, 1040ES, 1040X, 1045, 1116, 1128, 1310, 2106, 2210F, 2119, 2120, 2210, 2350, 2439, 2441, 2555, 2688, 2848, 3115, 3468, 3800, 3903, 3903F, 4029, 4136, 4137, 4255, 4361, 4506, 4562, 4571, 4684, 4782, 4797, 4835, 4852, 4868, 4952, 4970, 4972, 5329, 5472, 5735, 5754, 5884, 6198, 6251, 6252, 6478, 6765, 6781, 8027, 8027-T, 8082, 8264, 8271, 8275, 8283, 8300, 8332, 8379, 8396, 8453, 8582, 8582CR, 8586, 8594, 8606, 8609, 8611, 8615, 8801, 8803, 8809, 8814, 8815, 8817, 8818, 8819, 8821, 8822, 8824, 8826, 8828, 8829, 8830, 911, SS-4, TDF 90, W-2, W-4	(38): 1040, 1040A, 1040ES, 1040EZ, 1040PC, 1116 (2), 2106 (2), 2119, 2210, 2441, 2555 (2), 2688, 3800, 3903, 3903F, 4137 (2), 4255, 4562 (6), 4684, 4797, 4868, 4952, 4972, 5329 (2), 6198, 6251, 6252 (4), 8283, 8453, 8582, 8606 (2), 8615, 8814 (4), 8815, 8822, 8824, 8829, W-4	(41): 1040, 1040A, 1040E 1040EZ, 1040PC, 1116 (2 2106 (2), 2119, 2210, 244 2555 (2), 2688, 3800, 390 3903F, 4137 (2), 4255, 45 (6), 4684, 4797, 4835, 480 4952, 4972, 5329 (2), 618 6251, 6252 (4), 8283, 83 4853, 8582, 8606 (2), 86 8801, 8814 (4), 8815, 882 8824, 8829, W-4		
1040 schedules ²	(11): A, B, C (U), D-1 (U), D- 2, E-1 (U), E-2 (U), EIC, F (U), R, SE (U)	(11): A, B, C (5), D-1, D-2, E- 1 (U), E-2 , EIC, F (5), R, SE (2)	(10): A, B, C, D, D-1, E, EIC, F, R, SE	(13): A, B, C (4), C-EZ, D, D- 1 (2), D-2, E-1 (2), E-2 (2), EIC, F (2), R, SE (2)	(14): A, B, C (4), C-EZ, D, 1 (2), D-2, E, E-1 (2), E-2 (EIC, F (2), R, SE (2)		
Data import/export	Files from personal-version returns are compatible with those from professional version; imports 1991 information into 1992 package	Imports 1991 information into 1992 package; Windows Clipboard can be used to import information from any Windows-capable application	Feeds this year's Tax Solver- prepared returns into next year's Tax Solver package	Imports from Quicken for DOS 5.0 and 6.0 and software that supports Tax Exchange Format; no adjustment of information permitted after import; imports 1991 TurboTax information into 1992 package	Imports from Quicken for DOS 5.0 and 6.0 and software that supports Till Exchange Format; import 1991 TurboTax information into 1992 package; designed for Windows environment from the ground up; fully uses a Windows features including GUI and Windows fonts print returns.		
Technical support	Free support via toll call	Free support via toll call, toll- call fax, or (800) fax	Free support via toll call; 11 hours per day, 7 days per week from January 2 through April 15; regular business hours the rest of the year	Free support via toll call, (800) fax, bulletin board, CompuServe, or GEnie	Free via toll call, (800) fa bulletin board, CompuServe, or GEnie		
Audit trail	No custom schedules, notes, minispreadsheets supported for any field; pop- up calculator produces an output resembling calculator tape	Unlimited schedules, notes, and minispreadsheets (which can add, subtract, divide, and multiply) for all fields	Can be created by the user; you can create custom spreadsheets and link the totals into the forms; cells can also carry brief comments after the data	Unlimited notes, tally sheet, and supporting schedules for each numeric field	Unlimited notes, tally she and supporting schedul for each numeric field		
Electronic filing	Nelco electronic filing via modem, fax, or mail-in paper forms; \$5.95 per return; \$200.00 for electronic filing software	Software priced at \$295.00 is available for electronic filing through third party and at \$1100.00 for electronic filing direct to IRS	None	Electronic filing built into the program—\$19.95 per return with Nelco by modem or mailed paper forms; no longer any support for mailing of computer disks	Electronic filing built into program—\$19.95 per ret with Nelco by modem of mailed paper forms; no longer any support for mailing of computer dis		

¹Here and throughout this grid, the numbers in parentheses show the number of forms available. The letter *U* in parentheses designates an unlimited number of forms.

²Most manufacturers also offer supporting schedules for short forms of 1040.

al averages, as in the DOS version, but inconsistencies and conflicting answers are pointed out to you by pop-up warning windows. You can mark your data with codes to prevent confusion, such as E for estimate or a question mark for questionable information or data that needs verification. A warning about and identification of questionable items allows you to correct the data prior to printing the complete return. The notations for estimates and questionable data make the tax preparation easier and less prone to error.

Electronic filing is available for the \$19.95 transmission price and does not include the professional TurboTax refund-anticipation loan (RAL) capability. Chip-Soft includes the electronic filing software at no additional charge and integrates it with the software. I found the help feature of TurboTax for Windows more comprehensive than the same feature in the DOS version, offering IRS instructions, plain-English explanations, and tax-saving suggestions for every field in the return. If the Windows version supports your state tax preparation, and if you prefer using Windows over DOS, the award-winning, highly recommended TurboTax for Windows may be the product for you.

Circle Reader Service Number 380

Tape Drives

ELECTRONIC FILING

Pros

- Faster refunds
- Acknowledgment by IRS that your return was received and accepted within 48 hours of receipt
- Increased accuracy (error rate of only 2 percent last year)
- Option of direct deposit of refund
- · Great way to impress friends

Cons

- Bank rules sometimes in conflict with direct deposit of refund
- Delays, sometimes of months, because of incorrect or incomplete information
- Balance-due returns and refundanticipation loans (RALs) not yet supported in personal tax software (must go through a professional preparer)

-ALFRED C. GIOVETTI

FORMS AVAILABILITY AND COMPATIBILITY

One of your criteria for selecting a tax package may well be how a particular package allows you to output your information.

If you aren't using IRS-supplied forms, tax packages offer a variety of output options. Some packages allow laser output, others use preprinted pin-feed forms for dot-matrix output, and there are other options. You'll want to consider what kinds of forms you need, whether your printer is supported, and what extra expense, if any, is involved.

Signature forms are simply the forms that contain your signature; the IRS requires that your printer output of these forms look just like the pages mailed to you from the IRS. Graphic replica forms, also called IRS replica forms, contain not only the necessary IRS information but fonts and graphics that make them virtually identical to IRS forms, so they can be used as signature forms. IRS facsimiles, on the other hand, contain the information, but lack the fonts and graphics, in the IRS forms.

AM-Tax Personal-2 1040

Laser forms for all forms available for \$100 (federal) and \$75 (state); compatible with Nelco printed forms and overlays

Andrew Tobias' TaxCut for DOS

Prints 16 basic forms in IRS replica format (requires 100-percent HP LaserJet compatibility); all others printed with MECA's LaserLink Full-Pak (\$99)

Andrew Tobias' TaxCut for Windows Prints all forms in IRS replica format; accesses Windows 3.1 TrueType font technology

EasyTax

Compatible with Nelco forms; prints IRS replica forms on dot-matrix printers and HP LaserJet Plus family (or compatible) laser printers

Personal Tax Edge

Graphic output for signature forms with IRS-approved forms for other supported forms; laser-printed graphic output not available for non-signature forms

TAXPERFECT-PC

Supports friction-feed printing directly to IRS forms available at post office; uses overlays, transparencies, IRS-approved facsimiles, continuous pin-feed forms; supports a wide range of dot-matrix printers (anything that will print); Nelco laser-printoption graphic output of all supported forms requires software priced at \$225

Tax Preparer

Pin-feed preprinted forms and laser software available—\$35 for some graphic replica forms and facsimile forms, \$150 for graphic replica printouts of all forms; compatible tax font required

Tax Solver

All forms supplied in laser-ready form

TurboTax for DOS

Preprinted pin-feed forms, graphicoutput signature forms, and facsimile forms; works with lasers, HP DeskJet, and dot-matrix printers

TurboTax for Windows

Preprinted pin-feed forms, overlays, facsimiles, HP-compatible laser graphic forms for all supported forms through Windows GUI

NEWS & NOTES

Jill Champion

The ULTRA Chip

Looking to light a fire under those graphics? Then look to accelerator boards that carry Avance Logic's GUI ULTRA graphics coprocessor chip. GUI ULTRA accelerates graphical user interface (GUI) software such as Windows, OS/ 2, and X-windows up to 10 times the speed of Super VGA (SVGA) on ISA-bus systems and up to 15 times the speed of SVGA on local-bus systems.

The ULTRA provides similar acceleration for computeraided design (CAD), desktop publishing, and multimedia/ video Windows and DOS

applications.

In local-bus design, the UL-TRA chip will operate at the speed of the host microprocessor (25 MHz to 50 MHz and up), which is especially important for video applications that require high-speed graphics processing. The ULTRA also speeds up SVGA functionality on the chip, resulting in an increase in performance of both Windows and non-Windows programs. It accelerates common functions used in GUIs, including Bit-Blt, area fill, and line draw. Bit-Blts are bit-block transfers of pixels that are used in GUIs for dragging application windows. Line draw increases performance in CAD and other drawing programs.

The Avance GUI ULTRA is fully compatible with all IBM and Hercules graphics display standards. Since the UL-TRA's architecture is compatible with Avance Logic's earlier graphics coprocessor, the GUIEngine, Avance customers can easily adapt GUIEngine software to upgrade to the ULTRA. For more information, contact Avance Logic, 46750 Fremont Boulevard, Suite 105, Fremont, California 94538; (510) 226-9555, (510) 226-8039 (fax).

For the Physically Challenged

Numerous computer-related devices are designed specifically for aiding physically challenged persons in all aspects of their communication, work, entertainment, and environmental control.

The question is, where can you find these devices, and once you've made a purchase, who will be there to offer operating and technical support for the newly purchased equipment?

Look no further: Key Technologies offers a catalog filled with pioneering products for assisting disabled persons and technical support

for every purchase.

Products include symbols and display material; signaling devices; silent-scanning, digital-recording, and text-tospeech devices; writing aids; computer-access products for IBM and compatible. Macintosh, and Apple Ile and Ilgs computers; alternate keyboards; software; page turners; telephone-dialing systems; and environmental controllers, including power controllers, switches, and mounting systems.

Key Technologies founders Kenneth P. Whitley, a speech and language pathologist active in the field of assistive technology for 16 years, and Karen S. Whitley, an early childhood educator for more than 17 years, are "dedicated to providing the very best in assistive technology to disabled

persons."

They also offer, through their company, workshops on the operation and application of all products, comprehensive services in selecting appropriate products, and complete product support. For more information, contact Key Technologies, P.O. Box 1997, Morganton, North Carolina 28680-1997; (704) 433-5302, (704) 433-6298 (fax).

Cut the Budget

So you think you have the answer to the national deficit crisis? Now you can test your budgeting theories with free software from Banner Blue. Uncle Sam's Budget Balancer lets anyone with an IBM PC or compatible computer balance the U.S. federal budget.

The program allows you to modify the president's fiscalyear 1993 budget with more than 300 options that have been researched and documented by the Congressional Budget Office. Options for spending and revenue changes are described, including the pros and cons of implementing each one. You can also make budget changes of your own design; with each change you select, the deficit is immediately updated. Uncle Sam's Budget Balancer also contains educational information on the budget process. You can even explore the history of the U.S. budget and the federal deficit.

Banner Blue created the program as a public service and hopes it will help heighten American taxpayers' awareness of the seriousness of the budget crisis. In fact, you're encouraged to make copies of the program for friends and colleagues and to print out your own budget solutions and mail them to Congress.

Uncle Sam's Budget Balancer is available through CompuServe and America Online. CompuServe subscribers can download the program SAM.ZIP from the Political Issues library in the Issues Forum (GO ISSUES) or from the Economy library of the Campaign '92 Forum (GO VOTEFORUM). To download from America Online, choose Keyword from the Go To menu (or press Ctrl-K) and type Quickfind; then, in the filesearch dialog, type SAM.ZIP, and select List Matching Files.

for Super VGA, a helping hand for the disabled, and a lesson in deficit spending

Superspeed chips



For a \$10 shipping-and-handling fee, you can order the software directly from Banner Blue. For more information, contact Banner Blue Software, 39500 Stevenson Place, Suite 204, Fremont, California 94539; (510) 794-6850, (510) 794-9152 (fax).

All the News That's Fit to Digitize

Welcome to the world's first digital television network, NBC Desktop News, brought to you on your PC by NBC, Nu-Media, and IBM. It looks and feels like television, but it's digital and comes to you personalized via your PC. The network draws on the extensive news-gathering and -processing capabilities of NBC, its affiliates, CNBC, and other news organizations worldwide. Both video and print content are digitally converted into electronic news stories and then delivered to you via satellite through cables or phone lines. Since the information is stored, you can

watch it on your monitor whenever you wish. You can even decide the order in which you want to view the stories.

The service integrates text, graphics, video, and sound in an easy-touse, concise format with a look much like that of television news. It's designed for corporate users who need the latest news and information on demand but who don't have hours to comb through the diverse range of news and information sources available to businesses today. NBC Desktop News, which is currently in the pilot stage, will automatically review incoming video, text, and other databases and, based upon each subscriber's profile, create a customized mix of news and information. Typical of the general business and market news that will be available to users will be segments of no longer than two minutes, which are continuously updated throughout each day. Corporations can also subscribe to industry-specific news segments in areas such as pharmaceuticals, computers, and finance. In addition to the base business news service and industry-specific news, subscribers will be able to incorporate their own corporate news and training information into NBC Desktop News.

For more information, contact NuMedia, 201 North Union Street, Suite 400, Alexandria, Virginia 22314; (703) 684-9000, (703) 684-9393 (fax).

Metrics by Metrix

Forget pounds and ounces; it's metric time. And thanks to Financial Systems Associates, you don't have to struggle with troubling metric conversions if you don't happen to remember them all. Metrix, for IBM PCs and compatibles, offers quick access to the most common metric-to-U.S. and U.S.-to-metric conversions. The program also allows you to search a user-modifiable refer-

There's Sound...

"vroom, vroom"



SoundMan 16 delivers sound so real, 85% of the time, people can't tell the difference from live sound. That's because it's packed with the absolute latest in sound board technology: up to 16-bit/44KHz record/playback, Yamaha OPL-3 stereo synthesis 20-voice chip, 100%

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ence table that contains more than 1200 conversion reference items. Online help and a pop-up calculator that accepts input from conversion-screen results or manual entry are also included. Metrix is available in both DOS and Windows versions. The DOS version runs as either a stand-alone or a TSR program. The suggested retail price is \$39.95. For more information, contact Financial Systems Associates, 148 North Washington Street, Delaware, Ohio 43015-1725; (614) 363-2289.

Down-Home Software

There's no good reason to spend a fortune to get your work done—or to have some fun.

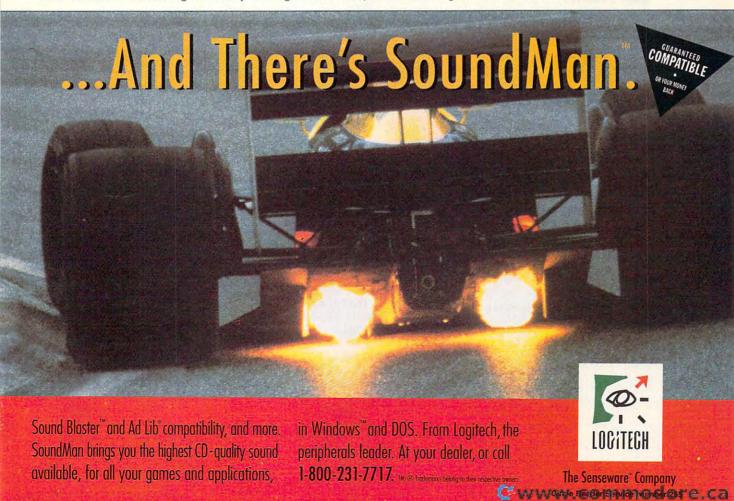
If you're not a high-tech computer user—and never intend to be—Lifestyle Software Group of St. Augustine, Florida, offers a number of entertaining and eminently practical "home leisure software" titles for those looking for visually

appealing, easy-to-install, easy-to-use, and reasonably priced programs—ones you'll actually use—for your home computer. Most of the software is priced well below \$100, even while utilizing advanced graphics and sound capabilities.

LSG's offerings include Photo Family Tree, a genealogy-tracking system that, among other capabilities, lets you scan in family and ancestral photos for full-color pictorials of your entire family tree; Visions, an astrology program that generates complete astrological data, including your daily horoscopes and behavioral patterns; Hooked on Lottery, a program for lottery players that uses data from past winners to apply the principles of probability to your number-choosing tactics; and Micro Bridge Companion, a collection of simulations and tools, including more than 2 billion card deals, that help bridge lovers sharpen their strategies and playing skills. One of LSG's newest titles is Micro Kitchen Companion System. "Designed by cooks, for cooks," it is "the ultimate library management and menu-planning tool." It also computes nutritional analysis for complete meals and is compatible with LSG's new electronic series of Betty Crocker cookbooks.

If you would like to get additional information, contact Lifestyle Software Group, 63 Orange Street, St. Augustine, Florida 32084; (800) 289-1157, (904) 825-0223 (fax).

Companies or public relations firms with items of interest suitable for "News & Notes" should send information along with a color slide or color transparency to News & Notes, Attn: Jill Champion, COMPUTE, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408.



FEEDBACK

Missing

Something seems to be missing from the bottom of pages 100 and 102 in the January 1993 issue of COMPUTE.

STEVE SLOAN PASADENA, TX

Right you are. The material was lost as a result of a problem we had transferring our files to our typesetter. We regret the deletion and appreciate your bringing it to our attention. Here is the material missing from the bottom of page 100.

One example is Apple, which is using a superset of the PC-MCIA standard in its upcoming Newton. That means you'll be able to buy, for example, any PCMCIA modem card for the Newton, yet Apple will have the choice of offering a higher-speed communications link for AppleTalk connection.

And here is the material missing from the bottom of page 102.

VL-Bus architecture is ready for 64-bit processors when they arrive on the desktop, but Apple is also working on a superfast bus called Quick-Ring, which provides data speeds that leave even the 64-bit VL-Bus in the dust.

Clean Slate

I understand that when you delete things from your hard disk, the files remain on the disk, legible to anyone who knows how to look at the individual sectors on the disk. How can I keep my deleted files secret?

NAME WITHHELD CINCINNATI, OH

PC Tools' optimizer, Compress, has the option of clearing a disk—that is, overwriting every unused sector on the disk. Also, in our September

NEXT

FND IF

1992 issue, we listed a program in "Tips & Tools" that will delete a file and wipe its bytes out as well. Here's a BA-SIC program, called Filler, that writes nonsense to all unoccupied sectors of your hard disk, leaving little behind for snoops to find.

CLOSE

DEFLNG A-Z RANDOMIZE TIMER FOR i = 0 TO 12 filename\$ = filename\$ + CHR\$(255) MID\$(filename\$, 9, 1) = "." Is = 29: Is\$ = "bytes in each allocation unit" GOSUB getemptyspace d = a**GOSUB** create homedirectory\$ = filename\$ SHELL "cd \" SHELL "md" + homedirectory\$ SHELL "cd" + homedirectory\$ filler\$ = "This sentence is approximately sixty-four characters in length" Is = 23: Is\$ = "bytes available on disk" **GOSUB** getemptyspace b = INT(a / 262144)c = a - b * 262144 CLS PRINT " This program will create" IF b THEN PRINT b; "files of 262144 bytes and" PRINT " 1 file of about"; c + d; "bytes" PRINT " to fill your disk." IF b THEN **GOSUB** create originalfile\$ = filename\$ OPEN originalfile\$ FOR **OUTPUT AS #1** FOR i = 0 TO 4095 PRINT #1, filler\$ NEXT CLOSE 1 FOR i = 2 TO b **GOSUB** create LOCATE 6, 1: PRINT i, filename\$ SHELL "copy " + originalfile\$ + " " + filename\$

Is = 23: Is\$ = "bytes available on disk" **GOSUB** getemptyspace c = a**GOSUB** create **OPEN filename\$ FOR OUTPUT** AS #1 FOR i = 1 TO c + d PRINT #1, "a"; NEXT CLOSE SHELL "cd \" SHELL "del" + homedirectory\$ + "\" + chr\$(255) + "*.*" SHELL "rd" + homedirectory\$ create: letter = 12 create1: letterval = ASC(MID\$(filename\$, letter.1)) IF letterval = 255 THEN letterval = 65 ELSE letterval = letterval + 1 END IF MID\$(filename\$, letter, 1) = CHR\$(letterval) IF letterval > 90 THEN letterval = 65 MID\$(filename\$, letter, 1) = CHR\$(letterval) letter = letter - 1 + (letter = 9) IF letter = 0 THEN END GOTO create1 END IF RETURN getemptyspace: **GOSUB** create SHELL "chkdsk >" + filename\$ **OPEN filename\$ FOR INPUT** AS #1 WHILE RIGHT\$(a\$, Is) <>Is\$ LINE INPUT #1, a\$ WEND CLOSE a = VAL(a\$): a\$ = "" SHELL "del " + filename\$ RETURN

Of course, Filler may miss a few bytes here and there, so don't count on complete protection. For example, one of the first things it does is create a subdirectory. If the subdirectory isn't very large,

Unfinished business,
leaving no trace,
selling from the pocket,
getting busted,
printouts you can live
with, running by the
calendar, and batches
within batches

You get so much out of it because we put so much into it.

Falcon 3.0 Awards of Distinction

Computer Gaming World Simulation of the Year 1992

PC Games Best Flight Simulation of '92

PC Magazine "A Best Product" of 1992

> MultiMedia World Readers Choice Award 1992

Consumer Electronics Show Innovations Award 1992

> 7 CompuServe Wilbur Awards

e could tell you about e superb graphics we put to Falcon® 3.0. And the credibly real F-16 feel. nd the sensational scope at delivers everything om Instant Action arcade citement to plotting your vn Red Flag training missions engaging in a different mpaign every time you play. it we couldn't say it half as ell as the critics have said Look at the high marks ey've given Falcon 3.0.

be visuals during flight are vesome." JIM DOUGLAS, ACE

f you aren't in the armed rvices-and maybe even you are-this is as close you can come to flying e Falcon."

TER OLAFSON, COMPUTE

be graphics are stunning, e sound is incredible and game play is a rush.' VID ETHEL, VIDEO GAMES & MPUTER ENTERTAINMENT

1-510-522-1164 (M-F: 9am-5pm PST)

Available for IBM/compatibles

Circle Reader Service Number 278



Spectrum HoloByte, Inc. 2490 Mariner Square Loop, Alameda, CA 94501

Operation: Fighting right and Falcan 3 Case tradepayers and Falcan and Streetung HobByte.



For more information, call 1-800-989-6434.

FEEDBACK

some bytes might not get overwritten in its sector. Also, many sectors on your disk will be partially full, leaving traces of earlier files unchanged. Filler does nothing about those unused portions of partially filled sectors.

Filler was debugged only under DOS 5.0, and several routines depend on specific wording on certain lines in your Chkdsk report. To be sure it will work with your version of DOS, run Chkdsk and make sure the exact text "bytes in each allocation unit" and "bytes available on disk" appear in your Chkdsk report.

One other limitation is that the filenaming system limits Filler to hard disks of under 917,586,121,746,944MB.

Now You C M

I'm interested in finding out more about Pocket Salesforce, mentioned in your November issue ("Palmtop Strategies," page 83). How can I get in touch with CM Software, its publisher? LANCE RISSER ADDRESS UNKNOWN

CM Software is located in the United Kingdom. Its address is Business Unit 1, 33 Sandford Road, Littlemore, Oxford, England OX4 4XT. To call direct from the United States, dial 011 44 865 748 875. Pocket Salesforce, a contact manager for the Hewlett-Packard 95LX palmtop computer, costs \$99.95 in U.S. currency, plus seven pounds' postage. If you call, remember that the time in the United Kingdom is five hours ahead of Eastern Time. When it's 8:00 a.m. in New York, it's 1:00 p.m. in Littlemore.

Caught by the Police

The number you gave for NewQuest in your June issue is wrong. DETECTIVE WARREN

LAPD LOS ANGELES, CA

We confess! We gave the wrong number. If you want to contact NewQuest, makers of Ascend, the address is 2550 South Decker Lake Boulevard, Salt Lake City, Utah 84119, and the telephone number is (800) 877-1814 or (801) 975-9992.

For the Ages

Most options for storing computer graphics are extremely time limited: Paper yellows; ink fades; computer disks lose their magnetism. One of the things preventing serious artists from using computers is the fact that you can't generate archive-quality EDITORIAL

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graphics with a computer. LLOYD BORG NEW ORLEANS, LA

Kodak sent us a press release stating that Joni Carter-a very serious computer artist-uses a Kodak printer. That suggested to us that Kodak must have a printer capable of producing archive-quality printouts, so we called the company. A Kodak spokesperson confirmed that the Kodak XL 7700 printer provides archive-quality printouts. The XL 7700 is used by some hospitals to preserve archived medical records. The printer uses 81/2- x 11-inch or 11-× 11-inch paper that's similar to photographic paper, so its printout is about as permanent as a photograph. The cost? You'll have to sell a few of your etchings to earn the \$18,000 list price. But check with your dealer; you might be able to get it for less. If you have any questions about the XL 7700 (or the smaller-format SV6500), call Kodak at (800) 445-6235 or (716) 726-6749.

Once in the Morning

I have a lot of programs in my AUTOEX-EC.BAT that I want to run only once a day, not every time I boot up my computer. Is there a way to run them the first time I start up and not again until the next day?

BARRY BROWN CINCINNATI, OH

Sure. Here's a BASIC program you can run. It's called 1DAY.BAS, and it's written in GW-BASIC. To run it from your AUTOEXEC.BAT, use the following line.

gwbasic 1day.bas

Take the list of programs you want to run only once a day and place it in a file called 1DAY.BAT. Each time you boot up, the BASIC program will check a file called TIMER.FIL to see what the date was the last time 1DAY.BAT was run. If the date is the same as today's date, the program won't run. If it's different, indicating that the file hasn't run today (or if there's no TIMER.FIL, indicating that this is the first time 1DAY.BAS has been run), 1DAY.BAT will run, and TIMER.FIL will be updated.

10 ON ERROR GOTO 90
20 OPEN "timer.fil" FOR INPUT
AS #1
30 LINE INPUT #1, A\$
40 CLOSE
50 IF A\$ = DATE\$ THEN SYSTEM
60 GOSUB 120
70 SHELL "1day.bat"

80 SYSTEM
90 CLOSE
100 GOSUB 130
110 RESUME 70
120 SHELL "del timer.fil"
130 OPEN "timer.fil" FOR OUTPUT
AS #1
140 PRINT #1, DATE\$
150 CLOSE
160 RETURN

Batch Shell

If a batch file is executed from within a batch file, the commands after calling the batch file aren't executed. Is there a way around that problem?

STEPHEN LAI LONDON, ON

Yes. If you're using a version of DOS lower than version 3.3, simply precede the batch file call with Command /c. If you're using version 3.3 or higher, use Call. Here's a simple example. Say that in the middle of a batch file, you want to call another batch file which we will call ANOTHER.BAT. In DOS 3.3 or higher, use this structure:

echo This is a batch file
echo for DOS 3.3 or higher.
call another
echo The batch file will proceed
echo to these lines when another
echo has completed operation.

In DOS versions lower than 3.3 use this structure:

echo This is a batch file echo for versions of DOS lower echo than 3.3. command /c another echo The batch file will proceed echo to these lines when another echo has completed operation.

The Call and Command /c commands start up another instance of the command interpreter, using 40K–50K of available RAM (depending on your DOS version), so you shouldn't nest your batch files too deeply. When the called batch file ends, the command interpreter running it is removed from memory.

Do you have a question about hardware or software? Or have you discovered something that could help other PC users? If so, we want to hear from you. Write to COMPUTE's Feedback, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408. We regret that we cannot provide personal replies to technical questions. Letters submitted to "Feedback" become the property of General Media International.



nyone who's worked for more than ten minutes with Windows or Windows a pplications knows that there's always more than one way to complete any task. What's easiest may not always be best. What's most intuitive may not be the fastest.

Windows, Excel for Windows, and Word for Windows are all well-documented products, but it's no easy task ferreting out the high-octane power nuggets in those hundreds of pages of dense text. And each program includes many undocumented features.

To give you a quick start into the Windows fast lane, we've asked our experts for their best tips for Windows itself and also for two popular Windows applications, Excel and Word.

So, go directly to your computer, fire up Windows, and take these tips for a test drive.

WINDOWS TIPS

1. Bypass Task Manager and zoom between Windows and DOS programs

You can use the Task Manager or press Alt-Esc to move between Windows and DOS applications, but both methods can be slow.

Use Alt-Tab and Alt-Shift-Tab.

1. Run any DOS application. (If you don't have one handy, run DOS Prompt from the Main group.)

2. With the DOS application full screen, press Alt-Tab to cycle forward through all the applications on your desktop. You'll see the name of the application on a band at the top of your screen.

3. Press Alt-Shift-Tab to cycle backward through your applications.

2. Replace Program Manager with another shell

Program Manager is Windows' default shell, but you might prefer to use a different shell, one that takes less memory, for example.

Change the shell= line in SYSTEM.INI.

- Run SysEdit and select your SYSTEM.INI file.
- 2. Find the line that says shell=progman.exe.
- 3. Change the line to shell=winfile.exe.
- 4. Experiment with other programs. The MS-DOS Executive (MSDOS.EXE), for example, makes an excellent shell.

3. Load programs rather than run them

When you double-click on an icon or filename or run a program with Program Manager's or File Manager's File, Run command, the application runs full screen, which is often an inconvenience.

Load programs you want to run minimized.

 Shift-double-click on any icon in Program Manager or any filename in File Manager or MS-DOS Executive that you want to run minimized.

4. Create a macro to view or edit nonassociated text files

With File Manager, there are two ways you can view files easily: You can associate the file's extension with Notepad (or another textediting program) and double-click on the file, or you can drag the file to a Notepad icon (in Windows 3.1). The first method only works if the file is associated, and the second method requires that Notepad be minimized on your desktop.

Use a Recorder macro to load the file at the cursor in File Manager (or MS-

DOS Executive) into Notepad.

 In File Manager or MS-DOS Executive, select a file to load into Notepad.

2. Open Recorder, configure the program to ignore mouse movement, choose a name for your macro, and start recording.

3. In File Manager, press Alt-F, P, and Ctrl-Insert to copy the selected filename to the Clipboard. Press Tab, Tab, Enter to exit the dialog box.

4. Press Alt-F, R, and type NOTEPAD.EXE in the text box followed by a space.

5. Press Shift-Insert to paste the name of the file into the text box.

6. Press Enter.

7. Stop Recording the macro, and assign the macro a keypress such as Ctrl-Alt-N.

5. View Recorder macro keystrokes

After you create a Recorder

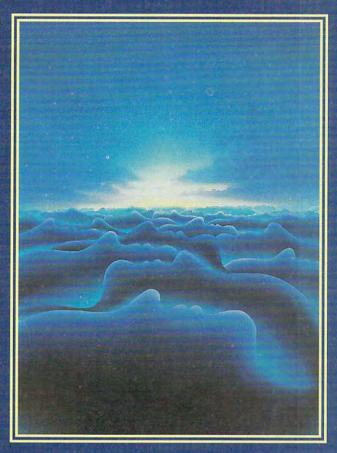
macro, it's often essential to review its keystrokes to see if it does what you want it to. Use Recorder's secret viewer feature.

 Run Recorder and select the macro you want to view.
 Hold down the Shift key and select Macro, Properties (either with a mouse or the keyboard).

3. Your macro's keypresses will appear in a list box.

Reading this keystroke list can be tricky. You'll see two entries for each keypress—one for when the key was pressed and one for when the key was released. For example, if you press the A key, you'll see Key Down, a and Key Up, a. Shift, Alt, and Ctrl keys also have up and down states, so a key combination with one of these will have four entries in the list. For example, Shift-A will look like this:

Key Down, Shift



25 TOP WINDOWS TIPS

ARTICLE BY CLIFTON KARNES, JAN ALTMAN, AND HERB TYSON



Key Down, a Key Up, a Key Up, Shift

Note that shifted characters don't appear in the listing as we see them onscreen. For example, the asterisk (*), which is the shifted state of the 8 key, is listed like this:

Key Down, Shift Key Down, 8 Key Up, 8 Key Up, Shift

6. Open two drive windows in File Manager

Copying files from one drive to another in File Manager is difficult unless you open two drive windows simultaneously.

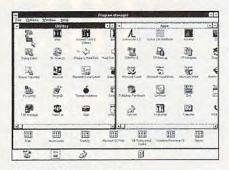
With one drive window already open, Shift-double-click on any other drive icon.

- 1. Open the first drive window by clicking (or Shift-clicking) on the drive icon.
- Open the second drive window by Shift-double-clicking on the drive icon.
 Choose Window, Tile, or press Shift-F4 to arrange the windows.

7. Move and copy icons from one group to another

Copying and moving icons from one Program Manager group to another is often a necessity, but you don't always get the results you expect.

Move icons by dragging and drop-



ping them, and copy icons by pressing the Ctrl key while dragging and dropping.

- 1. To move an icon from one group to another, first make sure both source and destination groups are visible (the destination group can be either restored or minimized).
- 2. Click on the icon you want to move and hold down the mouse button (this is normally the left mouse button, unless you've changed the primary button with Control Panel).
- 3. While holding down the mouse button, drag the icon to its destination and release the button.
- 4. To copy an icon, repeat steps 1 through 3 above, but press the Ctrl key while you drag and drop.

Note that in Windows a minimized group can't be an icon on another group.

8. Start each Windows DOS session with a special prompt

If you run programs from Windows and from DOS, it's sometimes difficult to remember whether you're at the DOS prompt itself or at a DOS prompt in Windows.

When you run the DOS Prompt from Windows, set the PROMPT environmental variable so the session is identified as a DOS session in Windows.

- 1. Run Notepad and start a new file called DOS.BAT.
- 2. Type in the following lines, substituting anything you'd like for [WIN]: PROMPT [WIN] \$P\$G COMMAND
- 3. Use this batch file as your DOS prompt from Windows, and it will look like this: [WIN] C:\>.

9. Skip the Microsoft brag screen at startup

Microsoft's startup screen can become boring (as can one you've created yourself).

Skip the startup screen.

 Instead of typing WIN or WIN/s, where s is a switch, type WIN: or WIN/s: to bypass the startup screen.
 This works with the original WIN.COM

or a new WIN.COM you create yourself.

10. Reinstall any Windows program without running Setup

Often you need to reinstall just one

program, file, or group of files from the Windows distribution disk. Usually you can't do this without reinstalling all of Windows.

Learn to decompress the files on the Windows distribution disks.

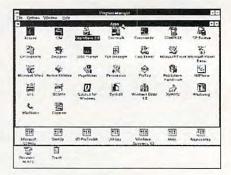
- 1. Find the EXPAND.EXE program on the Windows distribution disks. (It will probably be on disk 1 or 2.)
- Copy this file to your WINDOWS subdirectory.
- 3. You'll notice that most of the other files on the disk have extensions that end with an underscore (_)—for example, WINHELP.EX_, MOUSE.DR_, and so on. These are compressed files. (Note that in early versions of Windows, the compressed files end in EXE, but they are not executable.)
- 4. To uncompress one of these files, for example WINHELP.EX_, type EXPAND A:WINHELP.EX_ C:\WINDOWS\WINHELP.EXE.

C:\WINDOWS\WINHELP.EXE is the executable file you're creating.

(Your source and destination drives may be different from A and C used above.)

11. Change the default icon title font

Windows' default font for icon titles can be hard to read.



If you have Windows 3.1, you can substitute a different font for the default.

- 1. Run SysEdit and select WIN.INI.
- 2. Find the [Desktop] section, and insert the lines

IconTitleFaceName=Fontname IconTitleSize=Fontsize

where Fontname is the name of a font on your system and Fontsize is the size, in points, you want to use.

A good choice for an alternative to the default 8-point MS Sans Serif is the System font (which is only available in 10 point). To make System the title font, your lines would look like this: IconTitleFaceName=System



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of the bother or risk.

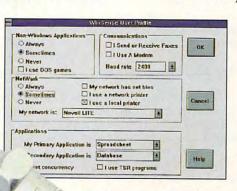
New WinSense is the only software that helps you optimize Windows by automating and simplifying the otherwise dangerous task of changing the settings contained in your Windows configuration (.INI) files.

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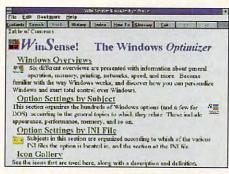


WinSense automatically configures Windows for the way you work.

which ones to change, and makes the changes for you. So you avoid the risks of struggling with complex syntax in a text editor or SysEdit, and locking up your system if you get it wrong.

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order.

SOFTLOGIC SOLUTIONS IconTitleSize=10

12. Make changes in WIN.INI effective immediately

When you make changes to your WIN.INI file, you've probably noticed that you have to reboot Windows to see the changes take effect.

Use Control Panel to reload your WIN.INI without rebooting.

1. Make some changes to your WIN.INI file. For example, you might want to add an extension to the [Extensions] section.

2. To make the change current without rerunning Windows, run Control Panel, double-click on Desktop, and click on OK. This will reread your WIN.INI file and make most of your changes current.

You can use almost any Control Panel icon to update your changes. This technique doesn't work with all WIN.INI parameters, however. Color is the most important exception.

13. Change the colors of buttons, highlight, and Help

The default colors for buttons, highlight, and Help may not be the best choices for you.

Change these colors with Control Panel and WIN.INI.

For Windows 3.1

1. Run Control Panel (on the Main group), and double-click on Color.

2. Select Color Palette.

 Click on highlight or button to change those colors.
 For Windows 3.0

1. Add the following lines to your WIN.INI file:

[colors]
ButtonFace=RGB
ButtonShadow=RGB
ButtonText=RGB
GrayText=RGB
Hilight=RGB
HilightText=RGB

where R,G, and B are color values standing for red, green, and blue.

2. Rerun Windows.

For Windows 3.0 and 3.1

 Add the following lines to the [Windows Help] section of your WIN.INI file:

Jumpcolor=RGB

Popupcolor=RGB

2. Rerun Windows.

Here are some useful values for R,

About the Tips and the Tipsters

The Windows tips in this article were excerpted from three books by Windows experts Clifton Karnes, Jan Altman, and Herbert Tyson. Karnes is editor of COMPUTE magazine, Altman is a trainer and consultant on Windows applications, and Tyson is the author of numerous books on word-processing software.

These authors ferreted out and compiled hundreds of fascinating and timesaving tidbits in researching their books 101 Essential Windows Tips, 101 Essential Excel for Windows Tips, and 101 Essential Word for Windows Tips, all published by COMPUTE Books. These handy desktop guides are available for \$9.95 each from COMPUTE Books, c/o CCC, 2500 McClellan Avenue, Pennsauken, New Jersey 08109. Add \$1.00 per book for shipping and handling.

G, and B.

Color	R	G	В
Black	0	0	0
Red	255	0	0
Green	0	255	0
Yellow	255	255	0
Blue	0	0	255
Magenta	255	0	255
Cyan	0	255	55
White	255	255	255

EXCEL TIPS

14. Select a block of cells in one step

You need to select the current filled-in block of cells, but it extends far in all directions.

Use the Ctrl-* shortcut.

 Click anywhere inside of the block of cells you want to select.

2. Press Ctrl-*. The selection includes filled-in cells in all directions.

The Ctrl-* shortcut selects the current block of data. It extends in all four directions until it reaches a row or column of blank cells.

Excel 4 includes a tool that performs the same action. It's found in the Utility category within the Options Toolbars Customize box and can be added to any toolbar (it shows a small black box with arrows going out in four directions). I suggest adding it to your standard toolbar.

14. Search or replace backward from the cursor

Neither Formula Find nor Formula Replace gives you the option of searching up from the cursor.

Hold down Shift when pressing Enter or clicking OK.

- 1. Choose Formula Find or Formula Replace.
- 2. Fill in the necessary information.
- 3. Hold down Shift while pressing Enter or clicking OK. Excel searches backward from the active cell.

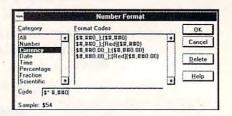
This tip also works when using Data Find.

16. Left-align dollar signs in columns of currency format

When a column of numbers includes varying amounts of money, the dollar signs are jagged on the left. This doesn't look good, and it's hard to read.

Use the asterisk in a number format.

- 1. Select the cells in currency format that you'd like to align. Make a multiple selection, if necessary.
- 2. Choose Format Number.
- 3. Drag over the field at the bottom, and type the following format: \$* #,##0.



An asterisk in a number format means "fill the middle of the cell with the next character." The next character is a space. This format places a dollar sign on the left, fills the middle with spaces, and places the number (in comma format) on the right.

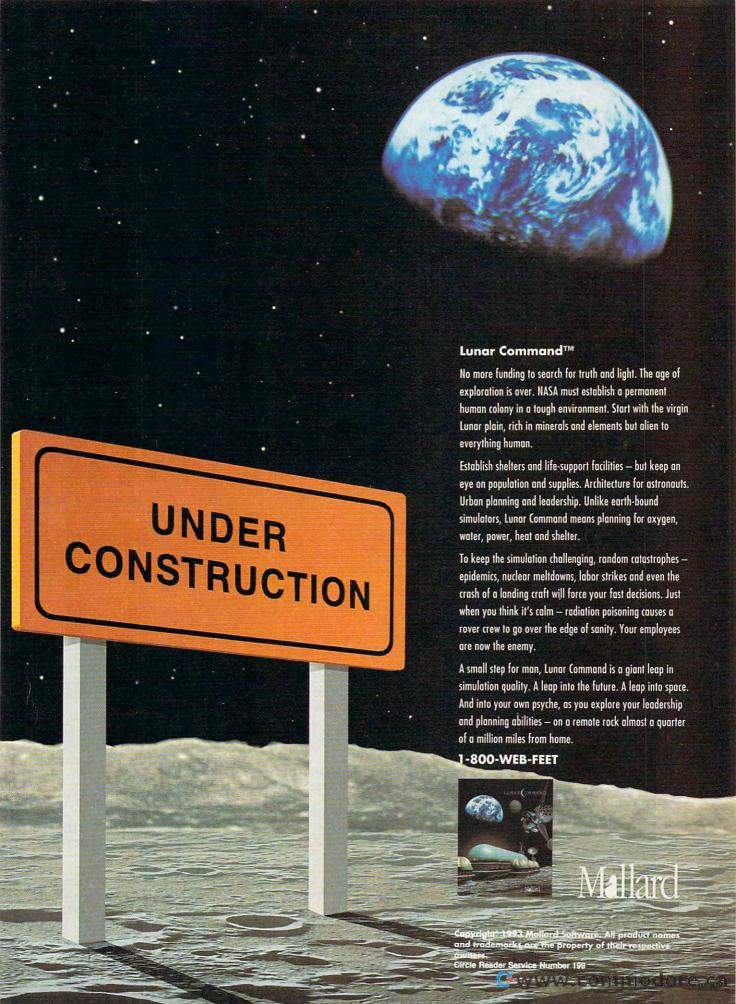
4. Press Enter or click OK. The dollar signs in each cell are pushed to the left

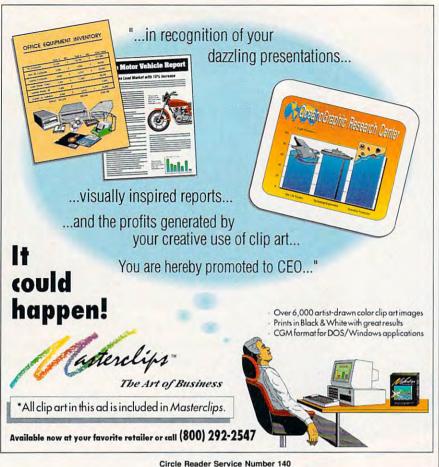
This customized format is saved with the current worksheet and can be found at the end of the list in the Format Number box.

17. Mix fonts in a title or heading

You'd like to italicize one word in the title at the top of your worksheet. But since the title resides in a single cell, you're forced to italicize it all.

Place the text in a text box.





- 1. On the toolbar (use the drawing toolbar in Excel 4), click the text box tool (shows a small page with lines of
- 2. Drag on the worksheet to position the box.
- Type the text of your title in the box. Drag the handles to adjust the box to the size of the text.
- 4. Select the word or words you'd like to format, and choose Format Font.
- 5. Select the formats you like, and press Enter or click OK.

To create several text boxes at the same time, either hold down Ctrl when you click the tool (Excel 3), or doubleclick the tool (Excel 4).

18. Set default formatting for worksheets and charts

You've developed your own special style for worksheet and chart layout. From now on, you want all your documents to look the same.

Save the worksheet template SHEET.XLT in the XLSTART directory.

- 1. Open a new worksheet window.
- Make whatever changes you'd like

- to save as defaults.
- 3. Choose File Save.
- 4. Under File Name, enter SHEET.
- 5. Under Save File as Type, choose Template.
- 6. Under Directory, choose the XLSTART directory (under Excel's main directory).
- 7. Press Enter or click OK.

From now on, each new worksheet created is based on this template.

Examples of things you might save in a worksheet template are: cell styles, margins, headers and footers, page size and orientation, print area, calculation, defined names, toolbar layouts, etc.

Save the chart template CHART-.XLT in the XLSTART directory.

- 1. Create a chart based on some existing worksheet data.
- 2. Add whatever formatting you'd like to save as defaults.
- 3. Choose File Save.
- 4. Under File Name, enter CHART.
- 5. Under Save File as Type, choose Template.
- 6. Under Directory, choose the XLSTART directory (under Excel's main directory).

7. Press Enter or click OK. From now on, each new worksheet created is based on this template.

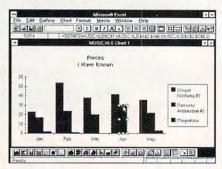
The worksheet data used to plot the template in step 1 is not saved. When you open a new chart window, the formatting specified in step 2 is used to format the current selection.

Examples of things you might save in a chart template are: chart type, formatting of chart elements, legends, arrows, text boxes, titles, etc.

19. Adjust chart data with the mouse

Assigning new values to data points can be tedious if you have to return to the worksheet, enter new numbers. and replot the chart.

Select a data point with Ctrl-click, and drag the black handle.



When you click on an object in a Windows application, handles appear to show it's been selected.

1. Click on any data point. The entire data series is selected. (The white handles show it's not changeable.)

Hold down Ctrl while clicking a data point. That single data point is selected. (A black handle shows that the data point is now changeable.)

3. Drag the black handle to adjust the value of the data point. The formula bar displays values as you drag.

Want to see something really cool? Arrange both the worksheet and the chart on the screen while adjusting a data point. The worksheet changes instantaneously.

WORD FOR WINDOWS TIPS

20. Insert text in front of a table even when a table is at the top of a document

If a Word document begins with a table, you cannot insert ordinary text in front of the table. Instead, when you press Ctrl-Home and start typing, text is inserted in the first cell.

Press the column break keys.

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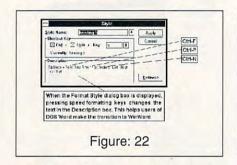
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- 1. Press Ctrl-Home to go to the top of the document.
- Press Ctrl-Shift-Enter to insert a column break. This forces a carriage return ahead of the table, allowing you to insert text.

A single press of Ctrl-Shift-Enter under these circumstances will not actually insert a column break—it will insert just a paragraph marker (carriage return). If you press Ctrl-Shift-Enter a second time, however, a column break will be inserted.



21. Return to the last editing spot when you reedit a file

If you repeatedly work on the same file—such as a book or a long report—you usually want to pick up where you left off.

Use GoBack.

- 1. Select File Open to open a document.
- 2. Press Shift-F5 (GoBack).

Shift-F5 (the GoBack key) toggles among the current cursor location and the last three locations where any editing occurred. The GoBack information is saved each time you close a file. Advanced users can make this procedure automatic by including the GoBack command as part of an AutoOpen macro.

22. Make quick changes to a style using shortcut keys

Selecting Format Styles Define, and then having to select each of its different aspects, is time-consuming.

Use shortcut formatting keys in the Format Styles dialog box.

- 1. Position the cursor in the paragraph you want to affect.
- 2. Press Ctrl-S, twice.
- 3. Select the style you want to edit.
- 4. Use formatting keys to display or turn off formatting in the Description area. Keys used to change format:

Style Description

Ctrl-O Add line spacing before paragraph

Ctrl-A All capital letters

Ctrl-B Bold

Ctrl-E Centered paragraph

Ctrl-0 Delete line spacing before paragraph

Ctrl-D Double underline

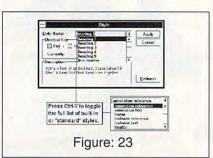
Ctrl-2 Double-spaced lines

Ctrl-F Font

Ctrl-T Hanging indent

Ctrl-H Hidden text

Ctrl-P Increase point size



Ctrl-N Indent paragraph

Ctrl-I Italic

Ctrl-J Justified paragraph

Ctrl-L Left-aligned paragraph

Ctrl-5 One-and-one-half-spaced lines

Ctrl-G Reduce hanging indent

Ctrl-M Reduce left indent

Ctrl-Space Remove all variant charac-

ter formatting (except font)

Ctrl-Q Remove all variant paragraph formatting

Ctrl-R Right-aligned paragraph

Ctrl-1 Single-spaced lines

Ctrl-K Small capital letters

Ctrl-= Subscript (3 points)

Ctrl-Shift-= Superscript (3 points)

Ctrl-U Underline

Ctrl-W Word underline

23. Show all built-in or standard styles

WinWord has 34 standard or built-in styles, but they only appear when you use a related feature.

Press Ctrl-Y in the Format Styles dialog box.

- 1. Select Format Styles (shortcut: press Ctrl-S twice).
- 2. Press Alt-Down (this expands the list box to show a list of styles).
- 3. Press Ctrl-Y to toggle the list of standard styles on and off. Once displayed, these styles may be selected and applied normally.

The Standard Styles:

annotation reference annotation text footer footnote reference footnote text header heading 1 heading 2 heading 3

heading 5

heading 6 heading 7

heading 8

heading 9

index 1

index 2

Above, the "heading 5" style is given the shortcut Ctri-Shirts.

Figure: 24

index 3

index 4

index 5

index 6

index 7

index heading

line number

Normal

Normal Indent

toc 1

toc 2

toc 3

toc 4 toc 5

toc 6

toc 7

toc 8

100 0

24. Create shortcut style keys

Normal format has a built-in shortcut. For other styles, however, you have to press Ctrl-S and either type or cursor down to the style you want.

Use the Format Style dialog box.

- 1. Press Ctrl-S, twice.
- 2. If you want to make more than one assignment, Press Alt-D (Define).
- 3. If you want to add the style shortcuts to the underlying template, press Alt-E to turn on Add to Template. Otherwise, the style shortcuts you create will exist only in the current document.
- 4. Select the style for which you want to create a shortcut (Alt-S).
- Select the key you want to use (Alt-Y).
- 6. Select Change (Alt-A).
- 7. Repeat steps 4 through 6 until you

have assigned as many styles as you want.

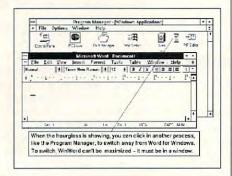
8. Select Close.

9. When you exit from WinWord, say Yes to the prompt save global glossary and command changes or to the prompt save changes to TEMPLATE.DOT (where TEMPLATE is the actual template name). Alternatively, you can select File Save All (Alt-F, E) now and answer Yes to the appropriate Save prompts.

25. Escape from WinWord's hourglass

During field updates in a large document and when printing, WinWord can display its hourglass for what seems like hours.

Restore before running.



1. If WinWord is maximized, click on the Restore button before starting the time-consuming procedure.

2. Start the procedure—Print, Update Fields, Sort, and Mail Merge.

3. Move the hourglass so that it is over the Program Manager (in the background window) and click. The focus shifts away from WinWord, and the task runs in the background.

Even though the cursor is an hourglass shape, which usually means "wait," you can switch to another application—if another application is visible on your desktop. If WinWord is maximized, however, you must wait for the hourglass to disappear before you can switch away.

This tip allows you to switch away from a WinWord print job and continue working on a non-WinWord task. If you want to continue working on a WinWord task, you can run a second copy of Word for Windows in another window. To do that, however, you must run SHARE before starting Windows, and you must have sufficient memory installed. SHARE.EXE is a DOS utility that, among other things, prevents files from being written to simultaneously by multiple programs. See your DOS manual for more.



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TIPS & TOOLS

Edited by Richard C. Leinecker

Helping Hand

You can't get too much help with DOS commands. Even your applications, batch files, and homegrown programs need to provide help after time has gone by and you've forgotten their syntax. Here are two ways to add easily accessible help from the DOS command line.

The easiest way to provide help for your DOS files is to create a set of batch files with the help you think you'll need. They can be separate batch files or one big one. If you're worried about disk space, I'd suggest one large batch file. One large file takes up less space on your hard drive than many small

Here's my solution to the help shortage. It's a batch file called HP.BAT. To use it, type hp followed by the subject you want help with.

ECHO OFF

IF "%1"=="" GOTO NOPARAMS IF "%1"=="WP51" GOTO WORDPERFECT IF "%1"=="wp51" GOTO WORDPERFECT IF "%1"=="KILLDIR" GOTO KILLDIR IF "%1"=="killdir" GOTO KILLDIR IF "%1"=="NEWDISK" GOTO NEWDISK IF "%1"=="newdisk" GOTO NEWDISK

GOTO NONEOFABOVE

:WORDPERFECT ECHO This is where you ECHO should put your ECHO WordPerfect help. **GOTO END**

:KILLDIR

directory_name

ECHO KILLDIR will delete an ECHO entire subdirectory including ECHO embedded subdirectories. ECHO. ECHO Usage: KILLDIR

GOTO END :NEWDISK ECHO NEWDISK will erase all **ECHO** information ECHO on a floppy drive. ECHO. ECHO Usage: NEWDISK a or NEWDISK b **GOTO END**

:NONEOFABOVE ECHO No help available ECHO for %1 **GOTO END**

:NOPARAMS ECHO Usage: HP help_subject **GOTO END**

There's a slicker way to do it if the programs for which vou're creating help respond to a command line option of /? to provide help.

Any program that provides help when given a command line argument of /? is a candidate for the help utility built into DOS.

Here's all you do. Go to your DOS directory and find the file with the name DOSHELP.HLP. I'd suggest backing up the file before altering it. Once you have a backup made, load it into a text editor or word processor in ASCII mode.

You'll note that all of the commands are in alphabetical order. Each one begins in the left margin, and additional help lines after the first one begin with spaces.

To add an entry, find its place. Make sure it'll be in alphabetical order once it's inserted. Add the command with its help, and save the file. Now type help and watch for your newly added help. You can also type help subject, and the actual program will produce the same help as if you ran the program with a /? command line. CLINT AKIBA KAWASAKI

PENSACOLA, FL

There's a level of security you can add to your files that'll be hard for prying eyes to break. It scrambles any file on disk so that it's not readable until unscrambled with the same program.

It works by going through a given file and altering the entire file, byte by byte. To use it, just type crypt filename. Then, to unscramble the file,

repeat the process.

File Security

You can type in CRYPT .COM using the DOS Debug command. Make sure the DOS program called Debug is in your path or the current directory. In these examples, the italic text is what the computer prints; the roman text is what you should type. One way to be sure you get these programs exactly right is to have someone read the numbers to you as you type them in. Another way suggested by one of our readers is to read the numbers into a tape recorder and then play them back as you enter the program code.

DEBUG CRYPT.COM

File not found -e 100 be 80 00 ac 0a c0 74 56 -e 108 ac 3c 0d 74 51 3c 20 74 -e 110 f7 8b d6 4a ac 3c 0d 74 -e 118 04 3c 20 75 f7 c6 44 ff -e 120 00 be 62 01 b8 02 3d cd -e 128 21 72 33 8b f8 8b df b9 -e 130 01 00 b4 3f 8b d6 cd 21 -e 138 Ob c0 74 1c 2b c9 49 8b -e 140 d1 8b df b8 01 42 cd 21 -e 148 80 34 ff 8b df b9 01 00 -e 150 b4 40 8b d6 cd 21 eb d5 -e 158 8b df b4 3e cd 21 b4 4c -e 160 cd 21 -RCX CX 0000 :62 Writing 0062 bytes

If you run the program Checksum ("Tips & Tools," July 1992) on CRYPT.COM, you

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TIPS & TOOLS

should see the number 062 displayed on your screen.

You can call the Crypt program from a batch file so that you'll have help that's available and also so that you can take advantage of wildcards and multiple arguments. Here's a batch file I named CRYPTER.BAT.

ECHO OFF
IF "%1"=="" GOTO NOPARAMS
IF "%1"=="/?" GOTO HELP
:BEGIN
FOR %%f IN (%1) DO CALL
CRYPT %%f
SHIFT
IF "%1"=="" GOTO END

GOTO BEGIN :HELP

ECHO This program encrypts files
ECHO so that they are unreadable
ECHO until the Crypt program
ECHO unscrambles them.

ECHO.

DOS menus and

dazzle the eye

prompts to

ECHO Usage: CRYPTER filemask0 filemask1 . . .

GOTO END :NOPARAMS

ECHO Error -- no command line ECHO arguments given.

ECHO.

ECHO Usage: CRYPTER filemask0 filemask1 . . .

:END

RICHARD C. LEINECKER MIAMI, FL

Easy DOS Menus

You can create easy menus for DOS. First, run your text editor or word processor in ASCII mode and create the menu text. Here's the file I created for my menu. I named it MENU.BAT.

@ECHO OFF
ECHO.
ECHO HARD DISK MENU
ECHO.
ECHO 1. GEOS Professional
ECHO.
ECHO 2. Professional Write WP
ECHO.
ECHO 3. Utility Applications
ECHO.

ECHO Type the number of your ECHO choice and press Enter. ECHO.

Next, I created three batch files and named them 1.BAT, 2.BAT, and 3.BAT respectively. Each one ran the selected software. Here is 1.BAT.

ECHO OFF CD \GEOWORKS PCGEOS CD \ MENU

Here is 2.BAT.

CD \WP WP CD \ MENU

Here is 3.BAT.

CD \UTILITIES
UTILITY
CD \
MENU

You can add as many batch files as you want and expand your menu batch file, too.

WENDELL R. HENRY KERRVILLE, TX

Jazzier Prompts

In the October 1992 issue there was a tip that told how to make your prompt display the time. I'd like to show you how to jazz up your prompt and give it color. Besides the prompt commands listed in the October issue, here are some others.

\$n shows the current drive. \$p shows the current drive and path.

\$g shows a > character. \$I shows a < character. \$b shows a | character. \$t shows the current time. \$d shows the current date. \$_ moves the cursor to the next line.

To change the colors, type

\$e[;??m, where ?? is the number of the color you want. Here's a list of the colors.

0 = black

1 = blue

2 = green

3 = cyan

4 = red

5 = magenta

6 = orange

7 = gray

8 = dark gray

9 = bright blue 10 = bright green

11 = bright cyan

12 = bright red

13 = bright magenta

14 = yellow

15 = white

To calculate the color you want, multiply the desired background color by 16 and add the desired foreground color. If the background color is greater than 7, it will blink.

If you want to display C:\hi> in blue, use this prompt command.

PROMPT \$e[;34m\$p\$g

You can mix colors within the prompt, too. Here's one that makes the drive and path yellow, the > character red, and the text cyan.

PROMPT \$e[;33m\$p \$e[;31m\$g\$e[;36m

ERIC FONG LAFAYETTE, CA

If you have an interesting tip that you think would help other PC users, send it along with your name, address, and Social Security number to COMPUTE's Tips & Tools, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408. For each tip we publish, we'll pay you \$25-\$50. All tips submitted become the property of General Media International.

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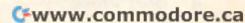




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WINDOWS WORKSHOP

Clifton Karnes

WINDOWS SCREEN FONTS

In this and the next two columns, I'm going to talk about one of the least understood aspects of Windows: fonts. In this column I'll talk about screen and plotter fonts, and next month, I'll discuss True-Type and how to get the most out of it. For the last installment, I'll discuss some utilities that let you translate Post-Script fonts into TrueType, as well as ones that let you manipulate TrueType fonts in some exciting ways.

Windows 3.1 comes with three types of fonts. The first type is screen fonts, also called raster fonts. The second type is plotter fonts, also called vector fonts. And the third kind is TrueType fonts.

Screen fonts are bitmaps, which means that each character in the alphabet is constructed from a collection of dots. It also means that each size of the font must be represented with a different set of bitmaps.

Windows installs many screen fonts, including MS Serif (Tms Rmn in Windows 3.0), MS Sans Serif (Helv in Windows 3.0), Courier, System, Fixedsys, Terminal, Symbol, and Small Fonts.

These fonts are distributed in a limited number of sizes. For MS Serif, MS Sans Serif, and Symbol, the sizes available are 8, 10, 12, 14, 18, and 24 points. You may notice in this group that the sizes are even numbers from 8 to 24 with 16, 20, and 22 left out. This may seem strange, but it makes sense when you understand that these fonts can also be used effectively in multiples of the available sizes. So a 16-point MS Serif can be obtained by doubling the 8-point font, and so on. Courier is available in 10-, 12-, and 15-point sizes, and Small Fonts, which is used mostly for previewing text, comes in 4, 5, 6, and 7 points. As with the other screen fonts, multiples of these sizes are also available. The sizes of System, Fixedsys, and Terminal are determined by your display.

All screen fonts are in a sense display dependent, which we'll discuss in a minute. But first, I'd like to talk a little about each font and how it's used.

The most important screen font is System. You'll see this font in menu and dialog boxes and almost everywhere else in Windows. System is very easy to read onscreen, and all things considered, it's my favorite screen font. In programs that give me a choice of which screen font to use (such as File Manager), I almost always choose System.

System, like most of the fonts used in Windows, is a proportional font, which means that the horizontal space occupied by each character is determined by the character's width. By contrast, in a fixed or monospaced font (such as Courier, which impersonates a typewriter), each character, no matter how wide it is, occupies the same amount of space. In a fixed font, a lowercase *i* takes as much space as an uppercase *W.*

In versions of Windows prior to 3.0, the System font was a fixed font, and for compatibility, this font is included with 3.1. As you may have guessed, it's the Fixedsys font mentioned above. Although some people say that this font is all but useless, it's often the best choice for text editors. Notepad, in fact, uses this font.

After System, the most important screen font is MS Sans Serif. Serifs are the finishing strokes in fonts, and a font that doesn't use these is

called a sans-serif face. MS Sans Serif is almost identical to Windows 3.0's Helv, and it's used for icon captions in Program Manager and minimized icons on your desktop.

Of the remaining screen fonts, Terminal, also called the OEM font, is important because it's the one you see in a typical DOS box.

You'll find all these screen fonts in your SYSTEM subdirectory with the extension FON. The exact form of the name will vary according to your display type. You'll probably see the following names with the x replaced by either an E (for VGA displays) or an F (for 8514 displays): COURx.FON (Courier), SERIFx.FON (MS Serif), SSERIFx.FON (MS Sans Ser-SMALLx.FON (Small Fonts), and SYMBOLx.FON (Symbol).

The screen fonts that are available in a single point size (which is determined by your display) are xSYS.FON (System), xFIX.FON (Fixedsys), and xOEM.FON (OEM or Terminal), where x is probably either VGA or 8514.

You can have some fun with your system font and your icon caption font by making substitutions. Find the [Desktop] section in WIN.INI that says IconTitleFaceName and substitute System (or any other installed font) for MS Sans Serif. If the line isn't there already, add it.

The plotter fonts (Modern, Roman, and Script) are scalable, which means they're available in any point size. With True-Type, these plotter fonts are unnecessary, but they're provided for compatibility with previous Windows versions. You'll probably never need them.

That's it for screen fonts, also called raster or bitmapped fonts. Next month, I'll talk about TrueType—how it works and why you should use it.

The most important screen font is System.
You'll see this font in menu and dialog boxes and almost everywhere else in Windows.

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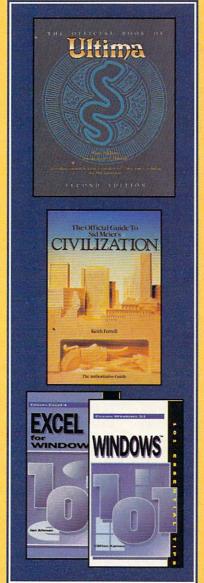
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PROGRAMMING POWER

Tom Campbell

PICK THE WINNER

This is a good time to get into database programming. Microsoft and Borland have triggered a price war in the guise of competitive upgrades, making it hard to resist picking one of the Big Three databases: FoxPro 2.5, dBASE IV 1.5, and Paradox 4.0. We'll look at all three so that you may learn which is best for you.

Each of the Big Three has a manual composed of hundreds of pages. Of course, you're expected to read it before firing up the application generators—and with good reason. You have to know a fair amount about database theory before developing programs people will pay for. Expect to spend a month or three before you have the background to blast out turnkey apps in two days. And you really need a working knowledge of the script language, as it's the only way to get out of a bind when the application generator hits a wall. The appgens are good, and they can indeed produce the expected results-but not before you pay your dues.

You must also realize that unlike with Microsoft C 7.0 or Borland C++ 3.1, you can't distribute your applications to people who don't have the database program—unless you pay for an add-on product, usually called a runtime. A runtime acts like a stripped-down version of the database manager without the programmability.

Finally, you'll want to become familiar with programming under the constraints of a network environment. You don't want the lawyer whose office you automated to call you up and ask where her cases went when two people tried to edit them at once. When she threatens to sue, she means it.

Borland's Paradox 4.0 (800-331-0877, \$795) has the most

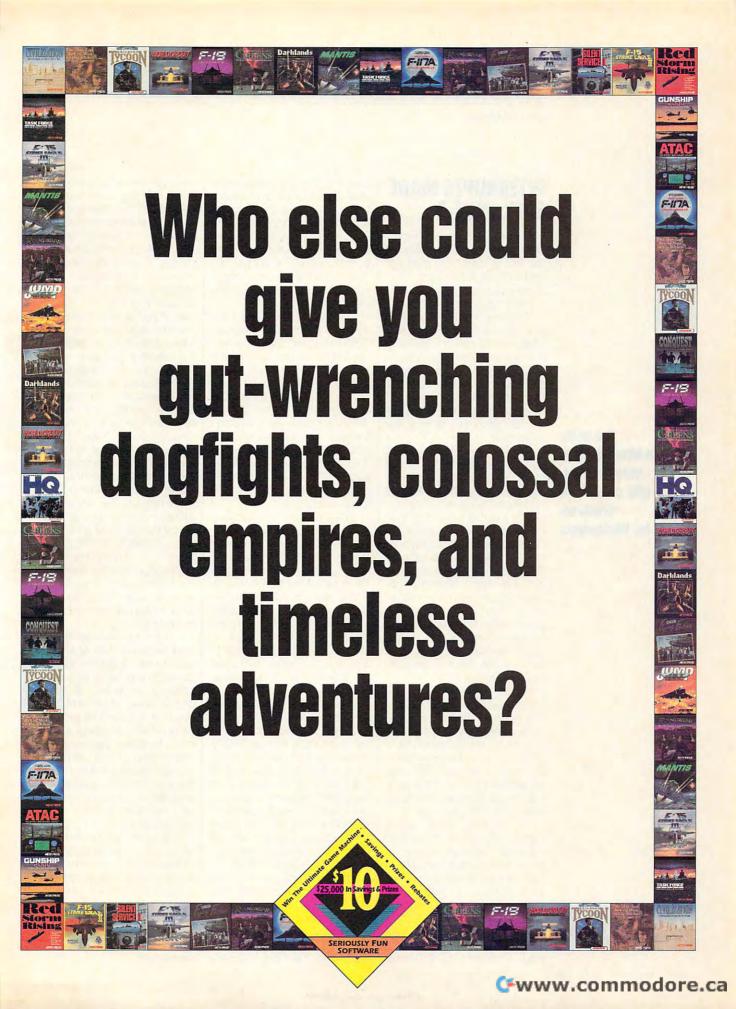
up-to-date language and my favorite appgen among the bunch. Application Workshop, a sort of turbo shell over Paradox, lets you put together multifile applications and test them interactively. It let me turn out good work fast, with a minimum of coding knowledge. That PAL is not compatible with the dBASE language cuts both ways: You can get more done in fewer lines of code, but you must settle for a much smaller market of books and code libraries. But the PAL programmer's guide is the best introduction to a language I've seen with any product. My favorite chapter is a complete sample application with massive commenting. None of the other products have anything similar. The Paradox online help would've been great five years ago but is shockingly bad now. The integrated environment is meant to be familiar to users of earlier versions of Paradox. not other Borland languages. so I found the keystrokes somewhat unfamiliar.

Microsoft's FoxPro (800-426-9400, \$495) is your best bet if you want a dBASE language but don't require 100percent dBASE IV compatibility. You're expected to know dBASE when you buy FoxPro-there's little in the way of tutorial material for nondBASE programmers—but the development environment is what dBASE should have been years ago. I find the apponens easier to use than those in dBASE and much less cohesive than Paradox's. Its Menu Builder and Screen Builder are good for large applications, but they don't hold together as well as Paradox's. However, FoxApp, which lets you build a single-file application without programming, is a tov. FoxPro tried hard for dBASE IV language compatibility, plus compatibility with earlier Fox languages, so its dBASE dialect is somewhat unwieldy but extremely powerful. If I were moving up from dBASE III Plus, I'd go to FoxPro, not dBASE IV. The online help is also the best among the three.

Borland's dBASE IV (800-331-0877, \$795) needs no introduction. It's showing its age, however, and I see the ideal dBASE IV user as someone different from the typical reader of this column. The program's prodigious automated program generation tools outdo those of either of the other products; however, they're the toughest to learn. Since I seem to hit the programming wall where code generators fall down on any project I do. I prefer Paradox or FoxPro because it's much easier to learn to use their tools. The dBASE language lacks support for push buttons, list boxes, and other artifacts of the GUI world that FoxPro and Paradox now take to be part of the programming habitat. But dBASE IV is irreplaceable in its support of the SQL commands Commit and Rollback. These seemingly arcane features are absolutely necessary in the corporate world, and of the Big Three, only dBASE supports them. Commit lets you save the state of the database; Rollback lets you restore it. In case of a power failure, virus, or network breakdown, this guarantee of database integrity is priceless.

Whose name goes on the trophy? I have to cop out because each has tremendous strengths. Paradox is the top choice for the user with a clean slate; FoxPro, for the dBASE programmer with no particular need for dBASE IV; and dBASE IV, for those with corporate clients, the patience to learn its appgens, and no burning desire to make their programs GUI.

Now you can afford to choose which of the Big Three databases is right for you.



HARDWARE CLINIC

Mark Minasi

INTERRUPTS MADE EASY, PART 3

For the past two months, we've looked into interrupts on the PC, a topic that may not be the most fascinating thing in the world but is surely an important topic.

Recently, I got a chance to actually use this information in a real-world setting. Despite the fact that I've been teaching PC installation and repair seminars for seven years, I found the simple installation of nine Ethernet cards into a variety of computers to be a real education.

Before I provide you with the details, let me give you a little background on why I was installing the boards. As you may know from my other columns. I run a small seminar company that employs four administrative and marketing people, as well as seven full-time instructors. We have three locations-two commercial townhouses and my office, which is in my home. (Hey, when you're the boss, you get to say where your office is, right? Besides, they get more done when I'm not around, and vice versa.)

I'm telling you this so you'll understand that for us, a LAN has been an item of marginal value. We've had LANs running in our test-bed area for a while, so we've become familiar with the seamy underside of NetWare 3.11 and the intricacies of making Windows work with LAN Manager.

For a long time, LANs didn't make sense for us, but recently, they've come to make a lot more sense. Part of that is due to Windows for Workgroups, our latest LAN platform. It's annoying in some ways and great in other ways—but then, isn't that always the case with LANs? We had a bunch of Ethernet

cards around the office, some of which actually had documentation. So I sallied forth to set up a network. What made the whole process even more interesting was that no two LAN boards were the same. We have something of a mongrel network that we affectionately call MuttNet.

The first LAN card I installed on our network was an Ethernet board that used everything we've discussed in the two previous columns: an I/O address range, a DMA channel, an IRQ level, and some shared RAM. I left the I/O address at 300 hex so it wouldn't conflict with the computer I was installing the board into. The IRQ I chose was IRQ5, avoiding the more commonly used IRQ2. The reason why is worth exploring.

IRQ2 gets handled in one of three ways by PC systems. On some systems, you can use IRQ2 with no trouble. On others, IRQ2 is connected to IRQ9 as a kind of doorway to IRQ8 through IRQ15. In that event, you may have to utilize IRQ2 but tell your software that you're using IRQ9. (I know it sounds odd, but try it.) On some systems, IRQ2 just plain won't work no matter what you do.

I avoid IRQ2 because even though it can be used in some systems, the fact that it cascades to IRQ8 through IRQ15 makes me a bit nervous; in the past, using IRQ2 has caused conflicts with Windows. I set the DMA to channel 1 and put the shared RAM between CC000 and CFFFF, as I knew that it wouldn't conflict with the hard disk controller ROM between C8000 and CBFFF.

When I plugged the board in, however, it didn't work. The next board I tried didn't work either. It was the same for the next board and the next. A little fiddling around made me realize that the DOS memory

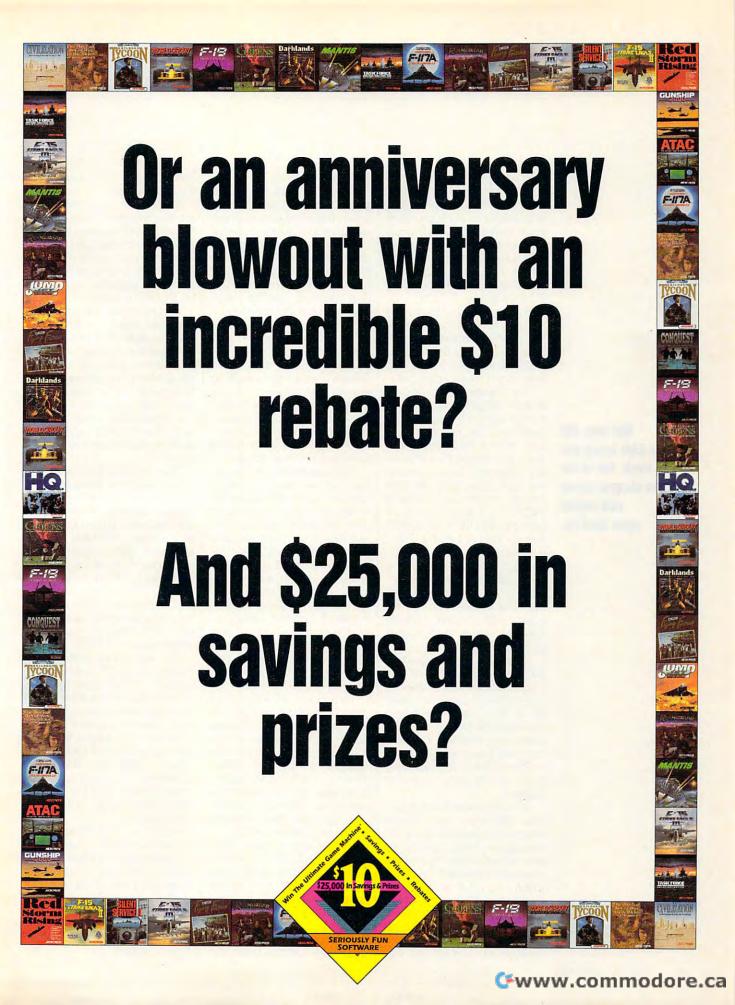
manager I was using was placing its memory at the same addresses as the shared memory on my LAN board, which in turn was clobbering the LAN board. (Actually, that's not completely true; the DOS memory manager placed an upper memory block up there because I told it to. You may recall, if you're one of the people who read this column regularly, that I insist on setting up my memory manager so that my includes and excludes are mutually exclusive and collectively exhaustive—that's professor talk for "Map the memory from stem to stern, from 640K through 1024K." As I'd done that, my memory manager took it on faith that it could plaster memory across the RAM buffer on the LAN board.)

To remedy the situation, I told the memory manager to exclude the range of addresses from CC000 to CFFFF (check the earlier columns on memory management for details on excluding and including), and all was well after that. One board down, a bunch more to go.

I went to the second PC and began installing another LAN board. I set the second board in the same way, but it refused to work. A quick check of my notes reminded me that a sound board was using IRQ5, causing a conflict. In case you've never read one of my sermons about keeping notes, here's the short version—you need to write down what you do, and you need to write it down immediately.

Suppose, for instance, you install one of these multimedia upgrade kits, a set containing a sound board, speakers, and a CD-ROM drive. In the process of setting this up, you'll have to choose several DMA channels, IRQ levels, I/O addresses, and, perhaps, ROM addresses.

The trials and tribulations of installing nine LAN cards with Windows for Workgroups



HARDWARE CLINIC

You may have the best of intentions about writing down all this information soon, but what happens once you have your multimedia system up and running? You play with it, of course! And by the time you've finished trying it out, you're worn out and leave the PC for the day.

By the next day, there isn't a prayer that you can remember all the addresses, channels, and levels. So become methodical; make it a habit to write down those addresses.

The LAN board would only support IRQ2 through IRQ7. I didn't want to use any of them, as I like to avoid 2 if I can, and 3 through 7 were busy, so I needed an alternative approach. A quick look at the sound board showed that it could support any IRQ up to IRQ10, so I reset the sound board to IRQ10, leaving IRQ5 free for the LAN board. Problem solved.

Trouble appeared on the next machine as well. After I inserted the LAN board, not only did the LAN board not work, the video screen showed some odd colors upon boot-up.

Clues like this are golden, as most IRQ failures are due to conflicts with other devices and conflicts cause both devices to fail. The video board worked fine before the LAN board was installed, but after the LAN board was installed, neither board worked. Not even a one-pipe problem, Watson!

The video board was a special Windows accelerator board, so I checked its documentation. (Need I deliver my sermon about keeping the documentation around?) The accelerator, as it turned out, employed the I/O address range 300–30F, causing a conflict with the Ethernet card. I reset the I/O address on the Ethernet card, and all was well

with that machine.

The next computer booted up OK, but it had strange flickers on the video screen whenever I tried to use the Ethernet card with the test program supplied with the board. The Ethernet card was also failing its tests, so I looked more closely and realized that I'd never opened this particular computer before.

This computer was equipped with a Super VGA board. Almost all Super VGA boards have an autoswitching feature that they'll optionally support, a feature whereby they automatically detect which video mode the currently running software needs and then switch to that mode.

This feature should be disabled for two reasons. First, it causes OS/2 and Windows NT to fail, as well as a number of other programs. Second, the autoswitching mode requires that the video board use a combination of IRQ2 and IRQ9. which is less than desirable because it steals a much-needed interrupt; in some cases, it causes a system to falsely report memory errors. (If this sounds odd, it isn't. The hardware that detects memory errors-also called parity errors-is hooked to IRQ2.)

This Super VGA card, as you can imagine by now, had the interrupt enabled, allowing for Super VGA. I removed the interrupt jumper from the board—its location varies, and you must consult the documentation for your board before trying to remove the interrupt jumper. The Ethernet board ran without a hitch.

By the way, if you're planning to check your Super VGA board's documentation to find out whether or not the interrupt is enabled, be aware that some manuals refer to the interrupt and some refer to autoswitching. If you can't find one, look for the other. On

some boards, it isn't a jumper, it's a DIP switch.

By now, as I approached the final machine, I was trying to anticipate problems. Like its comrades, the last LAN board refused to work at first. I struggled with this for a while, idly running diagnostic programs on the entire system.

As I've explained before, I reasoned that if I could figure out what didn't work on this system that had worked before, that would give me a clue about what the board was conflicting with. (Of course, there was the possibility that the board just plain didn't work, but my earlier experiences of the day made that seem unlikely.)

Then I noticed that the diagnostic programs failed to recognize that the PC had a mouse. Eureka! I recalled at that moment that this particular machine didn't have a serial mouse. Unlike most of the machines in my office, it had a bus mouse. A bus mouse requires an interrupt-using circuit board of its own, and I was fairly sure that I'd set the interrupt on the bus mouse interface board to IRQ5.

Not wanting to remove the cover from the PC unless necessary, I tried loading the mouse driver and got the error message interrupt jumper missing. I opened up the PC and checked the mouse board, and sure enough, it was using IRQ5. With its interrupt changed, I replaced the mouse board, and the last of the LAN boards fired up, ready to go.

I don't want to discourage you with this story. I just want to underscore the importance of documenting what's installed in your machines and to share a war story with you that may give you an idea or two the next time you're having trouble making a new board behave.

Not only did the LAN board not work, the video screen showed some odd colors upon boot-up.





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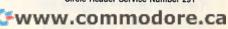
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INTRODOS

Tony Roberts

TIME FOR A SYSTEM TUNEUP

Startup-file phobia is a condition every computer user should try to outgrow. Your system is defined by the CON-FIG.SYS and AUTOEXEC.BAT files, so you can't ignore these files and hope to run a well-tuned operation. The more you learn about your startup files, the better computer user vou'll be.

Most of today's software installation programs are able to modify your startup files to include the necessary instructions for the software to run. but these automatic modifications aren't always the most efficient. Even if you let software modify your startup files, it's a good idea to review the changes carefully and tidy things up when necessary.

Let's look at what's involved: CONFIG.SYS contains instructions that define your system at boot-up. After you turn on your computer, it performs its system and memory check, loads the hidden DOS files and COMMAND.COM to get its basic operating instructions, and turns to CON-FIG.SYS to see how you want things set up.

The instructions in CON-FIG.SYS define how your computer will operate until it's rebooted. Memory allocation and the computer's relationship with various devicesthe screen, scanners, network cards—are defined here.

Once CONFIG.SYS puts everything in place, AUTOEX-EC.BAT takes over. It finetunes DOS the way you like it and runs your regular programs. Unlike the commands issued in CONFIG.SYS, most of the instructions in AUTOEX-EC.BAT can be changed during a computing session without rebooting.

To examine or edit your start-

up files, you need a text editor. The Edit command, which is part of DOS 5.0, will do just fine. To allay any fears that you might do something that will upset the balance of your system, make printouts and/ or backup copies of CON-FIG.SYS and AUTOEXEC.BAT before you begin.

Now, take a look at CON-FIG.SYS and focus on the lines that begin device= or devicehigh. These lines install drivers that control your hardware. Each of these drivers takes up memory that could be used for other purposes, so there's no sense installing drivers you don't need. You might check for drivers that control devices, such as a scanner and fax board, that you're no longer using.

If you're not sure whether you can safely remove a line from CONFIG.SYS, you can insert the keyword Rem, just ahead of the command, as in rem device=c:\dos\cdr.sys.

This is known as commenting out the line. Rem is used to insert remarks or comments in a program. These comments don't execute when the program runs. By commenting out a line, you prevent the line from being executed. If you find that your system won't run properly without that particular line, you can reinstate it quickly by deleting the Rem.

While you're perusing CON-FIG.SYS, make note of the Buffers and Files commands. These commands set aside areas of memory that are used to speed up data transfer and to keep track of open files. Some software installation programs set these to very high levels, probably on the bettersafe-than-sorry theory. Unfortunately, each buffer and file allocated consumes memory that can't be used elsewhere.

Depending on how you use your computer, you may be able to lower the number of | system a tuneup?

files and buffers allocated. My system-which I'd classify as an active one with plenty of Windows multitasking and network activity-allocates 40 files and 40 buffers.

On the AUTOEXEC.BAT side, make sure you have a Prompt statement and a Path statement. A good basic Prompt statement is prompt \$p\$g. This gives you a system prompt that includes the current disk drive and subdirectory. It's possible to get more elaborate with the prompt, but \$p\$g is a good start.

The Path statement tells the system where to look when it's trying to find executable files. Every time a Path statement is executed, the current path is replaced with the new path. If you have two Path statements in your AUTOEXEC.BAT, the second one overwrites the first one, so there's no point in having two. A few software installation routines, in their attempt to modify your Path statement, actually create a second Path statement.

If you were to type xxxyyyzz at the DOS prompt, your system would check every directory listed on the path before returning with the Bad command or filename message. Out-of-date subdirectory references in the path don't hurt anything; they just waste time.

The Path statement can be only 127 characters long, but you can usually keep it to less than that. A bare minimum Path statement includes the root directory, the directory where you keep your DOS programs, and the directory where you keep your batch files. By using batch files to switch to the subdirectory where a program resides, you can skirt the need to have that subdirectory on the path.

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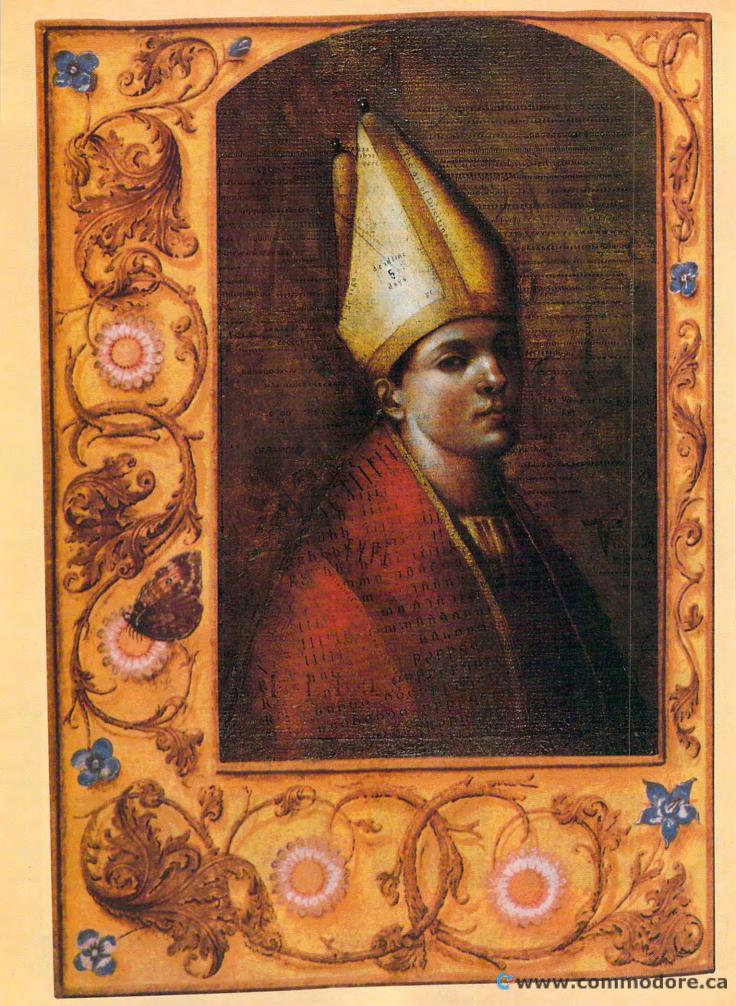


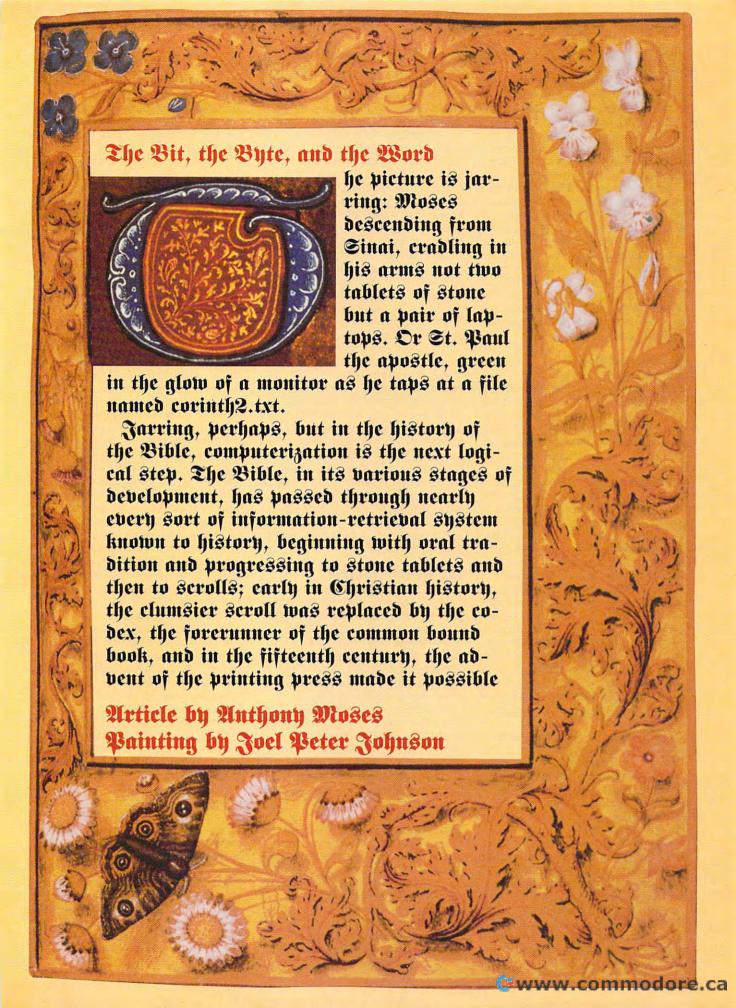






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to buy a bound Bible for something less than the price of a good war horse. It only makes sense that when personal computers became available at (comparatively) reasonable prices. PC versions of the Bible weren't far behind. What some may not understand is the need for them.

The Bible is, frankly, a difficult book. Its sheer size can be daunting: The Protestant canon of the Bible is a small library composed of sixty-six separate works of varying lengths. If printed in normal-size typeface on standard-size pages (rather than the usual cramped double columns on India paper), the books of the Bible would easily fill a shelf. Small wonder that after buying a Bible, your next purchase is usually a concordance (or word index), just so you can find your way around.

The Eternal Quest

But there are problems other than size. Coming as it does out of vanished cultures, originally written in two ancient languages, and most commonly available to readers of English in a translation that is pushing four centuries in age, the Bible can at times be simply incomprehensible. A serious student of the Bible will probably end up investing in at least a Bible dictionary and will probably want to purchase one other translation, as well as a topical index, a Greek-Hebrew lexicon, and any other study aid he or she can afford. There then follows the less-than-edifying game of text juggling-shifting between Bible and study aids while trying to follow the development of a particular Biblical theme, keeping bookmarks (or fingers) lodged between the pages of reference works and using one's free hand to jot down study or sermon notes. Whatever gains you make in spiritual or linguistic insight are pretty much balanced out by a loss of patience.

That's where a PC Bible comes in handy. While it's true that nothing less than a Cray could contain and process all the available information on the Bible, your personal computer can at least handle the most frequently performed Bible-study tasks if you can

get the right software.

Considering the matter ideally, a PC Bible program should be able to do several basic but important things. At the very least, it should be able to perform as a concordance—that is, to list and display occurrences of words in the text of the Bible, preferably through Boolean and wildcard searches and with an option to limit the search area. It should also come with a topical index, which allows you to search the Bible not only by word occurrences but by themes and concepts. These two functions by themselves would greatly reduce much of the investigative drudgery of Bible study, but we can always wish for more. For example, it would also be helpful if the computerized Biblestudy aid could display more than one translation at a time, to compare English renderings of the original languages-and, for that matter, it would be nice to have a peek at the original Hebrew and Greek words themselves, along with their definitions and shades of meaning. And finally, though not an absolute requirement, it would be an advantage to have a Bible dictionary online, to define obscure words and proper names.

Two pieces of commercial Biblestudy software that perform all of these functions are THE WORD Processor 5.0 (from Bible Research Systems) and PC Study Bible 3.0 (from BibleSoft). THE WORD Processor is available in several popular translations, though you'll need to get the King James Version (KJV) or the New International Version (NIV) as your basic translation if you wish to use any of the Strong's-based study aids. THE WORD Processor's Verse Search employs the now-standard pull-down menus to navigate you through the Bible.

THE WORD Processor

THE WORD Processor used to consist of what are now two separate programs: Verse Search and Librarian. However, since THE WORD Processor is the more commonly used name, I will use it to refer to these two packages collectively. Bible Research Systems also provides a number of other tools at additional cost.

You begin using THE WORD Processor by opening a Bible window; from the Search menu you can choose the book, chapter, and verse of the Bible translation you want to display. THE WORD Processor allows you to display multiple Bible windows and to size them for maximum readability or to autosize them side by side. The translations can be synchronized-that is, when you change verse references in one translation window and then switch to another window, the new translation window will jump to the same reference. The Search menu also acts as a concordance; you can either choose the popup box containing particular words in the Bible and view Bible verses containing the word you've chosen-or (even better) switch to the Find screen and enter multiple search values to determine the search range (the whole Bible or particular books). This last method will produce a list of relevant Bible verses and display the texts for you.

In addition to the basic Verse Search package, THE WORD Processor offers several online helps through its StudyAids menu. The most valuable of these for serious Bible students are probably the Greek and Hebrew Transliterators, available at additional cost, which are based on Strong's Concordance of the Bible and will give those who haven't had the chance to learn the Biblical languages a glimpse into the original words underlying the English translations. Through the transliterators, you can call up the Strong's numbers for the words in a particular verse and locate other verses with corresponding word numbers. Or you can switch to the Greek-Hebrew Dictionary screen, which will display the English verse and the Strong's numbers in one box, while an accompanying box will provide a transliteration of the original Greek or Hebrew word and translate its various senses.

THE WORD Processor provides other helpful Bible-study tools through the StudyAids menu. One of these is an online chain reference in the form of a screen that will display your current Bible verse along with a list of related verses, which may themselves be displayed in turn-or you can go to any related verse and make it the basis for a new reference chain.

The Chronological Bible screen is a historical outline of Biblical events and their approximate dates, with an option to view the relevant Bible verses. The Librarian option on the StudyAids menu will give you access to a list of Biblical topics and people, which can generate another verse list and let you read Bible verses dealing with the subject area you've selected; you can also create your own specialized topic lists.

THE WORD Processor also offers the well-known Smith's Bible Dictionary as an online guide to names and words as they're used in the Bible. Once you've done your research, you can access the Lesson Editor, a large pop-up window that is, in essence, an internal word processor allowing you to compose sermon or study notes, copy Bible verses directly into your own text, and then print out the file. (If you prefer working in your own word processor, you can

utilize Verse Typist, a TSR program that lets you into THE WORD Processor so that you can copy pertinent verses from the Bible.) Or if you're the kind of person who prefers writing in the margins of your Bible, you can do the PC equivalent with the Personal Commentary command, which lets you append notes to verses and then marks the noted verse with an asterisk.

THE WORD Processor's many attractive features have made it a solid study Bible for a number of years, but some users may have a few problems with it. Though it does support a mouse for some functions like sizing and switching between windows, scrolling the Bible text, and clicking on command boxes and pulldown menus, interaction with THE WORD Processor is chiefly through the keyboard. While this may delight the mouseless user, others who are used to mousing around a program may wish that THE WORD Processor's mouse support were stronger. Some might also wish that you didn't have to leave the Bible window to perform some of the Search or StudyAid functions; easily confused users (like me) may sometimes find it a little hard to get back to the original text.

Word from Biblical Research Systems has it that a Windows version

is in the works.

PC Study Bible

People who like more mouse support may prefer using PC Study Bible 3.0, which has many of the features of THE WORD Processor (including a number of the more popular translations) but adds an impressive array of Bible-study aids. As with THE WORD Processor, you can open one or several Bible windows in various translations and move or size them as you like. Unlike THE WORD Processor, PC Study Bible doesn't have the option of synchronizing translation windows: however, as you can switch between translations inside a window with only a mouse click, this is not a major problem. PC Study Bible provides a concordance search through single words or phrases or a Boolean search; it then pops up a list of Bible verses and allows you to view them.

PC Study Bible includes the Strong's Greek-Hebrew Dictionary; Vine's Expository Dictionary, a more detailed consideration of the meanings of all the words in Strong's; and Nave's Topical Bible, probably the best known of the topical indexes. Englishman's Concordance, another Strong's-related study aid, indexes English words in the Bible according

to Strong's reference numbers. Another welcome addition is *Nelson's Bible Dictionary*, which functions almost as a miniature Bible encyclopedia, with nicely detailed definitions.

Access to the study aids is somewhat easier than in THE WORD Processor: Just position the pointer beside a verse and then click on the CrossRefs menu, and you're given the choice of accessing the Nave's Topics, Nelson's Dictionary, or Vine's Articles, all of them already keyed into the selected verse. Or, if you want to access any of these independently of the Bible text, you can go to the Open menu and choose any of the above aids, plus the Englishman's Concordance and Strong's Dictionary sections. Selecting the Strong's section from this menu moves you to a screen with a list of the words (and their Strong's numbers) in your selected Bible verse; the KJV version of the passage is also displayed, along with any other translation you have online. From this screen you can find in the Strong's section the definition of any highlighted word, read from the Vine's section an

article about the word (when available), or perform a search through the Englishman's Concordance for the word by its number.

In fact, one of the strengths of PC Study Bible is the interdependence of its study-aid screens. If you're working in the Englishman's Concordance screen or the Vine's screen and want a definition for a Strong's number mentioned in the text, you can highlight the number and instantly call up a definition without leaving the screen. The Nelson's Dictionary screen will let you look up any Bible verses in its articles from within the dictionary itself. The result is that you save a lot of the time and frustration involved in repeatedly opening and closing study aids-and whatever screen you're in. the text of the Bible is always instantly available to you. Bible students with a liberal theological leaning, however, may be annoyed by the slant occasionally evident in the Nelson's Dictionary section, which is pretty clearly leaning toward the conservative end of the theological spectrum.

To ease the process of study or ser-

Product Information

THE WORD Processor Verse Search (with translation)— \$99.95

Additional translation—\$79.95 Hebrew Transliterator—\$99.95 Greek Transliterator—\$99.95

Librarian—\$99.95

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mon preparation, PC Study Bible provides an online notepad for sketching out your exegesis and onto which you can copy Bible verses or any information from any of the study aids. The text file can be printed out from within the program or stored as an ASCII file and then accessed from within your own word processor. However, one (perhaps minor) drawback of PC Study Bible is that it doesn't allow you to footnote individual verses with personal commentary.

QuickVerse

A third popular Bible-study package, QuickVerse 2.0 for Windows (from Parsons Technology), may at first seem to offer less than the other two packages. As with PC Study Bible and THE WORD Processor, Quick-Verse has several translations available and allows you to open as many translation windows as you like; it, too, provides (at additional cost) a topical index (Nave's Topical Bible), an English concordance, and a Hebrew and Greek transliterated Bible based on Strong's Concordance and using the standard Strong's reference numbers. You may be initially disappointed to discover that Quick-Verse contains no Bible dictionary (apart from the scanty definitions in the Nave's section) or internal word processor, as do THE WORD Processor and PC Study Bible. But this disappointment will evaporate when you actually begin to use QuickVerse.

Mouse-addicted users will be happy to note that QuickVerse, though it hasn't actually eliminated the need for a keyboard, has less need for one than the other two programs. In addition to mouse-accessible pull-down menus, it has an icon bar that duplicates many of the menu functions and speeds them up. Even selecting which Bible text to view can be performed by calling up a pop-up list of all the books of the Bible and then clicking on the book, chapter, and verse you want to see.

But QuickVerse's strongest feature, and the one that most sharply distinguishes it from its competitors, is its display of translation and study-aid windows. Like THE WORD Processor and PC Study Bible, QuickVerse allows you to size the windows according to taste and to arrange them as you like—but perhaps the best way to use it is through its tile display. This autosizes the windows displayed and arranges them symmetrically, with translation windows occupying the upper two-thirds of the screen and ancillary windows

(textual notes and the Strong's Dictionary screen) occupying the lower one-third of the screen.

QuickVerse also provides superior synchronization of windows, so that if you switch to a different verse in one of the translation windows, all other windows switch with it instantly. Once this setup is achieved, all of the available information on the verses in question can be simultaneously displayed, without having to leave the Biblical text to read it on another screen. Highlighting a word in the KJV text will correspondingly highlight the Greek or Hebrew equivalent in the Transliterated Bible window, and the Strong's number and definitions of the word instantly appear in the definition window below.

The only time you need to leave the Bible text is when you're performing a search for a new word or phrase. The Search function can scan the Bible using the concordance (which allows wildcard and Boolean searches) or the Nave's Topical Bible section, and the search parameters (through particular books and either or both testaments) can be readily defined.

The QuickVerse menu also allows a search of the Strong's Dictionary screen by either the English equivalent or its Strong's number. But if you want to search for other occurrences of a word in one of the Bible windows without leaving the Bible text, you can use the Quick Search function if you don't mind using the QuickVerse default options. Either method will display a pop-up Search List of verses and allow you to view the verses or copy them to a file or the Windows Clipboard. When you're finished with your QuickVerse session, you have the option of saving the desktop, and when you return to it later, you'll be just where you left off last time.

QuickVerse allows you to create your own footnotes for Bible verses and even to copy information from the Strong's screen into your notes. However, those who regularly prepare sermons may lament the absence of an online notepad (present in the other two packages) that lets you make notes for a Bible study or sermon and copy verses or other studyaid information onto it. QuickVerse has worked around this lack to some degree by allowing you to open a file to which you can copy Bible verses or definitions from the Strong's screen and then access them (in ASCII format) via your own word processor. If your word processor is a Windows application or supports Dynamic Data Exchange, you can use it to import Bible text from QuickVerse. If you're still using a DOS-based word processor, however, you'll have to open it under Windows and take the circuitous route of copying the highlighted verses from QuickVerse to the Windows Clipboard and thence to your word processor. Sometimes, a pen and paper still work best.

Seeking Perfection

The Christian Bible is the most heavily computerized sacred text, but students of the Koran will be pleased to know that it is also available on disk in the form of The Alim from ISL Software.

If the point of a PC Bible is to reduce the more tedious and timeconsuming aspects of Bible study, which of these Bible-study packages does the job best? Well, if you're a Bible student, you already know that answers don't come easily. Each has certain strengths and weaknesses. THE WORD Processor 5.0 is a worthy application offering a number of impressive study aids and fast and easy access to the Bible text, but it may seem a bit cumbersome compared to its fellows. PC Study Bible 3.0 has the advantage of better mouse support and a larger number of study aids that allow extensive cross reference between themselves and the Bible text, though users other than those with a conservative theological viewpoint may find its study aids inappropriate for them. In terms of Bible text and study-aid display, as well as mouse support, QuickVerse 2.0 for Windows is clearly the winner. though there are some users who might well wish for more study aids (such as an online Bible dictionary) and a notepad-or at least better support for DOS-based word processors. But all three packages do the job and do it well.

And that leads to the larger question of whether a PC Bible should be doing what it does so well. Some might object to what they regard as reducing the Bible to a database from which you extract the bits of information you want without regard to a whole literary context; the basic unit of the Bible is not, after all, the verse, but the book. It's a valid enough objection, and one that applies not only to the Bible but to all the other books that (sooner or later) are going to wind up on disk.

The computerized Bible may be a test case that will begin to show us not only how people will be performing Bible study in the near future but perhaps how they will be reading and studying other works as well.



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PRODUCTIVITY CHOICE

This graphics package offers all the features small and home business owners need without the complexity of dedicated professional packages.

William Harrel

GRAPHICS WORKS

Graphics Works from Micrografx is a great introductory integrated package that lets users assess their graphics needs and upgrade to the more full-featured Micrografx applications. Simply put, it's a graphics-creation-and-editing extravaganza.

The package includes five applications, giving you a taste of the power found in full-fledged programs used by professionals. Each application's interface resembles the others, so after you've learned the basics in one, mastering the others is simple. A Run command on the File menu in each application lets you move among the applications with a mouse click. Object linking and embedding (OLE) is also supported, so it's easy to keep drawings and presentations current.

Graphics Works is built around Micrografx's popular, economical Windows Drawa relatively sophisticated vector draw program. Since Windows Draw does not support color separations, trapping, other commercial and prepress options, it won't meet the needs of professional graphic artists. But it's a great application for most small business and home office settings, as everything else you need to create sophisticated vector drawings is included. In fact, Windows Draw is a scaled-down version of Micrografx's popular drawing and illustration package, Designer, which has long been a favorite among professionals. With Windows Draw, you can rotate, skew, fill, and manipulate Type 1 or TrueType fonts in every way imaginable. And Graphics



Works ships with several highquality Bitstream Type 1 typefaces. Dazzling radial and gradient fills make creating impressive backgrounds and 3-D effects child's play.

The other applications in Graphics Works include: PhotoMagic, a bitmap photograph editor; Windows OrgChart, for creating organization charts; WinChart, a charting and graphing program; and SlideShow, the standard slide-show module included with Micrografx's high-end draw and presentation packages, Designer and Charisma. There's also a clip art indexing and viewing utility for managing the 10,000 clip art images that come in the package, as well as a photo index and view utility for the 1000 photographs. However, to access the bulk of the clip art and photographs, you'll need a CD-ROM drive.

PhotoMagic is a remarkably friendly bitmap editor. For example, as you change tools, the application window changes to accommodate you by providing drop-down lists and icons that allow easy adjustments to pen and

brush widths and the other feature-rich tools. Zoom controls, memory information, special effects, and other handy features are a mouse click away. rather than being mired in a complicated menu structure. You'll have to go to the menus only for seldom-used features, such as resizing or rotating images. An annoying aspect of the program, however, is its use of uncommon terms, such as SmartSizing for resampling (reconstructing) bitmaps. And to convert images from one format to another, such as from color to gray scale, you have to go into the Effects dialog box. I couldn't find this feature without calling technical support. Because converting images from one format to another is a common function, it should be easy to find.

Of all the applications in Graphics Works, Windows OrgChart is most impressive. Never has creating organizational charts been so simple, yet still powerful. You can create links between chart boxes and other information—such as salary, phone number, or home address—and access

them by double-clicking on the box. About the only thing I don't like about OrgChart is that you must enter text into boxes and other objects through dialog boxes rather than onscreen, which means you cannot just enter an insertion point on the screen and start typing or editing. This does, however, prevent you from making inadvertent

changes to text.

While statisticians and scientists might need a lot of charting prowess, most people will never need more than WinChart provides. The program offers an array of chart styles and several variations, including overlays for 3-D effects and comparing data. Almost all popular spreadsheets-and even some databases—are supported. Creating charts is as easy as selecting the data to include and clicking on an icon; changing chart types is just as easy. You can create gradient color washes and other exciting backgrounds, and you can do just about everything else supported by full-featured presentation packages. But you cannot embed sound and animation files to play back during onscreen slide shows as you can in most of the top charting and presentation applications.

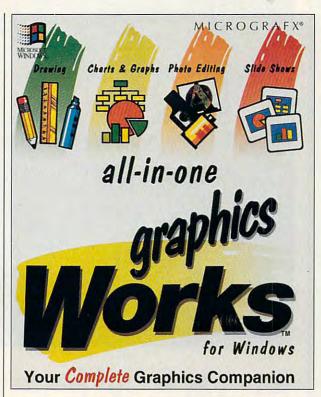
SlideShow. Micrografx's standard screen-show utility, is beginning to look a little long in the tooth. It still contains only a few transition effects and doesn't let you embed multimedia files or jump around from slide to slide. However, it's straightforward and simple. You'll have your first slide show up and running before you know it.

The 10,000 clip art images included on the CD-ROM

disc are some of the best available. (Actually, the clip art and photographs are worth product's purchase price.) You'll probably never have to look any further for a suitable image. The options are nearly limitless. There are well-drawn maps, complete with cities and other geographic information; terrific anatomy shots; and a collection of business scenes and symbols to suit almost every imaginable situation. When your document or presentation calls for a photograph, surely one of the 1000 24-bit images will work. They are expertly scanned, color corrected, and ready to be placed into your work. And if you need gray-scale pictures, PhotoMagic is quite adept at converting

When you buy Graphics Works, you get a great support program, which includes 24-hour service during the week and limited hours on weekends. Not once in my several years as a software reviewer and desktop publisher have I called Micrografx technical support lines without getting immediate, accurate answers to all my questions. The technicians are very well trained and courteous.

Micrografx also offers several upgrade policies. If you already own Windows Draw, you can upgrade to Graphics Works for \$99.95. Once you've had a chance to try out the various apps in Graphics Works, if you'd like to upgrade to a more powerful Micrografx app and the suggested retail price of the Micrografx application you'd like to upgrade to is \$499.95 or \$299.95, you can buy that application for \$199.95 or \$99.95, respectively. Those



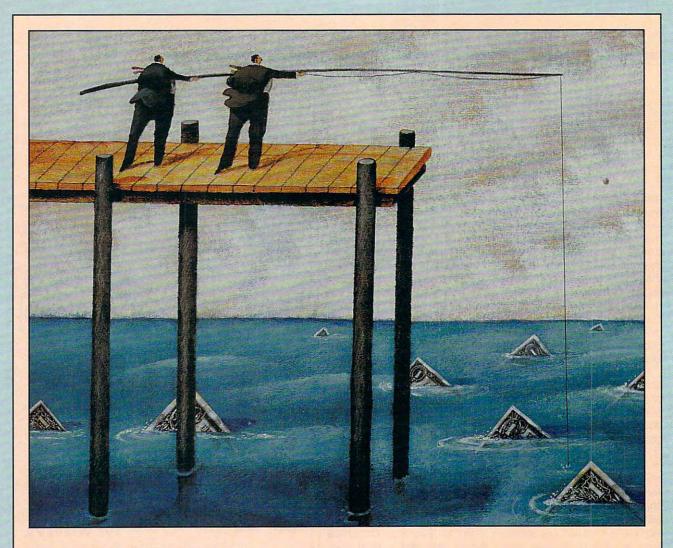
who want one of the more powerful, \$699.95 applications may purchase it for \$299.95.

Again, none of the programs in Graphics Works are full-featured enough to be adequate for professional desktop publishers and graphics designers. But the average small and home-based business can't miss with Graphics Works. In fact, this may be the only graphics package that you'll ever need. Graphics Works is, at \$295, certainly a tremendous value. For the small or home-based business owner who wants quality graphics editing and creation without getting bogged down in the seemingly limitless, complicated features of dedicated professional packages, Graphics Works is certainly a good choice.

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MAKE ME AN OFFER

POWER COMPUTING, THE SECOND TIME AROUND

BY TOM CAMPBELL

t's not unusual for a software company to charge \$150 for an upgrade to a product that lists for \$495. For that \$150, you get a raft of new features, a highly "improved" user interface, extensive online help, and numerous example files. You probably also need to set aside at least 10MB of extra disk space and no doubt expect slower operation while the snazzy new menu-driven page preview feature labors to produce that almost-perfect print preview that practically shows you almost exactly what's going to print, with just a few barely noticeable details not showing quite right.

But after a few months you realize that you need a faster machine, because you get so frustrated waiting for your old computer to labor through the same job it performed in a heart-beat running the previous version. It's time to buy a new machine, or perhaps, in the downsizing nineties,

a better machine will be good enough. Maybe it's time to consider a used computer.

The Time to Buy

Indeed, there has never been a better time to buy used computers or software. The industry is maturing, and demand no longer outstrips supply the way it did in the late seventies and early eighties. If the \$1,500 price tag on a new 386 system with 4MB of RAM, a Super VGA monitor, and a 120MB hard disk doesn't float your boat, then maybe the same configuration in a used machine for less than a grand will.

It's not unusual to find last year's barn burner on sale for as much as one-third off. In 1992 the standard machine was a 386 running at 33 or perhaps 40 MHz. This year, it's a 25- or 33-MHz 486. With the luster now gone from a 33-MHz 386, you're apt to find some great deals. Mac buyers will find particularly good

deals on last year's low end, the LC and original Classic series, because Apple has been extremely aggressive in its pricing structures of late.

Here are some tips to help you buy or sell a used machine:

- If you're selling, don't be surprised at a low consignment price. Face iteven though you paid \$5,000 for your state-ofthe-art 20-MHz 386 system in 1987, you'll be lucky to sell it for \$750 today. Hardware prices drop fast. Really fast. It may be worth more to you than to a prospective buyer. Remember, you can pass it along to your kids or run a BBS or voice-mail answering machine with your used computer.
- Check for a BIOS you know. I recently bought a new motherboard that has a slightly old BIOS by a second-tier chip maker. Surprise! Because of problems with the BIOS, Windows sometimes hangs when it quits. Compag,

Phoenix, and AMI make high-quality BIOS chips.

- · Kick the tires. Turn the machine on as soon as you come in to look it over: then leave it on while you chat. Some problems only crop up when the machine is warm. Run Chkdsk /f a couple of times on each logical volume. Try running Windows or some other program that creates big swap files. Test all the keys on the keyboard to ensure they don't stick. (If the keys don't click, that means you're looking at a membrane keyboard, which has about one-third the life of a clicking keyboard. You might have to factor in the cost of a new keyboard replacement soon.) Ask the owner to open up the box and look for obvious defects, such as melted or broken components. Don't worry about dust.
- If the system comes with a printer, insist on printing at least two full pages of both graphics and text.

Ripped Off!

The dark side of some computer bargains that look too good to be true is that they are too good to be true. The computer might be hotter than its microprocessor. Selling stolen computers is becoming a major racket. Here's an anecdote that shows how savvy the thieves and the police can be when it comes to computer theft.

Recently, I loaned my spare 386 to a friend in Costa Mesa, California. About six months later, her office, along with every other office in the building, was broken into, and every high-tech gizmo of value was stolen. What surprised me most was the sophistication of the burglars. The people who broke in knew enough to take the 386 and my prized NEC Multisync but to leave the seven-year-old XT clone next to it.

The story gets even more interesting, however. While assembling the paperwork for a police report, I discovered to my dismay that the stolen computer never had a serial number! The original invoice listed every component separately, from the power cable to the serial card to the motherboard, but no serial number. When I called the no-name local clone vendor that sold me the machine, the people there confirmed that at the time I purchased it, they didn't serialize the machines they assembled. So I didn't even bother to file the report. My friend's insurance company refused to cover the loss because it wasn't her property. Even if it had been, it would have been covered only for its depreciated value, not its replacement value.

A few months later, the police called my friend to tell her they'd just recovered a large number of computers from the same people who ripped off her office and asked if she'd like to come down to see if the machine was there. When we got there, I sheepishly told the property officer that I hadn't filed a report because there was no serial number. He said that was fine, as long as I could provide a description of the computer and the contents of its hard disk. This makes complete sense to me, but I had no idea the police were getting so hip to the computer world. It was also ideal for me because I wrote most of the software my friend used that machine for, so an intact hard disk would have provided ironclad evidence that the machine was mine.

It turned out that my computer hadn't been recovered, but I learned a few things for next time:

- Copy down the serial number of your machine—if it has one!
- Engrave your driver's license number in a couple of places on the machine, preferably somewhere inside the chassis.
- Take snapshots or shoot some videotape of your home system,

recording serial numbers as you do so. This will be invaluable for identification or insurance purposes.

- Make sure your insurance covers your PC equipment. Check to see whether it covers for replacement value or just depreciated value. If it doesn't cover for replacement, upgrade the coverage. As this article points out, value can drop awfully fast, and you could be left with what amounts to a deductible of thousands of dollars.
- Back up frequently and keep a fairly current backup off-site. The thieves might well take your disks or tapes.
- Find out if your police, like the Costa Mesa police, are familiar enough with computers to accept a description of the hard disk contents for at least a partial identification. If not, suggest that they should reconsider their policy.
- You can also register your loss with the Stolen Computer Registry, P.O. Box 1490, Madison Square Station, New York, New York 10159. Either fax (212-777-1290) or mail in a request for a report form. The registry will list your computer on a national exchange and notify you if your serial number shows up on a computer that is recovered or put up for sale. All you have to do is supply the make, model, and serial number. The service is free. The voice number is (212) 777-1291.

- If the machine has, say, two serial ports and two parallel ports advertised, check each of the ports.
- If the system doesn't come with a monitor and video card, bring your own. It simply isn't good enough to be told the machine works.
- Most older motherboards and serialport cards have tiny jumper switches.
 Make absolutely sure that you have all the documentation for those jumpers, or you might well fry the motherboard the next time you upgrade the video or add a fax card.
- Make sure the accompanying software has transferable licenses. If the seller advertised bundled software, take down the name of each package and call the software publisher to find out about licensing terms. Make sure the owner transfers the licenses to you according to those terms.

Brokers

A whole industry has sprung up around the used-computer market.

(See the sidebar "Used-Computer Brokers" for addresses and telephone numbers.) A broker can help you buy a used computer or sell your old one. Some of them take a commission, some list computers for sale, and some do both. But they're all designed to match buyers with sellers.

To see how one of these companies operates, I called the National Computer Exchange (NACOMEX). Rather than keeping a stock of used machines awaiting sale, NACOMEX maintains a database of companies and individuals with used computers that they're interested in selling. To buy a computer through the service, call NACOMEX and describe the computer you want and the price range you can afford. Your NACOMEX broker will try to locate a seller who is willing to sell the equipment for the price you can pay.

In addition to providing a pipeline for used equipment from sellers to buyers, NACOMEX publishes a newsletter on used computer equipment. The newsletter costs \$99 per year and includes charts showing the supply and demand of various popular systems, a price index, the price of the 100 kinds of computer equipment most active in the exchange (primarily computers and laser printers), significant trades, and volume of sales by segment.

NACOMEX doesn't inspect the equipment it sells, but it gives you 48 hours from the time of receipt to check the equipment and make sure that it's fully operational and that it matches the description given. If it fails to operate or isn't the machine you agreed to buy, you can return the machine within the 48-hour period and get your money back.

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your word processor? Can you afford the 20MB or more of disk space your next Windows word processor will chew up? If the answer to any of these questions is no, read on.

Used software may fill the bill at a fraction of the street price of new, and older versions of software often fill the needs of most users. Even if you answered yes to all of the above, you might still appreciate saving a few bucks on the latest version, which is sometimes available used as well.

Recently, I bought CorelDRAW! 3.0-the current version at press time-for \$160. My source? The classifieds in a local freebie newspaper. The asking price was \$200, but I explained to the seller that you could get a competitive upgrade for about \$180 through Corel directly. He readily agreed, and I saved \$300 off the lowest street price I could find for what is-even at its \$600 retail-one of the best bargains on the graphics market. I had, of course, done my homework; I'd called Corel first and asked if the license was transferable. I was told that all I needed was a letter signed by the previous owner transferring ownership of the product bearing that serial number. (Ditto for Microsoft and a few other companies I checked with.)

It turned out that he hadn't even registered his copy, though, so I got the equivalent of the full retail product at one-third the store's price. More often, though, you'll see ads for slightly outdated software-typically one version back-for very low prices. As long as you can transfer the license, you're probably just as well off with the older version. I must confess, for example, that I've never needed the charting package, equation editor, and line numbering that come with Word for Windows 2.0 and that 1.0's feature set would've been just fine for me. However, I bought 2.0 because it's much faster.

The chief dangers in buying used software are that each company has a different license transfer policy and that many users will try to sell you pirated software or earlier versions from which they upgraded without transferring the licenses to you. In fact, I had found CorelDRAW! 3.0 at an astounding \$95 in another ad, but in that case, the person was only willing to sell me the program disks. He wanted to keep the manuals and CD-ROM (CoreIDRAW! 3.0 comes standard with both CD-ROM and floppies). Worse, he wouldn't transfer the license—a blatant attempt at a ripoff.

Here's your checklist for buying

used software:

• Call the company that manufactures the product and find out whether it's possible to transfer the license and, if so, exactly how to do it. If you don't transfer the license, you're essentially buying pirated software.

 Ask around to see if there are known problems with that version. For example, PC Tools 7.0 isn't much of a bargain because it was, shall we say, released a little too early. But 7.1 is pretty solid. On the other hand, a friend of mine has PC Tools 5.0, and it works great; she doesn't need anything more powerful.

 Call the company and find out how many distribution disks are in each version. Windows products are so huge that a disk could be lost and you might never notice—until the installation program asks for it.

Previously Owned

There's a world of high-powered hardware sitting idle in the storerooms of companies that have recently upgraded equipment, and in the closets of peoplé who tried computing and just didn't like it. None of this equipment can be sold as new, so it's a buyer's market in the used-computer world. Identify your needs, work out a reasonable price, and start looking. If you're like many used-computer hunters, you'll probably find more than you bargained for selling for less than you expected.

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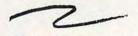
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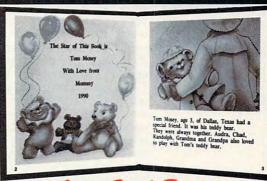
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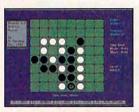
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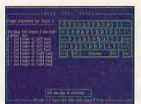
Steve Draper

PRODUCTIVE TOOLS

This month, COMPUTE's Share-Pak brings you three programs to help you become more productive at work and at play. All three of these share-ware programs are commercial quality without the commercial price. Try the programs, and if you like them, register them with the authors. With the shareware concept, you can't go wrong.

Get more out of your computer and yourself with April's SharePak.





Memory Management Kit

Biologic's Memory Management Kit is the complete memory manager for your PC. It provides three useful memory enhancement tools that are not included with DOS. With these programs (HRAM, VRAM, and MIN-MEM), you can get more out of your computer than ever before.

HRAM is a powerful memory management program for PCs that enhances the use of upper memory (between 640K and 1024K). It works in conjunction with DOS 5.0 to create up to 96K of extra conventional memory and up to 224K of upper memory for use by device drivers and TSRs, even on older XTs. In addition, it provides many of the necessary memory management features DOS 5.0 left out, including using the shadow RAM capability of many chip sets to create upper memory, searching the area above 640K and converting the unused regions to upper memory, and optimizing upper memory by automatically determining the order in which your drivers and TSRs should be loaded.

HRAM requires DOS 5.0 or higher. Shadow RAM or expanded memory is required for 8088 and 80286 PCs.

VRAM breaks the 640K memory barrier by creating

up to 32MB of expanded memory by using disk space or extended memory to simulate expanded memory. VRAM gives applications the illusion that they have more memory than actually exists in your computer by storing portions of programs in a temporary file on your hard disk or in extended memory and copying them to conventional memory as needed. Except for an occasional disk read/write, applications will operate just as if an expanded memory board were

VRAM requires extended memory or free disk space equal to the amount of additional expanded memory you wish to create.

MIN-MEM manages your TSRs and frees up memory for large programs by swapping memory-resident programs to your disk, giving you instant access to up to 24 pop-up programs while using only 15K of memory, MIN-MEM loads each of your TSRs and writes a memory image of the TSR to your disk. The memory used by the TSR is then released to the operating system. When you want to run one of your TSRs, just pop up MIN-MEM and highlight the program you want to run from a list of your TSRs and press Enter. A section of your memory is saved to disk, and the selected TSR is loaded in its place. When you exit the TSR, the section of memory that was saved to your disk is restored, and you'll return to your original program.

MIN-MEM requires expanded or extended memory, and disk space. The registration price for the kit is \$45.

Reversi 6.2

Othello is an easy game to learn, but its many intricate strategies make it a difficult and challenging game to master. Now, you have one of the best players in the world to play against. If you're a beginner, the easier skill levels offer good practice to get you started. And if you think you're already a great Othello player, try this program on the master level-it can be a humbling experience. As an example of how good this program is, check out these credentials. In USOA-sanctioned tournaments. Reversi placed first in the 1991 U.S. Open, the 1992 Canadian Championship, and the 1992 Man vs. Machine Open. In addition, Reversi features three skill levels, along with save, restore, time limits, and game transcript and analvsis options.

The registration price is \$35.

Touch Type Tutor

Touch Type Tutor is an all-inone typing teacher. It features
three different modes to cover all your needs in one easyto-use program. The tutorial
mode consists of eight different graduated lessons that automatically adjust to your typing skill level. Whether you've
never tried to touch-type or
you're already proficient, the
program will choose the right
skill level for your needs.

The speed mode is specially designed for measuring typing speeds by using different styles of text in a number of categories. The categories vary from basic text to various technical styles. Practice lines can also be given before the actual test begins.

The game mode, like the tutorial mode, adjusts itself to the user's typing skill and prompts the user to type faster by becoming familiar with the location of the keys. Winning this game requires the player to type consistently faster through the five skill levels.

Touch Type Tutor requires an IBM PC or compatible. The registration price is \$20.

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JAN 92: Hi-Lo Joker Poker, draw poker with a new twist; LINEWARS, an excellent modem space-combat game; ZipZap, view and modify files and disk sectors; FormGen, generate original business forms. (#CDSK0192)

FEB 92: CredCard, financial register for credit cards; EZ-Disklone Plus, make multiple, single-pass disk copies; PC VALET, easy shell for DOS commands; TSRMAKER, make pop-up TSR help and reminder screens. (#CDSK0292)

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MAY 92: Sharks, battle man-eating sharks to get valuables; CD Dot Challenge, the classic game computerized; RDIR, graphical charts of disk space usage; LZEXE, save disk space by compressing EXE files. (#CDSK0592)

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PERSONAL PRODUCTIVITY

Daniel S. Janal

POLICY POLICE

When entrepreneurs start businesses, they might be experts in their fields, but that isn't enough to run a successful business. They need to know how to keep the cash flowing, hire and manage employees, avoid theft, and deal with legal technicalities.

A new breed of software programs can give entrepreneurs the tools to start, run, and expand businesses effectively.

These programs include a comprehensive, instructive printed text that explains the entire situation as well as any textbook could. Written by experts in their fields, these volumes can save business owners and managers a great deal of time and money by providing advice from authorities who have first-hand experience.

The field is booming. No matter what stage your business is in, there is a program to help you solve your problems. Here is a representative list of helpful software that has crossed my desk recently. (For more on software to get a

business going, see "On Your Own" in the February 1993 COMPUTE.) A product like **Business Architect** from Enterprising Solutions (800-831-6610, \$149) can help you plan a business. Once you've gotten your business started, you need to get the word out. Publicity Builder from JIAN (800-346-5426.

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Business

to be up against it.

software can give

hand in all facets

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of business.

\$129) teaches you how to deal with the press and then helps you write better press releases with the help of more than 15 model templates on disk.

As your business grows, you need to hire employees. JI-AN's Employee Manual Maker (\$139.00) provides a complete manual on disk from which you can cut, paste, and tailor your company's individual needs. Policies Write Now by KnowledgePoint (707-762-0333, \$295.00) asks you guestions and helps create a manual based on your answers. Employee Handbook Toolkit from Palo Alto Software (800-229-7526, \$129.95) provides a customizable template and includes the Model Safety Program mandated by the State of California.

If you're about to hire emplovees, Descriptions Write Now from KnowledgePoint (\$149) or Job Sketch from JI-AN (\$99) will help employees understand the scope and limitations of their jobs.

To make sure your employees aren't robbing you blind. use JIAN's Business Guard Dog (\$159). The manual provides insight into so many scams that the author warns employers not to let employees see the book. It might give them ideas.

As decisions get tougher, Expert Choice from Expert Choice (412-682-3844, \$495) provides MBA-level direction and tools for analysis. It also includes lengthy discussions of situations to show you how to approach and apply tools for making decisions.

When the money comes rolling in, you'll need to manage your finances. To make sure you get paid, use JIAN's CashCollector (\$139.00), which tracks past-due accounts and provides collection letters ranging all the way from friendly to threatening. Other programs that provide I those skills in an instant.

professional correspondence and documents are BLOC Publishing's Personal Law Firm (305-445-0903, \$29.95) and Parsons Technology's It's Legal 3.0 (800-223-6925, \$69.00).

To keep track of the money, use Quicken, a check-writing, budgeting, and accounting program from Intuit (415-322-0573, \$29.95). You don't have to study accounting to keep good books.

To handle the legal situations you encounter. It's Legal from Parsons Technology (see above) and AgreeMentor from JIAN (\$99) provide agreements for consulting, confidentiality, equipment lease, employment offer and acceptance letters, and others. It's best to check with an attorney, but these tools can help prepare you and save time in draftina documents.

When it comes time to expand your business, you might consider taking on partners. Partnership Maker from Nolo Press (510-549-1976. \$129) can help prepare a partnership agreement for doing business in any state. The form can be customized to fit your needs and avoid legal fees (but I'd still suggest letting your lawyer review the documents). If you'd like to launch or expand your business by selling stock to private investors, try JIAN's P.P. Memo (\$195, P.P. stands for Private Placement).

For assistance in writing, check out Instant Answers, a specialized style reference (not a style checker) for business writing from Reference Software International (800-872-9933, \$99).

To keep your business running, you could study at one of the 350 colleges that offer classes in entrepreneurial skills, or you could use the software developed by entrepreneurs themselves and learn

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ou purchased a high-end system for its blazing speed, added power and stunning graphics. So why settle for a screen saver that doesn't take full advantage of its capabilities?

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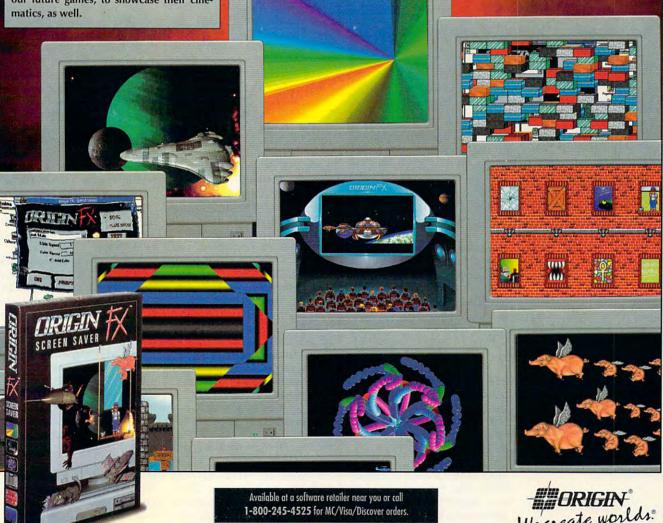
But whether you're a game player or not, you'll enjoy amazing animations, sensational sound**, and innovative images. ORIGIN FX is a great way to showcase your system, amuse yourself during breaks and discover what "state-of-the-art" means in a screen saver.



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Actual screens may vary.

ART WORKS

Robert Bixby

PRESENTATION POWER

Do you think that multimedia is getting too much attention? About four years ago, multimedia began to be hyped in the industry. If you're like me, your response was probably, "Sure, it's great for games, but what kind of serious work can you do with it?"

I have a CD-ROM drive in my PC at home, which I use as a dedicated CorelDRAW! server (I leave my CorelDRAW! CD-ROM in there to save hard

If you don't visit any dungeons or fly any stealth fighters, what relevance does multimedia have for you?



disk space), and I have a nice sound card sitting on a shelf, still in shrink wrap. If you don't visit any dungeons or fly any stealth fighters on your PC, what relevance does multimedia have for you?

It could have plenty of relevance, if you're a salesperson or a teacher. One of the answers is that multimedia can add life to presentations. A presentation is generally either a computerized sales spiel or a lecture.

The list of presentation packages is long and growing. Freelance, Charisma, Power-Point, and Harvard Graphics are dedicated presentation packages, and CorelDRAW! and Micrografx Designer are among a handful of programs that were designed for other

purposes but are capable of mounting presentations.

But last summer at PC Expo. Gold Disk demonstrated something a little different: its presentation program, AddImpact, now available for sale. AddImpact quickly and easily adds sound and animation to the most mundane presentation of data. For example, you might create a graph using data in an Excel spreadsheet. Using AddImpact, you could animate a hot-air balloon ascending to the heights of recent sales while a recording of the song "Up, Up, and Away" plays in the background-all within Excel itself.

AddImpact effectively turns any OLE-capable Windows application into a presentation program. Gold Disk is the creator of COMPUTE Choice Award winner Professional Draw, and it has brought the same kind of intuitiveness and intelligence to this product. You can create your own animation or use one of the animations provided. It has a runtime module, so you don't even have to install AddImpact on a machine to play back its animations and sounds. For more information, contact Gold Disk at P.O. Box 789 Streetsville, Mississauga, Ontario, Canada L5M 2C2.

NISCA recently announced an interesting 400-dpi, 8-bit gray-scale, full-page scanner. It's battery powered (it'll scan 20 pages on a charge, or you can use the AC adapter) and requires no expansion bus card (it feeds its graphic information to the computer via the parallel port), so it's the perfect scanner to use with a laptop. Measuring 2½ × 2¾ × 12 inches and weighing three pounds, it'll fit in your briefcase alongside your computer, portable printer, and pocket fax modem.

NISCAN Page is shipped with OCR, fax, and image-ed-

iting software, and it costs \$799. It can operate as a sheet-fed scanner, or if you have something that can't fit through the sheet feeder, you can take the bottom plate off the scanner, and it will "crawl" across a page. NISCA will also offer a sheet feeder that will allow you to feed a batch of up to five pages through the scanner (for long faxes). The scanner should be available by the time you read this. Contact NISCA, 1919 Old Denton Road, Suite 104, Carrollton, Texas 75006.

Do you ever draw flow charts? Have you ever tried making all the pieces fit, complete with connecting lines, using a conventional graphic package? Sheer madness. Visio, the new drawing package from Shapeware (not shareware), is specially designed to assist in the creation of flow charts. Who uses flow charts? Network administrators, project and program managers, engineers, MIS professionals, facilities planners, plant managers, human resources specialists, marketers, trainers, and writers, to name a few.

Visio's drawing tools are generalized enough to allow the program to be used for most drawing tasks by any graphic artist, yet it has special features that are of particular use in creating flow charts and maps. It includes libraries of standard boxes and symbols that you simply drag and drop on the drawing area. It has a collection of arrows (which can contain text) and intelligent connecting lines that maintain their connections as you move the elements around on the page to allow for new elements in the process you are illustrating. If you would like more information, contact Shapeware, 1601 Fifth Avenue, Suite 800, Seattle, Washington 98101.

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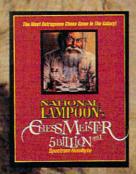
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Not an actual VGA screen shot. You wish.



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to Grim Reaper rooks. They'll dispatch and dismember each other in ways even your demented mind has never thought of. But should you like your chess unadulterated, we've got that too. In spite of all these shenanigans it plays a darn good game of chess. Will it beat the competition? Hey, it ain't called ChessMeister 5 Billion and 1 for nothing!

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* HEY, IT WORKED ONCE! This photo was a Lampoon cover in 1973. We're happy to report the dog died of natural causes.

DISCOVERY CHOICE

Kids have so much fun in this adventure that they don't realize they're learning complex concepts years ahead of schedule.

David Sears

THE ISLAND OF DR. BRAIN

When kids work for Dr. Brain, they can't help but learn. The Island of Dr. Brain is a puzzlepacked adventure that will have them solving problems from the major schools of knowledge: science, art, language, and math. Even music and literature are entwined in this fun game of mysteries.

One of the first puzzles involves polyominoes. Like most other island teasers. this obstacle is far less intimidating than it sounds. A brief consultation with the everhandy EncycloAlmanacTionaryOgraphy (a weighty name for the included multipurpose tome) reveals that the challenge of the polyominoes is, essentially, to fit them together to form different shapes. Don't think your 12-year-old wants to read the explanation? Don't worry; the game is highly intuitive, making trips to the manual infrequent and unintimidating. Even if kids rarely approach it, they'll get Dr. Brain's tidbits, whether they're geometric, electronic, linguistic, or artistic. Kids will soon discover that the world makes sense from a number of different perspectives.

Players learn through a series of interactive brain teasers. Even the copy protection offers a chance for a new discovery: cartography. Designers of lessons-on-the-go adventures obviously know that the best way to teach actively involves students in problem solving, whatever the discipline. The best of these lessons also impart plenty of interesting data while sharpening problem-solving skills.



Making fine use of Sierra's now-standard point-and-click interface, The Island of Dr. Brain puts kids immediately in the thick of things-most kids won't even need the instruction manual to get started. By the time they reach more difficult entanglements, they'll understand the menu options.

At one point, kids encounter magic squares, those fiendish little number grids whose rows, columns, and diagonals add up to the same number. While players might readily place the appropriate digits in the blanks, thereby completing the square, they can also consult the EncycloAlmanac-TionaryOgraphy for helpful hints on how to build their own squares and for a taste of magic square history.

Should they use the manual, even the youngest players will wrest principles from what they read, a process not in the least passive. Besides finding jazzy dateline tidbitsthe first magic square surfaced in 2200 B.C.-kids will discover the Fibonacci sequence and more number-series insider knowledge. Who

expects such a holistic tutorial in the midst of a magic squares discussion?

Or how about the article concerning the Tower of Hanoi, that devilish disks-andtowers puzzle? The version in The Island of Dr. Brain involves only four disks and relatively few moves, but the supplied Brahmanic wisdom equates a more complex version of the puzzle with the nature of the universe. Anyone who reads that a 64-disk puzzle requires as many as 18,446,744,073,710,000,000 moves to complete (requiring a time investment about 30 times greater than the age of the universe) will earn a healthy respect for numbers.

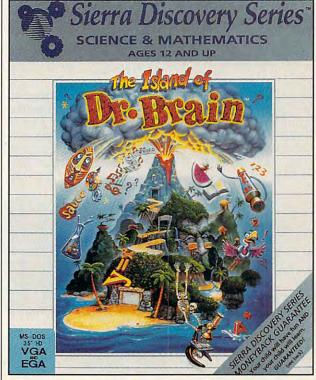
Of course, the game has challenges that encompass more than mathematical gambits. Word puzzles take the form of cryptography; you add and delete spaces between letters or swap words to render garbled text into familiar quotations. And there are particularly dense word finds. When's the last time you sought out noch einmal among a dizzying grid of letters? Players might find themselves searching for not only German vocabulary words but French and Spanish ones besides. Other language challenges involve antonyms, synonyms, and homonyms; kids choose from word lists to fill in the blanks in Shakespeare's sonnets or a piece from Steinbeck, for example.

The art gallery in The Island of Dr. Brain lets kids view representative works from van Gogh, O'Keeffe, Kandinsky, Pollock, Picasso, and Dali. Players try to match paintings with the animated busts of the artists and hear brief biographies on each master. Correct matches win praise from the artists. Dali commends the successful student with "You, like me, have the mind of a paranoiac-critical genius! I say this in all sincerity." Kids might not know what he means, but it seems funny at least. Moreover, this brief exposure to great art could put ideas of museum visits in many young minds. And students fortunate enough to get a field trip to an art museum will be more comfortable and open to learning, having "met" many of the great artists already.

Physical science challenges abound on Dr. Brain's island. To gain access to the island's control room, kids must provide a counterweight for a troublesome elevator by mixing water, mercury, and alcohol together for the necessary poundage. In order to do this, they'll need to familiarize themselves with standard measures and the specific weight of a cup of each liquid. The process seems confusing at first, and it may be an opportune moment to utilize the online hint watch. Depending on the nature of the problem at hand and the number of available hints, the hint watch can provide clues or complete solutions to facets of the puzzle. However, players earn extra hints by solving puzzles without assistance.

Once the counterweight is in place, kids find themselves toe to toe with torque. Gears, teeth, and math-they're all much easier to comprehend when Dr. Brain is the teacher. Kids just follow the simple equations in the manual and choose the appropriate gears. Completely unaware that they're doing so, they learn rudimentary algebra and physics-years ahead of schedule. Later in the game, they'll design and test their own computer chips, complete with logic gates, and they'll even program a robot to round up essential electronic components.

The Island of Dr. Brain invites interaction. Even the mouse-shy will soon click on every piece of vivid scenery; most of it moves, if only to grin or roll its eyes. With any major sound board, the soundtrack will delight most knowledge seekers; the more expensive sound cards promise stereo sound for the most discriminating. Players may chart their progress on the Achievement Board, a full-screen bulletin board for hanging plaques-bronze, silver, or gold, depending on the gameplay difficulty setting. More competitive players might value their scores more highly than their overall success; these kids can solve puzzles up to four times to work toward a maximum score of 1000 points and a supersecret message from Dr. Brain himself. These entertaining and colorful



mind expanders play well enough without any additional goals, however, and no puzzle plays the same way twice. All this adds up to an exceedingly replayable game.

An almost-perfect initial exposure to the world of science, art, language, and, in a lesser way, literature and music, The Island of Dr. Brain teaches kids the importance of cross-disciplinary study. After spending halcyon days with Dr. Brain, kids will begin to look for solutions to everyday mysteries rather than passively accepting them as a part of life. Perhaps a lucky few will go on to find the connections between these mysteries for themselves-and lead lives of wonderful contemplation as systems analysts, CIA agents, or maybe even game designers.

Circle Reader Service Number 392

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PATHWAYS

Steven Anzovin

THE CUTTING EDGE

If you took high-school biology, you probably remember pithing a frog and seeing for vourself the number of chambers in the heart of a fetal pig. Hundreds of thousands of frogs and pigs are still dissected by students in public schools every year. The animals cost millions of dollars. According to Beyond Dissection, a handbook published by the New England Anti-Vivisection Society (333 Washington Street, Suite 850, Boston, Massachusetts 02108; 617-523-

Operation Frog simulates an American bullfrog for dissection by iunior-high biology classes.



6020), three years of preserved bullfrogs for three biology classes can cost as much as \$1,069.

PCs can provide a cheaper, cleaner, and more pleasant alternative to dissection. Clever computer software is being used in more and more biology classrooms to simulate the experience of vivisecting or dissecting laboratory animals. Using a color-capable computer and a mouse (the computer kind, that is), students can uncover layer by layer the anatomies of earthworms, bullfrogs, and even human beings without having to kill and cut a real animalan experience that turns many students away from further study in biology. Dissection programs also provide detailed information on each anatomical feature, and many include animations, quizzes, games, or other learning aids.

To take one example, a program called Operation Frog (Scholastic Software, P.O. Box 7502, 2931 East McCarty Street, Jefferson City, Missouri 65102; 800-541-5513) simulates an American bullfrog for junior-high biology classes. It offers step-by-step dissection of a simplified frog-just one set of muscles and no bonesbut plenty of interesting related activities, including animations and digitized photos. The program costs \$79.95 for the Apple II version and \$89.95 for the DOS version and can be used over and over again. Operation Frog allows students to go at their own pace, rather than having to keep pace with the class. And after students have taken the frog apart, they can put it back together, something that the best biology teacher in the world can't do with a real frog.

There are some other advantages, too. Using simulations instead of real animals reduces exposure to nasty chemicals like formaldehyde. Maybe best of all, students can't cut each other with software scalpels (the way a couple of kids did with real knives in my high school during an argument over who

would get to cut the pig first).

No one claims that computer simulations duplicate the details of living organisms or that they can give students a feel for the inside of a body. Serious students of biology and medicine still must work with real specimens. But do the millions of schoolchildren who perform vivisections and dissections every year need the real thing? Students retain as much or more knowledge from slide shows and even boring biology lectures as they do from dissection. So dissection simulation may be one of the few cases where a computer experience is better than life.

As yet, there's no software that simulates the anatomy of the rats, rabbits, cats, or fetal pigs used for dissection, but vou can definitely get into frogs, worms, and people.

Frog Dissection (Cross Educational Software, 504 East Kentucky Avenue, Ruston, Louisiana 71270; 318-255-8921: \$29.95) is another inexpensive bullfrog anatomy tutorial with color graphics, stepby-step dissection, definitions of structures, and many review questions. Meanwhile, the anatomy, digestion, reproduction, and sensory apparatus of the lowly earthworm can be investigated with The Worm, a simulation from Ventura Educational Systems (910 Ramona Avenue, Suite E, Grover City, California 93433; 800-336-1022; \$59.95). Bodyworks: An Adventure in Anatomy, from Software Marketing (9830 South 51st Street, Building A131, Phoenix, Arizona 85044; 800-545-6626; \$79.95) shows the human body in colorful detail, with accurate graphics and online text articles about each body part.

For more information. contact the National Association of Biology Teachers, 11250 Roger Bacon Drive, Suite 19, Reston, Virginia 22090; (703) 471-1134.

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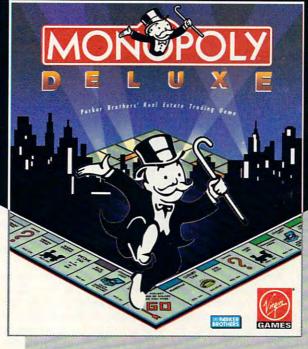
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MULTIMEDIA PC

David English

YOUR OWN VIDEO **PRODUCTION**

If the recent Fall COMDEX is any indication, softwarebased video is coming to Windows in a big way. Microsoft Video for Windows (Microsoft, One Microsoft Way, Redmond, Washington 98052; 800-426-9400; \$199) was running on computers throughout the show. (It was even running on new computers using the Pentium—that's Intel's official anyone with a 386 or 486 can workwithvideo. SuperMac's VideoSpigot is currently the top video card for the Mac. The company is releasing a PC version of the card, called VideoSpigot for Windows (SuperMac, 485 Potero Avenue, Sunnyvale, California: 408-245-2202; \$499). It will include SuperMac's own Video for Windows compression driver, called CompactVideo, which lets you expand the size of Video for Windows' onscreen video (from 160 x 120 pixels to 320 × 240 pixels) or double the frame rate (from 15 frames per second to 30 frames per sec-

> ond). Finally, Brown-Wagh showed its Studio Magic card (Brown-Wagh Publishing, 160 Knowles Drive. Los Gatos, California 95030: 408-378-3838: \$499.95). It not only brings fullmotion video into your computer but also sends that vid-

eo back out again.

I'm still waiting to get my hands on the Pro MovieSpectrum and VideoSpigot cards (I plan to cover them in more detail in upcoming columns), but I did receive a preproduction version of the Studio Magic card. Like the Video Blaster, it lets you capture full-motion video and save it to your hard drive with Video for Windows, capture individual video frames, and add audio to video. But unlike the Video Blaster, the Studio Magic card lets you display your computer output on a standard television, record your computer and video output to videotape, use your Windows fonts for titling, perform high-end special effects (includingcolorization, solarization, posterization, and metalization),

transitions and wipes. In other words, you get not only a Video for Windows capture board but a capable video production system that you can use with your VCR or camcorder-all for iust \$499.95.

Too good to be true? If you want professional-quality special effects and animation, you should consider either a Video Toaster (\$4,595-\$10,000) or a Matrox Studio (\$15,000-\$25,000). But if you can't afford a Mercedes and would be happy with a Buick for the price of a Yugo, this may be the card for you. It costs about the same as the other video capture cards but gives you the video production features of a second card for free.

Most of us are new to the concept of a personal video studio. Fortunately, Studio Magic's main Windows interface resembles a familiar remote control with various video and audio options. The postproduction screen looks like a miniature television studio with six monitorlike windows, a preview window, a final-output window, visual-effects selectors, and wipe controls.

You can simultaneously access video from two sources, either S-video or composite. The card can also output to either S-video or composite. That means you can easily combine clips from different videos, add your special effects, and send the results to a standard TV or VCR.

Finally, the Studio Magic package provides an excellent assortment of commercial applications, including PC Animate Plus, 3D Workshop, and Curtain Call. If you're looking for a Video for Windows video capture board and you're interested in bringing your computer videos back to a TV or VCR, check out Studio Magic. It's the closest you'll probably ever come to having our own vidand program a variety of video eo production studio.

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With a Studio Magic card, you can capture full-motion video, apply special effects, and send the results to a TV or VCR.

> name for its next-generation 80586 processor.) Apple showed its QuickTime for Windows, a competing technology that Apple argues is even better than Video for Windows. Pioneer announced a CD-ROM that can move data at four times the normal speed (600K rather than 150K per second), making it ideal for reading fullmotion video files that usually run tens of megabytes in size.

In addition, several companies displayed video capture cards that are compatible with Video for Windows and will compete directly with Creative Labs' Video Blaster. Media Vision's Pro MovieSpectrum (Media Vision, 3185 Laurelview Court, Fremont, California; 800-845-5870; \$399) doesn't require that your VGA card have a feature connector, so almost

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ENTERTAINMENT CHOICE

Traverse the damp, dreary streets of London as you solve mysteries in this captivating adventure.

Anthony Moses

THE LOST FILES OF SHERLOCK HOLMES

First, the music: tingling, brooding. Then a slow fade-in: a foggy twilight in London, November 1888. A cab trundles down the rain-spattered street; firelight dances behind warmly lit windows; Big Ben looms dim in the distance. The scene shifts: We're in an alley outside a theater, where a cat, prowling along a crate, knocks off a bottle, which shatters. The murderer, cloaked, crosses the screen and hides behind a crate, his face flickering briefly as he lights a cigarette. Soon, the victim, lovely young actress Sarah Carroway, appears at the stage door, stopping to look in her handbag. The murderer leaps from his hiding place. Sarah sees him, far too latethere's a dramatic closeup of the screaming girl and then a discreet dissolve to a bobby strolling along Baker Street. The bobby has a message from Inspector Lestrade, requesting the assistance of Mr. Sherlock Holmes, consulting detective.

It's not a movie. It's the animated title sequence for Electronic Arts' adventure game, The Lost Files of Sherlock Holmes, and it clearly announces that what follows is no standard mystery game but a tour-de-force excursion into full-fledged Holmesiana.

In The Lost Files, you, as Sherlock Holmes, scour various locations for clues and pump witnesses for information. Each time you leave a scene, you're shown a scrollable map of Victorian London with location icons indicating



where you can travel. The more clues you find, the more icons appear on the map, and the more labyrinthine the game becomes. Soon, what first seemed to be a simple Ripper copycat murder is not quite so simple anymore.

Fortunately, interacting with the game is so simple that, after the first runthrough, you probably won't need to check the manual again. About the only time you use your keyboard is to save a game; otherwise, you'll need only your mouse or joystick (the cursor pad on your keyboard, though slower, may also be used).

The bottom third of each location screen is the menu, containing game commands such as Look, Move, Talk, and Pick Up. The menu further allows you to check the inventory of items you've gathered and to browse the journal in which Dr. Watson records your conversations with the characters you meet. The top two-thirds of the screen—well, that's where the fun is.

To appreciate a game of this sort, you must understand what constitutes Holmesian fun. Many adventure games are so preoccupied with problem solving that they leave little room for explor-

ing the world that the adventure takes place in. But people don't read Sherlock Holmes stories just to find out who did it. What we want from these stories is the specifically Holmesian universe: that gilt, gaslit world of hansoms, foggy lamplight, and distant train whistles. Solving the mystery is simply an excuse to play in a world that, after only a century, seems almost as remote to us as the Middle Ages. Luckily, the creators of The Lost Files understand this need: While they do provide problems to solve, they seem just as concerned with re-creating Holmes's world in admirable depth.

For example, moving the pointer around Holmes's headquarters, 221B, lets you examine many of the familiar props in the world's most famous address. The Stradivarius, the initials VR pockmarked into the wall by Holmes's revolver, the gazogene, the lab table (which is not just for show), Watson's unframed portrait of Henry Ward Beecher-all are there, accompanied by detailed, sometimes wry descriptions of even the extraneous objects. The bearskin rug at the hearth in 221B plays no part in the mystery, but if you

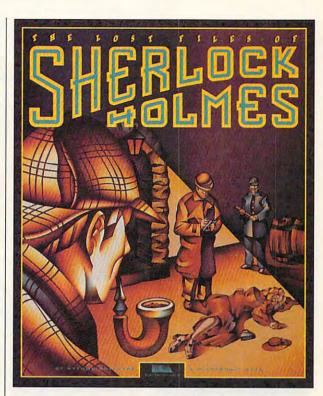
use the Look command on it, you are told that the rug was "supplied unwillingly by an enormous European brown bear. Its close proximity to an almost constantly burning coal fire has rendered its once-lustrous coat a bit dingy and fire-scarred." Examining the props in other locations will elicit similarly detailed descriptions. And while some of these "useless" details help conceal the clues, they also help develop the feel of being in the London of the 1880s.

This illusion is maintained in the conversations with other characters. The Talk command displays an animated, closeup portrait of each speaker and calls up a dialog box which offers you several conversational gambits. Some characters answer willingly; others need to be threatened. There's even a publican who says he'll talk only if you beat him at darts first (the darts episode alone is a self-contained game). But whomever you speak to, the reply will be couched in a Victorian patois suitable to the character's personality and class.

The descriptions of objects in the game also maintain the Victorian tone. The Look function is properly reluctant to talk about what goes on behind the screen in Sarah's dressing room (that's where the chamber pot is), and even newfangled art styles get ribbed. It isn't often that a reviewer gets to address prose style in computer games, but the creators of The Lost Files should get credit for trying to make the game sound as if it were created sometime in the last century. In fact, the Mythos Software team deserves applause for having done its Holmesian homework. The setting of the game, November 1888, is exactly when, according to William Baring-Gould, Holmes was actually involved in the Ripper investigations.

The game is filled with characters and locations familiar to Holmes fans. You can meet and interact with Inspectors Gregson and Lestrade. Old Sherman and Toby, and Wiggins, the leader of the Baker Street Irregulars. You can hang around 221B or visit Scotland Yard, Covent Garden, or Bradley's Tobacco Shop, among many other places. There are also inside jokes for Holmes enthusiasts. One character remarks that Holmes looks just like his portrait in Beeton's Annual, where Holmes's first adventure, A Study in Scarlet, was published in 1887. Another character, questioned about someone named James, replies that for all he knows, "your friend there with the der-[Watson] is named James," a tongue-in-cheek reference to the ongoing Holmesian debate over whether Watson's given name is John or James. Such details won't help solve the mystery, but they make the investigation a lot more interesting, and they indicate that the game was designed by people who care about the Holmes mythos.

Be forewarned: The Lost Files is not for the impatient. The game requires careful observation and thought to catch the necessary clues and not become repeatedly stalled. And the farther you get in the game, the more difficult this becomes (Electronic Arts provides a 24-hour hint hot line for those with touch-tone phones and no patience). Also, be warned that



if you enable all options at installation, The Lost Files will swallow nearly 29MB of your hard drive, more space than some would want to devote to a game (you can install it at only 15MB, but it will run more slowly). The period-style music and sound effects are effectively atmospheric, but these will be available only if you have a sound board—there's no support for the internal PC speaker.

The manual is worth reading further for its essays on the Ripper murders and the appeal of Holmes. It also includes a hint that this may not be the last lost file we get to peek into. I certainly hope it isn't. The Lost Files of Sherlock Holmes is the sort of literate, engaging game that we could use a lot more of.

Circle Reader Service Number 393

IBM PC or compatible, 571K RAM, DOS 5.0, VGA, hard drive with 15MB free; mouse and Ad Lib, Roland, or Sound Blaster recommended— \$59.95

Electronic Arts P.O. Box 7578 San Mateo, CA 04403-7578 (800) 245-4525

GAMEPLAY

Paul C. Schuytema

CINEMAGICIANS

Disney and LucasArts have delighted us for years with their theatrical voyages into fantastic worlds. From Snow White to Star Wars, Raiders of the Lost Ark, and Beauty and the Beast, we have traveled far into the realm of fantasy. Now, both companies have turned their attention to the small screen. Not TV, but the theater screens sitting on our desks.

Our computers let us investigate the ways movie magic was made—and create some magic for ourselves.





to travel the globe searching for the sunken utopia of Atlantis. When you're finished with the adventure, it's hard to tell whether you've just finished watching a 70-mm film or playing a computer game. It's all in the story.

Arguably one of the most famous movie series of all time is the Star Wars saga, and LucasArts is bringing us into another facet of that universe. X-Wing is LucasArts' space combat simulator that throws you behind the pressurized glass of an X-Wing fighter with Red Leader at your wing and an R2 unit at your back. You fly and live the struggles of a rebel pilot, blasting the annoying whine of those TIE fighters out of space and time with the satisfying movie magic of flaming explosions.

LucasArts has done a great job of bringing the theatrical feel of Star Wars space combat to the game. The X-Wing fires plasma bursts from the lasers with that reassuring squish sound and banks into a tight turn when chasing a TIE fighter bearing down on your wingman. I'll concede that it defies the laws of physics: you don't bank into a turn in no atmosphere and zero-g, but this is a fictional universe, and the X-Wing feels as if it should bank.

No one questions that Walt Disney Studios is the master of animation. From Steamboat Willie to Aladdin, Disney's animation is breathtaking, to say the least. Disney Software has created a product that lets us explore this fascinating world of cel animation: The Animation Studio. The Animation Studio gives us the chance to pencil in animations and to study classic Disney cels and the techniques of squash. stretch, and anticipation. You can follow the movement through onionskins (virtual paper that lets you see several

cels at once), paint the animation, add sound effects, and even create your own complex backgrounds.

Disney also makes great family adventure films (remember Herbie, the Love Bug?). which have culminated in the wild rides of The Rocketeer (Disney also publishes a computer game based on The Rocketeer). One of the things that makes The Rocketeer so pulse-pounding is the special effects, most notably the aerial stunts. For anyone who ever wondered how they create stunts like that, Disney has created the ultimate toy: Stunt Island.

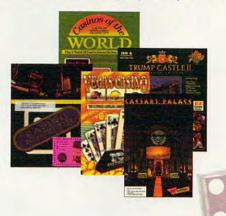
Stunt Island is a program that is set on an island off the coast of California which is used exclusively for movie magic. The program is a combination flight simulator and complete stunt-based movie studio. You can fly any one of 45 different aircraft, each with its own capabilities, from the SR-71A Blackbird to a Curtis June-Bug (a WWI ultralight).

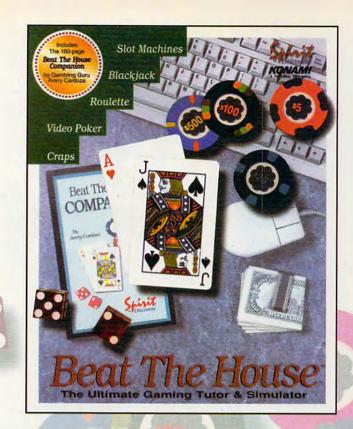
Stunt Island comes with 32 prebuilt crazy stunts (have you ever tried to land a parachutist on top of a hot-air balloon?), which you can explore or fly as part of a Stuntman-of-the-Year competition. You can also design and film your own stunts from scratch, creating sets from a library of over 800 3-D objects that you can animate. When finished filming, you climb behind an editor's console to transform your raw footage into a complete film (up to 20 minutes long) replete with music and sound effects.

Computer entertainment is growing by leaps and bounds, and now we can use our computers to explore the worlds we've enjoyed on the big screen. We can also use our computers to investigate the ways in which this movie magic was made and create a little bit of it for ourselves.

The Indiana Jones story ended its sojourn on celluloid with Indiana Jones and the Last Crusade, but LucasArts has brought the fourth Indy adventure to life in an interactive adventure called Indiana Jones and the Fate of Atlantis. The adventure is wildly visual, utilizing LucasArts' own SCUMM story system to create a rich, interwoven plot that may be played through three paths. You can work with the beautiful psychic Sophia Hapwood or utilize Indy's own wits or his fists (and his whip, of course)

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