

DATA BRIEFS...

○ **Computers in the home continue to increase.** Consumers are still buying home computers at an impressive rate, according to surveys and studies conducted by Future Computing, Inc. Currently, 10% of U.S. households own at least one home computer. Over half of the 8.2 million households surveyed had purchased computers in 1983. 10% of respondents said they would buy another home computer within the next year. Most owners had "home-only" machines in which they had invested approximately \$550 for hardware. Hardware investment by owners who had **machines for both home and business** (about 18%) averaged \$1,650.

By the end of the decade, another Future Computing study projects, about 40% of U.S. households will have a home-oriented, under \$1,500 computer. Growth is forecast to average 19% a year (in dollars), with the number of cartridge-based computers declining steeply in favor of floppy disk systems.

○ **Who will buy business PCs?**

The number of personal computers used in U.S. business will rise from 3.4 million in 1983 to 15 million in 1987. So predicts a marketing study by a Control Data subsidiary. Biggest increase will take place in California (10.7%) and New York (10.6%). Growth by industry will be greatest for health services (7%). By comparison, insurance and banking use will grow by 4.1% and 3.0% respectively. The six occupational groups accounting for over 50% of PC purchases are engineering (16.0%), corporate executives and management consultants (12.9%), small business managers (10.7%), health care professionals, programmers and analysts (3.3%). To obtain the study, *Trends in the Business PC Market 1983-1987*, write **Brian Buxton, TRINET, INC., 888 7th Ave., 24th Fl., New York, NY 10019.**

○ **"Go FORTH** and write yet more" could be the motto of the new Author Recognition Program of the FORTH Interest Group (FIG). It offers free FIG membership to the author of any

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Fine Tuning Your Word Processor

Few situations are so frustrating as not being able to get all features of a good dot matrix printer to work — because of the limitations of your word processing program. Software designed to do little more than use standard "default" printing modes poses a real challenge when the printout you require varies from the strictest norm. The problem of incomplete exploitation of printer capabilities is common to all word processors, but the degree varies. Even in the worst cases, it is possible to finesse your way to some extent around the program's constraints.

The ways in which this problem manifests itself and in which it can be alleviated are discussed in this article — in terms of three widely used word pro-

cessing packages — *Bank Street Writer, Word Star* and *Letter Perfect* — and their application on the versatile and widely used *Epson FX80* dot matrix printer.

Bank Street Writer — basic flexibility

The most limited word processing software can only use the standard default mode of the Epson FX80 (and many other printers). This means single-strike pica (10 cpi). Consequently, you do not have effective control over the printer's other features. As highly regarded and popular as the Bank Street Writer package is, it falls within the category of software with limited printer control capability. It does not offer italics, underlining,

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Drive Your RAM

Sooner or later you will find yourself staring at your computer's display, waiting for the red light on your disk drive to turn off. That's the signal that it's time to consider upgrading your system with a RAMdisk — unless, of course, you don't mind waiting for programs and files to be accessed from the disk drive. But if you make heavy use of a program that overlays code as it is needed, or customarily conducts sorts or searches through a large database, you should think about upgrading.

A RAMdisk (also called e-disk, c-drive, pseudo-drive, virtual drive, and hyperdrive) is a portion of random access memory that emulates a disk

drive through the use of software. The software sets aside a portion of your computer's RAM (usually high RAM) and has the operating system operate on it as if it were a device. As far as the computer is concerned, the reserved area is a disk drive and the amount of free RAM is that much less.

Although it is possible to write your own RAMdisk software (see *NIBBLE Magazine, September 1984*), it is a difficult and redundant task since the software is usually thrown in free with the purchase of a memory expansion board. In fact, other programs are also occasionally offered with the board.

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Fine Tuning Your Word Processor (continued)

sub- and superscripts, alternate character sizes, double-strike, or emphasized print.

Getting around these limitations is feasible, to a certain extent. Short programs (they could be written in Basic) can be run ahead of the word processing software in order to "set up" the printer. For example, an entire text could be printed as "double-strike elite" by executing the following one-line program *before* Bank Street Writer sends text to the printer: LPRINT CHR\$(27); "G"; CHR\$(27); "M"

ASCII code 27 (ESCAPE) followed by a capital G tells the printer to print

PRINTER/SOFTWARE FACTS

Like many state-of-the-art dot matrix printers, the Epson FX80 offers a great variety of printing options. They include pica (10 characters per inch), elite (12 cpi), and condensed (16 cpi) typefaces; "expanded" characters (5, 6 and 8 cpi); draft and emphasized type; double-strike; italics; underlining; sub- and superscripts; user-definable characters and foreign alphabets.

All the FX80 options are "software selectable." They can be turned on or off by word processing software — if it is designed to exercise this control. Flexible software makes it possible to utilize all or many of the features built into the printer; rigid software lets you use very few, if any, of these features.

Software Information

- **Bank Street Writer** — Broderbund Software; Apple II, Commodore 64, IBM PC; \$70.
- **WordStar** — Micropro International; CP/M-80, CP/M-86, PC-DOS, MS-DOS computers; \$350.
- **Letter Perfect** — LJK Enterprises; Apple II, Atari; \$100.

every line twice (=double-strike); ESCAPE followed by capital M turns on elite. Notice that the printer remains in the selected mode until another set-up program is run or the printer is "reinitialized" — turned off and on again.

Although the "set-up" approach is a useful way for coping with programs as restrictive as Bank Street Writer, it is hardly a satisfactory solution. It does not allow printer options to be changed *within* a document, a line, or a word. Nor is it possible to underline or italicize words or phrases or to use sub-

scripts and superscripts. In addition, set-ups are of absolutely no use with word processors that initialize the printer themselves when they are run and, in the process, undo the results of the set-up program.

WordStar — the middle ground

As far as printer control is concerned, WordStar is significantly better than Bank Street Writer. Several of its dedicated functions control printer options. For example, ^PS (CONTROL-P followed by capital S) displays ^S on the monitor and underlines text up to the next PS. Similarly, ^PB turns double-strike on and off for emphasis (^B for "boldface"). Other functions control sub- and superscripting, overprinting, shifting from a "normal" to an "alternate" typeface, and changing ribbon colors (if your printer can do it). WordStar controls printer features by emulation and through a powerful installation program.

Emulation. WordStar emulates (or fakes) certain printer features so that their effects can be implemented, even with printers that do not have those features built in. For instance, WordStar emulates underlining by making two passes over a line in which there are characters to be underlined. The text is printed out in the first pass, and underscored where called for in the second pass. Emphasis is emulated in the same way — the text to be emphasized is printed twice. Scripting is emulated by rolling the paper up or down a fraction of a line or a full line, printing the superscript or subscript, and then returning the paper to the original line.

Installation program. One of the most powerful features of WordStar is an "installation" program. You can use it to assign your own printer codes to many of WordStar's built-in printer functions. The program features a menu of widely used printers. If your printer is on this menu, you so indicate and WordStar assigns appropriate codes for all the printer's functions. If your printer is not on the menu, you can perform a "custom" installation by specifying the individual printer codes for each control function (as I did because the FX80 is not a standard option in my version of WordStar).

Even if your printer is included among the menu options, custom installation can still be useful. A printer control function that is not supported by your printer can be "redefined" to one that is. For example, the FX80 does not provide the WordStar function (^PY) to change ribbon color. ^PY can be redefined by the installation program to turn italics on/off or to switch to one of the

printer's eight built-in foreign character sets and back to standard English, etc. WordStar reserves four printer control functions to be defined by the user. The installation program fills this purpose as well.

The advantages of built-in printer function controls, user definable function keys and installation programs as exemplified by WordStar are unquestionable. You can customize your word processor by configuring a set of printer functions to match your particular needs. In fact, you can create any number of distinct systems to serve different word processing applications. As an example: "standard" WordStar underlining and double-strike functions are not sufficient for my needs. I find it useful to customize my WordStar printer control commands as follows:

1. ^PA (alternate typeface) turns elite on.
2. ^PN (normal typeface) turns pica on.
3. ^PQ turns italics on.
4. ^PT turns italics off.
5. ^PW turns superscripting on.
6. ^PE turns subscripting on.
7. ^PR turns both off.
8. ^PY (ribbon color) switches between English (normal character set) and Russian (user-defined set).

Letter Perfect — most flexible

An example of a program that offers optimal flexibility — as far as printer control goes — is Letter Perfect. (In most other respects, however, it is more limited than a program like WordStar.) Letter Perfect has an impressive array of built-in printer controls for underlining, italics, boldface (in this case, "expanded" letters that are twice the size of normal characters) and four type fonts (usually single-strike pica, double-strike pica, emphasized pica, and 16 cpi). On the debit side, Letter Perfect's installation program is rudimentary compared to WordStar's. It can alter only the four font commands.

But, on balance, Letter Perfect is unsurpassed in that *any* character can be inserted into the text as a printer control code. The CTRL-V is reserved for this function. It informs Letter Perfect that the next character is actually a printer control code. The character is sent directly to the printer without being counted in the actual line length (it won't disturb justification, for example). Printer control codes after CTRL-V can be specified either by using an appropriate character (letter, number, punctuation mark, or special character), or by the appropriate ASCII

number. The ASCII number is necessary when you have characters that normally cannot be displayed on the monitor. For example, to shift the printer into elite, you would use:

CTRL-V (27) CTRL-VM.

With this special sequence, Letter Perfect can make your printer perform virtually every one of its built-in functions — regardless of whether they are supported by the word processor. For example, you could print a French "grave accent" over an "a" in a French word using the following sequence of characters:

aCTRL-V (8) CTRL-V'

The "a" is printed first; ASCII 8 (after CTRL-V) causes the printer to backspace and then the "´" is printed over the "a". Since both "´" and ASCII 8 are preceded by CTRL-V, neither is "counted" and line justification is not affected. (Considering the usefulness of this character insertion feature and the ease with which it can be implemented, it is remarkable that so few word processing packages have it.)

Conclusion

Obviously, not everyone will need to switch from English to Swedish in the

middle of an ordinary letter or report. But underlining, italicizing, or printing in elite, for instance, are valuable options. Wisely weighing your software choices at the outset will help you get the most out of your printer when you need it. Unfortunately, many of the features discussed above are hidden away in the depths of user manuals, and often "described" in impenetrable prose. Therefore, a few well-phrased questions *before* buying and a careful reading of the software manual can make an enormous difference in what you can get out of your printer. *Ernest Scatton*

Hands On...

• **BACK TO BASICS** *Peachtree Software, 3445 Peachtree Road N.E., Atlanta, GA 30326, (800) 554-8900. IBM (\$295), IBM PCjr, Apple, Atari, and Commodore 64 (\$195). IBM version reviewed.*

If you need an accounting package for your small business and you are not as familiar with accounting procedures as you would like to be, Back to Basics is one of your best bets. This menu-driven program comes with a clearly written manual that both teaches accounting principles and explains how to use the program. There are three modules in the package: General Ledger, Accounts Receivable and Accounts Payable. Each comes on its own disk and, except for the IBM PC, can be bought separately for \$95. As a result, you can buy the modules you need now and integrate them later.

Back to Basics offers password protection, automatic posting to the general ledger, maintenance of up to 254 general ledger accounts, and incorporation of up to 10 departments. It reconciles cash register sales and permits a user-defined income statement and balance sheet. Back to Basics also calculates discounts applicable to payables, distributes payables to a maximum of 65 accounts and handles partial payments. Output can be directed to printer or, in the case of an 8-character display, to the screen. It also prints such documents as checks, statements, and mailing labels.

The General Ledger module includes the chart of accounts, trial balance, four different journals, and an account activity report. It also produces a balance sheet and an income statement. Daily cash register sales can be reconciled through the cash sales feature and a system-generated cash reconciliation form.

The Accounts Receivable module

enables you to keep track of monies due and to maintain a customer list, three different journals, a receivables summary, and an aging report. You can also add a dunning message to the bottom of the customer's statement, if you wish.

The Accounts Payable program consists of a vendor list, two journals, an open invoice register, an accounts payable check register, and an accounts payable chart of accounts. It can also be used to forecast cash requirements.

Setting up your books is simply a matter of organizing your accounts and entering the data into the appropriate fields. Accounts are assigned codes according to their purpose and grouped together — for example, the asset account numbers are between 1,000 and 1,999, and liabilities are numbered 2,000 through 2,999. Although no on-screen help is available, the system provides more than enough prompts to satisfy most users. Whenever an account code is entered, the related account name appears automatically. Report generation is fairly straightforward and should pose no problems.

Documentation

Back to Basics' documentation is truly noteworthy. There are many excellent accounting programs on the market, but none of them give you an accounting textbook along with the documentation. The Back to Basics manual not only tells you how to set up your accounts and ledger, it explains why entries are posted in a specific manner. After reading it, you will understand the difference between debits and credits and learn when to use them.

The manual consists of an overview of accounting principles, a run-through of a sample company, a reference section, and a business situations section. There is also an index. The business situations section demonstrates posting techniques for different accounting situations that could prove useful even

for users with some accounting background.

Also included with the documentation are a hardware booklet describing the system requirements and startup procedures; a sample reports booklet showing the standard chart of accounts and typical reports; and a roadmap indicating how the menus for each of the programs are related.

Annoyances and Bugs

Overall, Back to Basics operates as advertised. However, there are certain design features that make the program less than perfect. For instance, it does not supply you with any error messages when the printer is off-line. Instead, it continues processing as though the printer were on-line and actually printing something. Although this is a minor annoyance, it makes you wonder whether it wouldn't be simpler to just print your checks manually.

Another deficiency stems from the optional password protection routines. While protection from illegal entry is desirable, legitimate users should not be inconvenienced for the sake of protection routines. For example, the computer only accepts six characters as a password (and a company ID) — exactly six, no more and no less. You are forced, therefore, to create and remember a fairly long mnemonic. Should you lose the password, entry becomes impossible. For that matter, even if the password option is not used, records cannot be manipulated without the software program in residence as the program is written in Forth. Nor can the files be read by your computer's DOS. Finally, the data cannot be exported to another program for graphing or insertion into a word-processed report.

Yet, despite these drawbacks, Back to Basics remains an excellent package particularly if you are just beginning to set up a computerized accounting system of your own. ●

Drive Your RAM (continued)

For example, it may include a print spooler, a software answer for a print buffer, or a disk cache, a form of virtual memory software.

How it works

RAMdisk software can assign whatever volume of memory you desire — from your computer's entire RAM capacity down to whatever size you ask. However, while it's theoretically possible to reserve as large or small an area as memory allows, most programs limit the maximum to your floppy's volume (for example, 360K) and the minimum to one tenth of that (36K). In the case where the memory expands beyond the computer's address capabilities — as with 8-bit computers — the software uses bank switching techniques so that the computer can access the area.

For example, if your system has 128K of RAM, you can assign any portion of that memory as a RAMDISK. (Of course, some of the memory must be left free for the program to use as a work area or else the program won't run.) Let's suppose that you assign a disk size of 64K. The RAMdisk will be located at those memory locations above the 64K mark, leaving the bottom 64K as free RAM.

Once you have created an electronic disk, you can copy your program files or data files to it and run your programs as you would normally. It's best to copy the files you access the most into the reserved area. For example, if you are using a word processor or accounting package which overlays its code with new code every time you use a command, that is the file to put into the electronic disk. However, if the program you are using loads completely into RAM, it's better to copy the data file.

Advantages and disadvantages

RAMdisks have certain advantages over an actual drive. For one, accessing programs and files is speedier — usually from five to ten times faster. This gives you almost instantaneous computing. Reformatting a paragraph with a word processor occurs almost as soon as you enter the command and even quicker in

some cases. The increase in speed is due to the fact that the information, once loaded into the electronic disk, is actually located in RAM. Therefore, there is no disk drive head to be positioned, no I/O to be performed, and no data to be loaded or saved. Another advantage is that some RAMdisk software allows you to assign as an electronic disk only that portion of memory that is needed. That means you don't need 360K of extra RAM to play with; you can create a disk with only 36K if that is all the memory you can spare. Finally, there is no floppy disk to accidentally bend, staple, fold, or spill coffee on.

On the negative side, the application software must be capable of using the RAMdisk. Unfortunately, not all commercial software packages do so. Many are copy-protected and cannot be loaded from an electronic disk; others require that certain files be located in a particular drive. In the former case, you cannot use the RAMdisk to hold the program, but you should be able to use it for the data files. In the latter case, your operating system may allow you to reassign device designations. If so, you simply assign the required device number or letter to the electronic disk.

The biggest disadvantage of a RAMdisk, though, is its volatility; when the computer is shut down or even during a very brief power failure, the information is lost. Therefore, computing with a RAMdisk requires incorporating an additional step into your routine — saving the data from the electronic disk to a floppy or hard disk.

Is using a RAMdisk difficult? Consider this: Your computer's DOS probably has a RAMdisk routine built-in, especially if it allows you to copy a disk with only one drive. Now, if a not-too-bright program like DOS can handle a RAMdisk, why can't you? A final note: Use batch files to set up your RAMdisk and copy any files needed to it.

SUPPLIERS

APPLE

MemoryMaster IIe 128K RAM Card
64K, \$169; 128K, \$249. *Applied Engineering, P.O. Box 798, Carrollton, TX 75006, (214) 492-2027.*

DiskQuik

Software only, \$29.95.

Beagle Bros., Inc., 3990 Old Town Ave., #102C, San Diego, CA 92110, (619) 296-6400.

ATARI

Axlon 128K RAMDISK
128K, \$299.

Axlon, 1287 Lawrence Station Road, Sunnyvale, CA 94089, (408) 747-1900.
64K RAM Select
64K, \$199.95.

Mosaic Electronics, P.O. Box 708, Oregon City, OR 97045, (503) 653-7885.
Note: three boards can fit into the Atari 800, for a total of 192K RAM.

COMMODORE

Access-M

64K (expandable to 256K), \$199.95.

Mosaic Electronics - see Atari

Also planned is an expansion module that will allow RAM expansion up to 1MB; projected cost, approximately \$150.

IBM

SixPakPlus

64K (expandable to 384K), \$395.

AST Research Inc., 2121 Alton Avenue, Irvine, CA 92714, (714) 863-1333.

Includes clock/calendar, serial and parallel ports, and print spooler.

New Expanded Quadboard

64K (expandable to 384K), \$395.

Quadram Corp., 4355 International Blvd., Norcross, GA 30093, (404) 923-6666.

Includes clock/calendar; serial, parallel and game ports; print spooler; and disk cache.

TRS-80

Extended Memory Option

64K, \$109.99.

Holmes Engineering, Inc., 5175 Greenpine Dr., Murray, Utah 84123, (801) 261-5652.

Requires VID-80 (\$299.99).

128K Memory Upgrade for the Model 4
128K, \$99.95.

Montezuma Micro, Redbird Airport, Hanger #18, P.O. Box 32027, Dallas, TX 75232, (214) 339-5104.

LAP COMPUTERS

The PortaPac 100 for the Model 100, Nec 8201, Olivetti M10, and other computers with RS232 interface.

60K (expandable to 252K), \$395.

Cryptronics, Inc., 11711 Coley River Circle, #7, Fountain Valley, CA 92708, (714) 540-1174.

WRITING YOUR OWN

If, for some perverse reason, you decide to write your own RAMdisk software, your program should do the following:

1. Define that portion of your RAM to be used as a RAMdisk; and "format" it into tracks and sectors.
2. Intercept any I/O calls to the bogus disk and redirect them to the area in RAM.
3. Include a directory listing so that the operating system can locate the files.
4. Reset the top of RAM so that the operating system doesn't use the reserved area.
5. Reserve an area for the RAMdisk software itself.

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Second Computers

The Olivetti M-10 lap computer is the last of three almost identical first generation machines made by the same Japanese manufacturer. (The other units are the TRS-80 Model 100 and the NEC 8200.) Like its two predecessors, the M10 is a highly portable personal computer which brings greatly added convenience to some applications — particularly for data entry. The M10 comes with a built-in 300-baud modem and is priced at \$999 for a unit with 24K RAM, and \$799 for an 8K model. It has an 8-line by 40-character LCD display, weighs 4 pounds 3 ounces, and measures 11¼ x 8½ x 2¾ inches. The system is based on an 80C85 CMOS microprocessor and comes with 32K of ROM (expandable to 64K) and 8K RAM (expandable to 32K).

A unique aspect of the M10 which distinguishes it from machines of the same origin is its hinged screen. It can be set at different angles to substantially enhance readability and reduce glare, two of the major problems affecting LCD displays. The full-size keys on the M10 keyboard provide access to 188 alphanumeric and graphic characters. The 94 non-standard characters in two separate keyboard formats are accessible by pressing the (GRPH) and (GRPH + SHIFT) keys. The characters are then accessed by hitting a combination of keys. For example, (Graph)-; prints a solid box and (Graph + Shift)-V displays a symbol of a car which can be used to flag travel expenses. In addition, a row of smaller function, cursor and special keys is laid out at the top of the keyboard (in a pattern similar to that of the TRS-80 Model 100). These special keys allow you to list menu options, print and cut and paste blocks of text. A diamond-shaped layout similar to that of the NEC 8200 would have been better for the cursor keys.

Peripherals to which the M10 can be connected include RS-232C serial devices such as a modem, a parallel printer or plotter, a bar code reader, and a tape recorder. Virtually any tape recorder can be used if it has an input microphone jack, an output jack, a remote control jack and a tape counter. Use of the recorder allows M10 users to download information from RAM to standard tape cassettes. This information can be uploaded back to RAM and then to desktop computer storage. However, despite Olivetti's claims, the M10 does not upload to computers of

other makes with equal ease. (This reviewer obtained the best results by using either Perfect Link or PC Talk communications software and linking the two computers with a SmartCable connecting device [see *BMR*, Oct., 1984 issue].)

M10 hard copy output can be provided by the Olivetti PL10 microplotter (\$260). It offers four-color printing in graphic and text modes and prints 40 characters per line.

Software

The Olivetti M10 comes with five built-in programs: BASIC, Address, Telecom, Schedule and Text. The display directory allows up to 19 files to be listed; additional programs can be saved to cassette and loaded when needed through the use of BASIC commands. The simple yet adequate Text program includes a find feature (but no replace) and block operations. Telecom allows up and downloading of files and automatic dialing when used with the Address.

Although the programs execute as expected, certain design features make running some of them a chore. For example, deleting a file requires entering BASIC and executing a KILL command. While this may not seem like too much of an inconvenience, it becomes so when you consider that a delete feature could easily have been included within the application programs themselves. If memory were a factor in the design, the Schedule program, which is only a specially-named text file, could have been omitted.

Documentation

For the most part, the documentation is thorough and well-illustrated but organizationally weak. For example, it is difficult to find the individual sections (operations guide, BASIC language reference guide, and a number of appendices) and, in the case of the operations guide, any specifically needed information. Most of the fault lies with the Table of Contents which reads like an underlined, unalphabetized index.

Overall, the Olivetti M10 is a serviceable lap computer with no frills and no outstanding features. In order to compete effectively, Olivetti needs to lower the price to that of its competitors, whose heavily discounted products are available for approximately \$399 in 16K format. Or it can offer better service to make up for the price difference. ●

INSIDE INFO

◆ What is the difference between a virtual operating system and a disk cache?

These programming techniques, which allow application programs to operate faster and seemingly squeeze more code into available memory, have distinct differences. A virtual operating system utilizes the disk drive; a disk cache, which is actually located in RAM, does not. A virtual memory system is usually devoted to a particular program, while a disk cache can be used with almost any application.

Virtual operating systems distinguish between the memory's logical address and its physical address. Since the former is usually larger, the programmer writes code as though, let us say, a 64K computer had unlimited memory. In order to reconcile the two addresses, the code includes algorithms which anticipate the size or location of the next needed block of memory. The system then frees the block for use or overlays it with new code.

A disk cache, on the other hand, is a reserved area in RAM. It includes software that flags an application program's code as it is being used and leaves the code in the reserved RAM area for future use. When the program calls for that code, the disk cache software redirects the call to RAM, thus saving disk loading time. If another block of code is used more often, that code is flagged and takes priority. Depending on the size of the disk cache, more than one section of code can be kept in RAM.

◆ Why are some software functions, such as underlining and bold-facing displayed differently on different monochrome monitors?

If the monitors are part of different systems, the "what-you-see is what-you-get" effect is probably due to the monitors being connected to a color/graphics adapter board rather than a monochrome adapter board. While the majority of color/graphics boards are primarily designed for use with an RGB color monitor, some can be also used with monochrome or composite color monitors.

These special boards allow your monochrome monitor to display different intensities of light as though they were colors. These intensities, when used with graphics packages or such word processors as New Word, show up as very bright or dim characters. However, there is a tradeoff between graphics capability and resolution. ●

PC \$ TALK

Home Brokerage

Little more than a year ago, the idea that you could place an order to buy or sell stocks and options in the middle of the night or review your portfolio whenever the impulse struck you, would have seemed preposterous.

Today, investors need no longer depend on a broker who is reachable only between the hours of nine and five. Using an on-line service, such as CompuServe or Telenet, you can place orders from your home, office or anywhere there is a telephone — at any time of day or night. All you need do is write an electronic order ticket on your personal computer. A confirmation notice appears on your screen as soon as your trade is executed (during market hours).

On-line trading from your living room is only part of what home brokerage services offer. Closing prices and quotes from NASDAQ and major exchanges on all the stocks and options listed in *The Wall Street Journal* can be viewed on your computer on a daily, weekly or monthly basis. You can also examine your portfolio (updated as of the last trade), review the status of your open order positions and current buying power, and obtain a wealth of other historical and analytical information. As you trade, the system maintains complete tax records.

In theory, you only need an inexpensive, under-\$200 home computer along with a telephone modem to use a home brokerage service. In practice, you may be best off with an Apple II, IBM PC or other computer that can not only access the service but also run powerful analytical software with which to examine your portfolio, select likely stocks and produce charts.

The reasons why

The major incentive for using a home brokerage system is, of course, convenience — especially for busy people. On-line entry also frees active traders from calling their brokers each time they want to raise or lower their option prices by one-eighth of a point. An important fringe benefit is that charges for home brokerage transactions generally cost from 50% to 75% less than at full-service firms where every transaction goes through a registered representative. (However, Securities and Exchange Commission rules still require that a broker review every transaction.)

Although many professional traders and investment counselors find on-line brokerage to be vastly superior for con-

ducting their business, most users are private investors. They are usually busy professionals or businessmen who cannot conveniently review their investments except at night and on weekends. For instance, a Fort Lauderdale dentist accesses his on-line service once or twice a week at about 2:00 a.m. to review his investments and place orders. The flexibility of placing orders at any time of day or night is particularly appreciated in the West. The 10:00 a.m. New York market opening occurs at 7:00 a.m. in California.

Not a better mouse trap?

Yet, even if home brokerage has all the earmarks of a "better mousetrap," the world has still to beat a path to the door of its developers, or "inventors." So far only a minority of investors, probably well under 100,000, use their services. Many do not understand or feel comfortable with them. Many investors are also concerned about the cost of home brokerage services. Though commissions are lower, the difference can be eroded by connect charges. To use the Trade*Plus system through CompuServe, you pay \$9.00 per hour during prime time, and \$2.50 otherwise, in addition to CompuServe on-line charges. Even if charges are reckoned in minutes not hours, their cost can mount for an investor doing extensive research. Recently, some fees have been slashed. For instance, the \$195 registration fee for Fidelity Investor's Express has dropped to \$49.95.

Despite its sluggish start, discount brokers and banks feel that home brokerage is the way that investors will do business in the 1990s — particularly as stock trading is increasingly merged with other financial services such as mutual funds, life insurance, cash management, and even bill paying. Banks will also offer home brokerage to make their home banking services more attractive. So far, home banking has generally received lukewarm acceptance. For instance, only 10,000 of over 500,000 depositors participate in the Pronto home banking service of New York's Chemical Bank. Trade-at-home service is now being added to Pronto offerings. Citibank's Home base home banking network is soon expected to be similarly enhanced.

The home brokerage service providers

The leading on-line brokerage providers vary in fees charged and in what they do for you. Descriptions of their services, and their cost (including typical commissions for 100 shares at \$30) follow:

Twenty-four hour order-placement, portfolio management, and stock quote capabilities are provided by **Desk Top Broker**, (C.D. Anderson, 300 Montgomery St., Suite 440, San Francisco, CA 94104, 800/822-2222) and **Texas Securities Trade Plus** (Texas Securities, 4200 S. Hulen, Fort Worth, TX 76109, 817/732-0130). In addition to discount commissions (\$37.80 for Desk Top Broker and \$45.00 for Texas Securities), there is a one-time, under-\$100 registration fee, and connect charges of 40 cents per minute to make calls during market hours and 10 cents after the market closes. Both firms use the Trade*Plus system.

Fidelity Brokerage Services' Investor's Express, also uses Trade*Plus and charges a \$40.00 commission. It offers a "stock watch" capability that maintains investor-selected stocks and options under continuous review and highlights on-screen those which trade above or below specified prices. In the future, customers will be able to make mutual fund transactions, sweep their proceeds into an asset management account, and trade in CDs, gold and other precious metals. (For additional information, contact Fidelity's 28 local *Investment Centers* in major cities, or call 1/800/343-8711.)

Among the lowest-priced services are those of **Tickerscreen** and **Spear Securities**. These services are available to subscribers of two information networks — **CompuServe** (P.O. Box 20212, 500 Arlington Centre Blvd., Columbus, OH 43220, 800/457-8600), and **The Source** (1616 Anderson Rd., McLean, VA 22102, 800/336-3366).

Tickerscreen, a service of Max Ule & Co., Inc. (6 E. 43rd St., New York, NY 10017, 212/986-1660) and available through CompuServe, is the oldest of the on-line services. It offers next-day execution of buy and sell orders placed by clients and a financial research database, including a new issues calendar. In addition to Max Ule commissions (\$43.12 for 100 \$30 shares), there are CompuServe connect charges (\$89.95 startup kit, and hourly connect charges of \$12.50 prime time and \$6 evenings and weekends).

Spear Securities (626 Wilshire Blvd., Suite 7808, Los Angeles, CA 90017, 800/821-1902), offers service through The Source. It includes on-line trading, stock quotations, and complete investor access to portfolio records. Transaction proceeds can be swept into an interest-bearing asset management account. Cost of using the Source: \$49.95 startup kit; hourly connect charges are \$20.75 prime time, \$7.75 otherwise. ●

TOOLS AND CONCEPTS

Time to Download?

If you are weary of the long ride to your neighborhood software store, help is on the way. Two recently announced projects have as their aim to download entertainment and productivity software, via telephone or radio, directly to your home computer. Beyond this common intent, the two projects differ substantially. One will allow you to test run different programs which you can later purchase. The second, available at no cost save that of a linking device, will provide public domain software which you can keep.

• **Masterline — Software By Phone** is a subscription service that sends educational and entertainment software through the phone directly to the Apple II and Commodore 64 computers of subscribers across the nation. It is now available in Los Angeles, Houston, Atlanta and Washington. Subscribers can access and evaluate the copy-protected programs for an entire month and then decide whether they want to purchase them from a software retailer.

MasterLine's cost includes a \$25 sign-up fee and a \$19.95 rental fee. The latter includes service-related telephone charges and rental of a Master Module which connects the telephone and the computer. The roster of MasterLine programs is changed every month to let Apple and Commodore users, respective-

ly, access 20 different educational and entertainment programs from over two dozen software publishers. Subscribers can also use a computerized shopping service, ordering from a selection of monthly "Best Buys" from Comp-U-Store Online. *Control Video Corp., 8620 Westwood Center Dr., Vienna, VA 22180. 703/448-8700.*

• **Softcast** is a new company formed to provide free software to be broadcast nationally by AM and FM radio stations and cable networks, starting with 485 radio stations in the Middle West. Programs will be broadcast at 4800 bauds to home computers of all makes. The phone-to-computer link will be the \$70 *Shuttle Communicator* device developed by Softcast's parent company, The Microperipheral Corporation. It will be available in the first quarter of 1985. Programs are now being broadcast experimentally by station KAMT-AM (Tacoma, Wash.) on the weekly "Download" radio show.

Free programs to be broadcast via satellite to network stations will include both public domain programs and winning submissions in contests initiated by Softcast. Medium-sized and smaller software publishers will also be able to gain exposure for their products (which will have to be ordered separately.)

• **Sanyo MBC 775 portable computer** with a 9-inch color monitor is the latest addition to the Sanyo line of low-cost PCs with extensive IBM compatibility. It retails for \$2,599 and features an 8088 microprocessor, MS-DOS 2.1, two 360K 5.25-inch disk drives and bundled software. Two expansion slots can house IBM-compatible add-on boards from sources such as Tecmar, Inc. and Quadram Corp. to allow the MBC 775

to run software written for IBM and compatible computers. *Sanyo Business Systems Corp., 51 Joseph St., P.O. Box 387, Moonachie, NJ 07074-1098.*

• **Model 53 jumper box** allows users to customize the interface between two RS-232C-based devices, using standard RS-232 data cables. The 2 x 2½ x 5/8-inch box comes with 25 pre-stripped wires and costs \$28. *Telebyte Technology Inc., 148 New York Ave., Halesite, New York, NY 11743. 516/423-3232.*

• **Nortronics Cassette/Mini Cart Eraser** totally erases mini data cartridges as well as standard cassettes for both data and audio that are inserted into one end of the compact device and then pulled out on the other. Retails for \$34.95. *Nortronics Co., Consumer Products Div., 8101 Tenth Ave. North, Minneapolis, MN 55427.*

• **WordStar 2000 and 2000 Plus** are the successors to Micropro's WordStar, the first innovative word processor with

significant capabilities, now an aging veteran. WordStar 2000, the basic package containing mailmerge and spelling correction functions, features screen windows for simultaneous updating of up to three documents and for incorporating spreadsheet output. Other features include a keystroke glossary for storing frequently used text and commands and single-keystroke retrieval; automatic footnoting and hierarchical list creation; proportional spacing; and "what you see is what you get" on-screen boldfacing and underlining. WordStar 2000 Plus contains, in addition, a mailing database and an index for preformatted tables of contents. WordStar 2000 costs \$495; WordStar 2000 Plus costs \$595. WordStar users can upgrade through dealers to WordStar 2000 for \$250 and to WordStar 2000 Plus for \$350. Both programs require 256K RAM and run on IBM PC and compatible computers.

• **Mortgage Accelerator** is a mortgage insurance prepayment estimating program for use by life insurance agents. It will enable them, using information about a client and the client's mortgage, to produce a proposal showing when the cash value and accumulated dividends or interest of a whole life policy would prepay the mortgage. It also presents the amount of interest saved, average annual savings, and the percentage of return on premium. The package sells for \$240 and runs on IBM PC and Apple II computers. *American Software Technology, Inc., 1150 Kane Concourse, Bay Harbor Islands, FL 33154. 305/868-1105.*

• **Epyx 9-5 TYPING** unlike space shoot 'em up typing games, is aimed at females rather than males. It addresses seven basic typing skills (through over 49 drills) and combines them with sequences from the movie in which players learn key locations while helping Doralee escape from Hart. Players can also increase their typing speed while taking potshots at Hart in a shooting gallery. 9-5 TYPING retails for \$29.95 and runs on Commodore 64, with Atari, IBM, Apple and Coleco versions to follow. ●

WANTED... WANTED... WANTED...

Freeware, public domain software announcements for no-charge or suggested-donation software for Apple, Atari, Commodore, IBM, TI, TRS-80, CP/M and MS-DOS computers. Send announcements — including charges or donations, and full address — to *Freeware/Public Domain Software Editor, Baron's MicroComputing Reports, 344 E. 49th St., New York, NY 10017.*

BMR subscribers can now receive monthly reports for more than one make of computer. The charge for this service (which includes first-class mailing of the monthly newsletter with inserts) is \$10/yr. per additional computer make.

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DATA BRIEFS... (continued)

FORTH-related article published in a periodical or in the proceedings of a non-FORTH conference. Membership discounts are available to authors of a published "Letter to the Editor." For information call *FIG HOT LINE*, 415/962-8653, or write *FIG*, P.O. Box 1105, San Carlos, CA 94070.

○ **"40 Ways to Keep Your Micro Happy"** is a free 16-page booklet that explains what microcomputers users can do to reduce system downtime. Prepared by a computer maintenance organization, the booklet includes tips and data on ideal PC environments; how to avoid static problems; power surges, monitor screen etching; thermal expansion and contraction of solder joints; the dangers of excessive dirt and tobacco smoke. "40 Ways," *Sorbus*, 50 East Swedesford Road, Frazer, PA 19355.

○ **Money-back guarantee.** Springboard Software, Inc., a producer of educational software, will refund the purchase price of one of its learning games to any customer who feels that the software is not helping to improve the appropriate skills of a child using the product. Package and contents, with sales slip, should be returned to the company. So far, says Springboard, no one has returned any of its products, such as the "Early Games" series. The

guarantee is good for 30 days after purchase. *Springboard Software, Inc.*, 7807 Creekridge Circle, Minneapolis, MN 55435.

NETWORKS AND SERVICES

○ **Remote computer training.** Two recently announced projects will enable educators and trade school students throughout the U.S. to take hands-on computer science courses from a single source:

• **IBM and Source Telecomputing Corp. (STC)** are participating in a nationwide program conducted by the National Computer Training Institute (NCTI) to train teachers in the use of personal computers. STC has donated over 100 memberships and "many thousands of hours of access" to The Source on-line network service. IBM has loaned 15 PCjr computers to each of 90 NCTI training centers located on school campuses in 49 states. Over 25,000 kindergarten through 12th grade teachers are expected to participate in the program during its first 12 months.

• **The Direct Home Link Network** is a career training system initiated by the *Computer Tech School of Computer Technology*. The "link" is a Commodore 64 with modem and datacassette recorder. Computer Tech students will use it to communicate with the school's computer center in downtown Pittsburgh, Pennsylvania, using their

individual passwords. (Students may also use their own PC's if they have one.) The school claims that this innovation will reduce overall course time to ten weeks even though minimum classroom and laboratory requirements remain at 300 hours. In addition to courses in computer operation and programming, secretarial and travel agent courses will be offered through the Direct Home Link. *Computer Tech School of Computer Technology*, Fulton Bldg., Sixth St., at Duquesne Blvd., Pittsburgh, PA 15222.

○ **Specialized information.** On-line editions of the following specialized newsletters will be available on the NewsNet network: *Automated Office Systems*, a monthly report on events and issues in the office automation community; *Space Commerce Bulletin*, covering the aerospace and satellite industries; *Reports of Interest to Lawyers*, providing legal intelligence on business, civil, environmental and criminal law; *RNS Daily News Reports*, religious news from around the world; *PT High-Tech Alert/Video Monitor*, dealing with the application of new communications technology to press and public relations services; and *Surplus Alert*, a weekly listing of government surplus — materials, equipment, vehicles, land and buildings — being sold by various bidding methods. ●

Words Processed

• Harnessing Information Technologies.

By Carolyn J. Mullins and Thomas W. West. 242 pages. Prentice-Hall. \$10.95, paper. Subtitled "A Guide for Business and Professional People," this book purports to provide the novice with an overview of the computer field. It attempts to cover everything from word processors to computer-aided instruction. There is the de rigueur glossary and resource listings, as well as plethora of photographs and bibliographic notes. Unfortunately, most of the information is either common knowledge or already outdated. Much of the text consists of vignettes which are supposed to provide testimonials of sorts. While they make for interesting reading, they do not add anything significant to the issue at hand — what can you buy and what will it do for you.

• **Fifty Pascal Programs.** By Bruce H. Hunter, 338 pages. Sybex Books. \$19.95, paper. As the title implies, this book is filled with Pascal program listings. However, unlike many other books devoted to listings, the well-

written text also provides explanations. General techniques are offered that can be relevant to all programming languages, such as the need for structure and legibility.

The 50 programs are grouped into nine categories: business, finance, personal use, utilities, math, machine shop, electricity, mechanical engineering, and games. The programs themselves are clear enough for even a non-Pascal user to follow. They run the gamut from calculating series capacitance and parallel resistance to loan repayment schedules, and sorting alphanumeric text files to checkbook reconciliation. While a familiarity with Pascal is assumed, even beginners and the curious should find the book helpful.

• **Pascal for BASIC Programmers.** By Charles Steiter and Robert Weiss. 239 pages. Addison-Wesley. \$10.95, paper. As the title implies, this book attempts to ease the transition from BASIC to Pascal programming. BASIC is used throughout to keep the novice oriented. From the first chapter, you will find

yourself writing in Pascal — beginning with small entertaining programs which eventually allow you to move on to more complex and useful programs.

In addition to providing hands-on guidance, the authors explain the differences between the two languages and the concepts behind Pascal. Entire chapters are devoted to practical programming considerations such as variables, pointers, I/O, and the use of procedures. Both top-down and bottom-up programming structures are covered. The book is well-written, and makes use of diagrams where appropriate. ●

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PERSONALIZED REPORT FOR: **TRS-80**

December, 1984

John Mello, Technical Editor

* ALLWRITE WORD PROCESSOR

Describing Allwrite (\$249.95) as a full-featured word processor for a Model I, III and 4 with at least 48K is an understatement. This word cruncher has more bells and whistles than a fleet of locomotives. The features include: multiple printer drivers, automatic saving of documents while you are working on them, multiple keyboard drivers, recovery of text after a system failure, preview of text as it will be printed, on-line help library with more than 50 subjects, search and replace in both directions, 22 user-definable "soft keys", printing of high-volume form letters and legal documents, creation of tables of contents and indexes, and use of variables in text. The Model 4 version even allows you to edit three files simultaneously.

Many TRS-80 enthusiasts will recognize Allwrite's authors: Chuck and Glenn Tesler of Prosoft, the same team that introduced Newsprint to the Radio Shack computer world. The Teslers' new offering sports a full-screen text editor. (Newsprint was line-based, an irksome "feature" at best).

Allwrite uses the <Clear> key in combination with another key to accomplish tasks. For example, <Clear>-W deletes a word, and <Clear>-M moves a predefined block of text. Note: the Model 4's <Control> key cannot be used in place of the <Clear> key if Allwrite is running under TRSDOS 6.x. (TRSDOS uses the <Control> key for its own purposes.)

o EASY USAGE

Here's how Allwrite handles the major word-processing functions: insert, delete and block.

You turn on Insert with <Clear>-I. It allows you to type under the cursor (which you can define to be any character from decimal 33 to 255) without destroying any other character on the screen. Insert remains on until it's "toggled" off with <Clear>-I again. There is also a single character insert mode, <Clear>-O. This command allows you to insert one character.

The program has five kinds of deletion: by character, <Clear>-D; word, <Clear>-W; line, <Clear>-L; sentence, <Clear>-S; and paragraph, <Clear>-P.

Block commands include copy, move, delete, or dump the block to a printer or disk. In copy and move, one end of the block is defined by <Clear>-B (block), the other end by <Clear>-C (copy) or <Clear>-M (move). The cursor is then positioned wherever you want the block moved or copied to. <Clear>-H completes the operation and moves or copies the block to the cursor location. To delete a block, use <Clear>-B and <Clear>-D. Before performing the deletion, Allwrite asks for confirmation.

The dump to printer or disk works in the same way. <Clear>-B followed by <Clear>-L immediately sends the text in the block to the printer. <Clear>-B in conjunction with <Clear>-P triggers Allwrite to ask for a filename when it stores the block to disk. If the file exists, the program overwrites the file, appends it, or allows you to create a new file for the block. If the file doesn't exist, Allwrite creates the new file automatically.

The program's printing features are also impressive. In addition to printer drivers for common daisywheel and dot matrix printers, these features include: editing a document while it is being printed, compensating for letterhead paper, supporting hanging indents, numbering lines and paragraphs, controlling "widows" and "orphans", printing selected pages, and supporting proportional spacing.

These functions illustrate the following aspects of Allwrite's design that exist throughout the program:

- Ease of Use. The <Clear>- "letter" combinations make sense and are easy to

remember. Delete a word? <Clear>-W. Delete a block? <Clear>-B followed by <Clear>-W.

- . Thoroughness. Most word processor designers would have been content to offer only one insert mode. Allwrite's creators, however, realized that many insertion operations require only one keystroke. Hence, the single-character insertion mode.
- . Flexibility. Allwrite permits you to customize many of its features to meet your particular system or taste.
- . Safety. The program has a number of features which are geared to prevent loss of text or documents.

Allwrite's documentation may repel some users because of its size -- a 338-page spiral-bound manual -- but don't automatically reject it. True, it is written with the beginner in mind; however, the writing is not condescending nor simple-minded. Rather, its explanations are thorough and helpful. The index and comprehensive table of contents make information easy to find. The 40-page tutorial and excellent on-line help let you get started as soon as you unwrap the program's disks.

Before you rush out and buy Allwrite, however, consider this: The software is ideal for those people with heavy-duty, word processing needs. If you only create an occasional letter or memo, a less expensive program with more modest features might suit you better. Prosoft, Box 560, N. Hollywood, CA 91603, (818) 764-3131.

* DYNAX DX-15 AND COMREX CR-II PRINTERS

If you're looking for the quality that only an impact printer can give and you aren't concerned with speed, the DX-15 and CR-II are worth considering. These two low-priced daisywheel printers are essentially the same machine under different labels. Not only is the hardware the same, but so are the documentation and list price. While they list for \$599, several discounters and mail order houses are offering them for well under \$450.

Both printers operate at a snail's pace of 13 characters per second. They come with a Prestige daisywheel, a 3,000-byte (3K) buffer and two interfaces: Centronics parallel and RS-232C serial. Since the printer ribbons are of the cassette variety, they are extremely easy to replace. Word processing features include the ability to print shadow, double-strike, underline, and strike-out. A "quadro" font allows a printing pitch of 15 characters per inch. An optional tractor feed is available, and should be considered if you intend to make frequent use of the printer's bidirectional printing feature.

Unfortunately, the printers have some drawbacks. One is a compatibility problem that can easily be remedied. The other drawback requires spending some of the money you saved when you bought your printer.

Unlike most other microcomputers, the TRS-80 does not automatically transmit a linefeed with a carriage return. For this reason, the Radio Shack printers provide one when they receive a carriage return character from the computer. This means you will have to configure your printer by setting the appropriate DIP switch so that the printer provides the linefeed and doesn't print over the last line of text. Fortunately, the DIP switches at the back of the units are easily accessible. The actual method is adequately explained in the no-nonsense documentation. The 3K buffer is not especially large in today's market. Nor can you expand it to a more acceptable size. Because of this, an investment in a printer buffer should be considered, especially if you regularly print long documents. Not only would such an item free your computer, but it would effectively improve the printer's slow printing speed.

Since both printers are the same, the only recommendation to be made is to buy whichever one is the least expensive in your area. I cannot really comment on service as neither of mine has broken down as of yet. However, I suspect Comrex may provide better service because they are a satellite company of the printers' manufacturer, Epson, and so will probably use their nationally-located service centers. The Dynax DX-15 is available through Dynax Inc., 5698 Bandini Blvd., Bell CA 90201. The CR-II is made by Comrex International, Inc., 3701 Skypark Dr., Suite 120, Torrance, CA 90505, (2134) 373-0280.

* CCR-82 COMPUTER CASSETTE RECORDER

Color Computer owners accustomed to coping with Radio Shack's CCR-81 will smile with relief when they see Tandy's new computer cassette recorder. The CCR-82 is a compact 7 3/32-inch by 4 11/16-inch by 1 5/16-inch package. (Note: Model 100 owners should be especially attracted to the CCR-82 because of its size.)

The CCR-82, unlike the CCR-81, is aimed at those who want to use a recorder primarily as a computer device. Two of the cassette recorder's major design changes are CSAVE and CLOAD buttons. You no longer need to press both Record and Play when saving a file; simply press the CSAVE button, and the recorder will automatically depress Play for you.

The pause and monitor switches are another pair of useful touches. The pause switch allows you to turn off the remote switch and operate the recorder independently of the computer. This, in effect, allows you to use the recorder for other, non-computer tasks. With the monitor switch, you can eavesdrop on the recorder's input or output signal and confirm that your program or data is being loaded or saved. However, if the sound of a CLOAD irritates you, you can cut the sound off by setting the monitor switch to "out." You may not get the same assurance, but you will not have various beeps and squeals grating on your ears.

In addition to the tape counter, the recorder has a number of LEDs that provide you with important status reports. For example, there are two lights which signify that data is being recorded or loaded from the device. Another LED informs you that the battery is low on power. An automatic level control circuit enables the recorder to make better recordings of data. Three power sources are available for the CCR-82: two AA batteries, a DC car adapter, and an AC adapter.

Despite all of the added features, the new cassette recorder does not improve on the reliability of the CCR-81 — as I found out after making numerous loads and saves to the machine. Both machines seem to generate the same amount of bad loads and saves. Also, it is not fully compatible with the older model. When I tried to use a CCR-81 cassette cord with the compact recorder, the remote switch was inoperable. However, when I used the cable packaged with the machine, I had no trouble.

The documentation for the CCR-82 is concise and clearly-written. In addition to a number of useful suggestions on recorder and cassette care and a schematic of the recorder, it includes techniques for better saves and loads. The CCR-82 (catalog number 26-1209) costs \$49.95 and is available in Radio Shack stores.

* **NEW RELEASES: TEXTPRESS AND VIVACE!**

Would you like to slash the disk space occupied by text files? How about loading a BASIC file in one end of a program and watching it come out the other in machine language? Well, that's what the Alternate Source claims its two new releases will do for your TRS-80.

Textpress takes ASCII files created by a word processor and compresses them by converting letter combinations into single-byte tokens. The average saving is about 30% to 40% of disk space. When you want to call up the file, the program converts the characters back to their original form.

The program is primarily menu-driven, but it includes a few DOS-like commands. One, for example, enables you to list files to the screen. The advantages of using the program are self-evident -- more storage capacity for text files. The manufacturer claims the program works with TRSDOS, NEWDOS, LDOS, and DOSPLUS. It has been written for the Models I, III, and 4 and requires at least 48K.

Vivace! is a command-driven BASIC compiler for the Model 4 with TRSDOS 6.x or the Model III with TRSDOS 1.3. According to the Alternate Source, the program is very easy to use. It accepts a BASIC file for input and generates a command file. Programs do not have to be rewritten, the software firm says. Vivace! supports CALL, CHAIN, COMMON, DEF FN, DEFINT, DEFSNG, DEFDBL, DIM, ERASE, ERROR, SYSTEM (CMD), FRE, READ, INPUT, USR, VARPTR, WHILE...WEND, and other BASIC commands.

Both programs cost \$49.95 and are available from The Alternate Source, 704 N. Pennsylvania Ave., Lansing, MI, (517) 482-8270.

* BOOKS OF INTEREST

- o PAYCALC: HOW TO CREATE CUSTOMIZED PAYROLL SPREADSHEETS by Thomas E. Towle. Tab Books, Inc., Blue Ridge Summit, PA 17214, (717) 794-2191. \$19.95, hardbound; \$14.95, paperback.

VisiCalc owners tackling payroll problems with their TRS-80s will be interested in this book. It begins with a short but adequate discussion of spreadsheets and their uses. It then goes on to the development of customized payroll templates. The book features a wide range of sample setup screens. The templates themselves can be useful to novice and experienced users alike.

- o SOLVING MARKETING PROBLEMS WITH VISICALC by Cohcrane Chase, Kenneth L. Barasch, Raymond J. Wolf, David O. Olson, and William Conner. Chilton Book Company, Radnor, PA 19089. 286 pages. \$14.95, paperback.

If VisiCalc is your bag but payroll isn't, this book may come in handy. It uses a textbook approach to provide examples of classic marketing problems and their solutions. Marketing topics addressed by the book include product planning, pricing, revenue scheduling, competitive bidding, distribution and sales, advertising, public relations, direct mail, and market research. If you've ever followed a Chilton guide, you know you won't be disappointed by this book. If this publisher is new to you, you're in for a pleasant surprise. The examples are clear and the prose is easily understood.

- o HOW TO GET THE MOST OUT OF COMPUSERVE by Charles Bowne and David Peyton. Bantam Books, 666 Fifth Ave., New York, NY 10103. \$14.95, paperback.

This "how-to" guide was penned by two pros at getting around in the CIS jungle. If you've already had a brush with CompuServe, you know how valuable a book like this is. Not only does it cover logging on to the service and getting around the main menus, but it discusses the command line which can save you connection time. The authors are sensitive to the needs of novices and offer tips valuable to even hardened CIS veterans. The book assumes that you have already had some experience with telecommunications.

- o THE JOY OF COMPUTER COMMUNICATIONS by William J. Cook. Dell, 1 Dag Hammarskjold Plaza, New York, NY 10017. \$5.95, paperback.

Here is a sprightly overview of telecommunications for microcomputers. The book begins from ground zero, discussing the needed hardware and software, the different types of protocols and conventions, and how to go about getting connected. Cook, a Newsweek reporter, touches on the major information networks -- CompuServe and The Source -- local bulletin boards and information libraries like BRS After Dark. There is also a good index and an appendix of local bulletin board numbers.

- o OPTIONS FOR ELECTRONIC MAIL by Libby Trudell, Janet Bruman and Dennis Oliver. Knowledge Industry Publications Inc., 701 Westchester Ave., White Plains, NY 10604, (914) 328-9157. 171 pages. \$32.95 hardcover, \$24.95, paperback.

This text is aimed primarily at business users getting ready to make the technological plunge into e-mail (which may explain the hefty price). This is a scholarly approach to e-mail, complete with footnotes, bibliography and the acronyms that system managers are so fond of. Not recommended for the casual user.