

MICROpendium

Covering The TI99/4A Home Computer And Compatibles

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PIRATES!
See page 8



Contents

MICROpendium

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Coming Next Month

- Computer literacy
- More on CP/M and X BASIC
- User notes, reviews and more

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Table of Contents

Yo, ho, ho

Avast, ye lubbers! Here's what programmers think about software pirates Page 8

Enhanced 80-column card

Foundation modifies its recently released 80-column card based on user suggestions Page 16

CorComp reorganizes again

The new 9900 expansion system to be on dealer shelves sometime in October Page 17

Intelstar calls it quits

User groups get special offer Page 18

Reviews

ZORK I Page 20

Killer Caterpillar Page 22

Defender Page 24

Newsbytes

SunWare to produce Extended BASIC and the Chicago TI99/4A
 Faire looks bigger and better Page 28

User Notes

Cursor changes shape and don't just hang up the phone 29

Reviewed in MICROpendium

Listed below are the products that have been reviewed in MICROpendium and the issues in which the reviews appeared.

B-1 Nuclear Bomber	February
Tandon TM-100 Disk Drive	February
Void	February
Beanstalk Adventure	February
Microsurgeon	February
On Gaming	February
Database 500	February
Star Trek	March
Escape From Balthazar	March
Garkon's Getaway	March
Sky Diver	March
Mail-Call	March
Prowriter 8510 Printer	March
Monthly Budget\$ Master	April
Budget Master	April
Home Budget	April
Thief	April
Donkey Kong	April
Khe Sanh	April
Companion Word Processor	May

Q*Bert	May
Mad-Dog I&II	May
Programs for the TI Home Computer	May
Creative Expressions Accounts Receivable/Accounts Payable	June
CDC 9409 Disk Drive	June
Starship Concord	June
Lost Treasure of the Aztec	June
ASW Tactics II	June
Theon Raiders	July
Introduction to Assembly Language for the TI Home Computer	July
Game of Wit	July
Pole Position	July
TE-1200	August
Tower	August
Galactic Battle	August
Galaxy	August
Wycove Forth	September
99/4 Auto Spell-Check	September
QUICK-COPYer	September
Wizard's Dominion	September
Anchor Automation Mk XII Modem	September

Comments

Canonization for TI?

As you will notice, this is our second consecutive 32-page edition. We're beginning to receive articles from TI users and may one of these days have our first 40-page issue. At this point, the 40-page plateau will be broken when we've got enough good stuff to publish. We're gettin' there.

The controversy over software protection continues. Perhaps we're fanning the flames, too, with the article in this issue. But someone ought to do it. Yes, we're received our share of criticism for not publishing routines to deprotect programs, and for taking the "easy" way out by letting reader responses determine our position the matter. It's a no-win situation no matter how you look at it.

Ironically, from my observations, the programs that are the best protected are those that allow the users to make fast backup copies of disks. I know of several people who pride themselves on their ability to break protection schemes (they do not distribute copies to anyone, I hasten to add). I mention this only because they have tried and failed to break the protection on at least one of the more recent disk backup program releases.

Published along with the article about software piracy is a piece about some of the ways programs can be protected. The most effective protection routines, I am told, are assembly language codes that are embedded throughout the program in such a way that the program or file cannot be accessed in any way until the entire program has been loaded into expansion memory. At that point, it is in the RUN mode and cannot be stopped except through the QUIT command. The real trick, however, is to design a program that cannot be copied by the backup copy making programs. There are several programs that at this point cannot be copied, so I guess someone is getting closer to the ultimate protection scheme.

So, what's happening with the TI market? Who can make any sense of TI's decision to release software enhancements for TI-Writer and Microsoft Multiplan? They say it is out of generosity and a desire to treat TI users fairly. I say, compared to the behavior of other former home computer manufacturers, such as Timex, TI is acting like a corporate saint. Whoever heard of a company providing help to a market it has abandoned? Makes some sense from a business standpoint, but not a whole lot. Being from Texas, however, I think it is fair to say that maybe they've got a few pang of guilt over the whole debacle., having spent so much time developing user loyalty and all. How many manufacturers created company-supported user groups? And how many of the companies that did actually supported them? It goes

without saying, almost, that TI couldn't sell a space heater in Antarctica at a profit, but they deserve all the credit in the world for remaining loyal to their customers.

But TI may not be giving up the ghost on the consumer marketplace. The rumor is that the company may try to slide into the electronic typewriter market. TI has a large retail base to work from, considering the way it sells calculators. The future should tell whether this is true or not.

I am still waiting for the 32K database manager (not file manager) program for the TI. I've seen some file managers that work fine with 32K, but they aren't database managers.

We couldn't get this confirmed, but judging from the new ads from Atari, there seems to be reason to believe that the company may be backing off on its support of the TI market. The Atarisoft ads in other magazines mention a number of computers, but not the TI99/4A.

That shouldn't be terribly surprising to anyone. Atari needed to clear out the dead wood in its operations and the TI segment of its operations may not be worth the trouble. Although the company probably hasn't been losing sleep over the problems caused by pirates, the word I've heard is that some clever soul(s) have managed to copy all of the TI Atarisoft cartridge games to disk. Apparently, the chips in the cartridges may not be as inviolable as many have thought.

Morning Star Software has finally released its CP/M processor card for the TI expansion box. The card has been in the works for more than a year. It operates using software in the Osborne I format, which is single-sided, single-density. We'll have more on this next month.

We will be continuing our software improvement contest, it turns out. The deadline for entering the current contest is Oct. 10. Winners will be named in the November edition of MICROpendium. We didn't have enough space this month to run the contest entry information but readers may refer to the previous two editions for direction.

Incidentally, do you know why those disk copying programs work so much faster than Disk Manager II? It has to do with the fact that they do not verify the files as they're being copied, as Disk Manager II does. However, unlike Disk Manager II, which will not let you copy a bad file, the fast copier programs will. What this means is that if you forget to close a file somewhere along the line, it could come back to haunt you later on. This just means that before you use these programs make sure your files are in good order.

Feedback

Happy medium?

I write and publish software for another machine, and I have just changed my policy and now publish my software unprotected.

The arguments are good on both sides of the question. Very little software, except perhaps for games, exactly fits the needs of the purchaser, and its value can often be greatly enhanced with simple modifications. I doubt if a vendor would object to it.

But on the other hand, selling or even sharing commercial software with a friend is just plain cheating. You can make all the arguments you want, but the fact remains that the price paid was for one's own use. Anything more is cheating.

Perhaps there is a happy medium. You might publish a hint: an address, a code, enough to point a programmer in the right direction. But to publish a detailed, step-by-step explanation for anyone to use would be aiding and abetting a practice which is simply wrong.

Robert B. Stephenson
Albuquerque, New Mexico

Likes review

I would like to add my comments on software protection. I am opposed to the prospect of other people getting copies of programs for free or from pirates that I had to pay for. I do like to make and use the backup copies of programs for protection of my own investment, and I have some software that I have bought legally that I cannot copy, but that is the risk I took when I bought the programs in the first place.

Concerning the letter from Curt Purdy in the Feedback column, I was not aware that "Compute is gone and 99'er is going": 99'er has changed its name to Home Computer Magazine (the third issue in their new format, Aug. 1984, is out now, they also cover other computers now; and Compute still has a limited amount of TI coverage, at least for

the time being.

Your review of the TE-1200 was excellent. The Newsbyte about the addendum from Star Micronics for the Gemini printer was also welcome news (that's what I'm using to print this letter).

Mark W. Gaddy
El Paso, Texas

Watch out

I would like to express my appreciation for the article in allowing more people to become aware of the (Amnion) Helpline.

While I am writing, I find it advisable to pass something along to you. I have here a copy of your June issue. On Pages 21 and 22 there is reference to a poke at the starting address of -31866 to "increase" memory. This is an extremely dangerous thing to do because it is like setting a time bomb and no one will know when it will go off to crash the system. Those two addresses store the code for CALL FILES. It is fortunate that the information given was incomplete. After the CALL LOAD is done it must be followed by the NEW command. Not doing so leaves the system quite vulnerable to one of those "unpredictable results" that TI is so famous for referring to in the manuals. Fooling around with the values at these addresses may give some nice "SIZE" numbers on the screen which are but an illusion, but it sets false flags for memory pointers!

I hope that we have been of some help to you in this.

Guy-Stafan Romano
Director
Amnion Helpline

TI problems

First off, I'd like to express my hopes that you continue to publish MICROpendium (and continue to enjoy doing it). You're already the only monthly publication covering the 99/4 (at least, you've been more "monthly" than HCM), and we need the kind of regular information you can provide.

Concerning copy protection and the lack of software, I'd like to point out a couple things. Firstly, there aren't REALLY that many TI99/4A computers out there that are eligible for good, quality software. The kind of software we're lacking requires memory and the 99/4A is, for all practical purposes, sold without memory. Sure, it has 256 bytes of RAM and 16K of VDP memory and a bunch of ROM and still more GROM, but fast, powerful programs on microcomputers need RAM and machine code, not GROMs and a slow BASIC interpreter written in a proprietary, non-documented language called GPL. To get RAM and machine code on a 99/4A requires additional hardware.

Curt Purdy mentioned Apple computers in his recent letter. We can only look in envy, not for valid comparisons, to Apple's software marketplace. Every Apple II-series machine sold has at least 48K RAM. That's an incredibly large potential market for software producers. I have no idea of the actual numbers, but I'm sure that only a small percentage of the TI99/4A consoles sold have expansion systems, or the equivalent, attached to them. Therefore, the potential for software sales to 99/4A owners is a lot smaller than the number of consoles sold.

Secondly, the TI99/4A is a lousy machine. Don't get me wrong I enjoy working with it and have learned a lot with it. But, it's taken me well over a year to get a good understanding of it, despite 20 years of prior computer experience. Its design is non-standard and difficult to grasp. The hidden GROM software and non-documented technical details are blatantly created roadblocks to anyone trying to exploit it.

(Please turn to Page 6)

The Feedback column is for readers. It is a forum to communicate with other readers. The editor will condense excessively lengthy submissions where necessary. Contributors should restrict themselves to one subject for the sake of simplicity. Feedback to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.



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Feedback

(Continued from Page 4)

machine's potential. Both commercial software producers and owners have to deal with that problem. Most software producers will deal with it by going to their local bookstore, to buy books on other computers, and ignore the TI99/4A. Most owners turn to other users, through user's groups, bulletin boards or personal contacts.

Because of the need for these contacts, the network for potential software piracy is probably far greater with the TI99/4A than other personal computers. Most Apple owners are simply consumer users of computers and accept software protection. But with that technical savvy that is almost a requirement for our machines comes knowledge that can be applied toward breaking software protection schemes. The whole thing is self-defeating; Those people that are the potential software buyers are the same people that can easily break the protection schemes and copy programs. And they know a lot of people to share them with.

As far as the 99/4A is concerned, I don't think there will be a pleasant resolution to this problem. There will never be a large number of consumer users of this machine; consumers buy to fulfill a need (either real or imagined). Because of the past practices of TI in denying software producers (and us owners!) a machine that could be easily understood and used, this machine will never have the potential to fulfill those needs. All that will be left is us hackers (in the old, good meaning of the word). As a friend said to me recently, "In another six months it'll be all over." I'm sorry I have to agree with him.

Earl Hall
Chicago, Illinois

Taken to task

I just sat down to try out the transliteration model you included in your last issue, and not only did you state that function U gets you into special character mode, which is

incorrect, but you continue to describe without sufficient enough detail how to use the transliteration model.

I have always been under the impression that one who teaches should first, have enough information to cover the subject in depth, and then have his audience clearly in mind as he, or she, attempts to transfer said knowledge into the minds of the listeners. Rarely is this the case, however, as this attempt on Page 14 of your July issue clearly points out. I wasted a half-hour trying to figure it out as I wanted to write you a letter, using this little tutorial, in a different font. Needless to say, I gave up. I can see this is another laborious task that will be accomplished only if I sit down with my un-empathetic TI-Writer manual, and for endless hours of head scratching and yelling at the kids to keep quiet-so-I-can-concentrate, try to make sense of it myself.

While I'm in the mood, I would also like to razz you for printing less-than-nice comments about Home Computer Magazine. Any publication that is filling a special need successfully should be commended. Pound per dollar, HCM is light years ahead of you. But MICROpendium has a more personal flavor. What's that old saying? If you don't have anything nice to say....

(Anyway), I received a pair of disk drives from a salvage-type electronics company from whom I receive catalogs regularly. What I received is something I have to advertise because of the ease with which I was able to modify these drives, their appearance, their price, and the swiftness with which they operate.

I received a box containing an off-white metal enclosure with a heavy metal face-plate with two TEAC FD-50A single-sided, double-density drives, with power supply and cooling fan inside. These drives were assembled in Japan for Digital Equipment Corp. and still have their logo on the face of each drive. Enclosed were schematics and instructions on how to modify for

plug compatibility with my TI99/4A. It cost me \$22 to modify this unit, and a little sweat at having to go beyond the only too brief instructions (see, it happens everywhere I turn). After I figured it out, I'm delighted to be using my DSK2. and DSK3., all at a total cost just under \$300. These drives come with a disclaimer of warranties, so it should be remembered that should they be improperly modified neither the manufacturer or the seller is liable for repair or replacement. However, if the drives reach you in less than operable condition, Electronic Supermarket, upon return shipment, will refund your money.

When I brought the mother boards to the electronics shop for modification, the technician mentioned the fact that these were not consumer components, but were apparently manufactured for commercial application, which often spells better-than-usual quality.

The (drive) enclosure is approximately 13x12x4 DEC Part #RX180AR. This unit can be ordered by calling (617)532-2323 or writing Electronic Supermarket, 119r Foster St., Peabody, MA 01961. The cost is \$269.

If anyone wishes, a completely modified version (fully tested on my TI) including two disks, formatted in their respective drives, can be obtained by writing to me. I will be happy to ship a modified drive by United Parcel Service for \$329 (I cannot be liable for carrier mishandling, etc.).

If any of your readers has a problem modifying these drives, just have them drop me a line with a SASE and I'll be happy to help.

Donald Shake
3-8 Fountain Dr.
Lakewood, New Jersey 08701

Ed: We have not criticized Home Computer Magazine, though we published a brief item in Newsbytes last month about its plans for Home Computer Digest. However, we did criticize Enthusiast 99 (the magazine of the International 99/4 Users Group) over its editorial policy.

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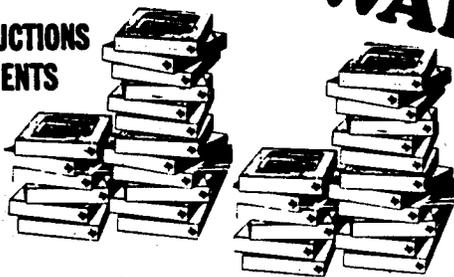


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Yo, ho, ho

Programmers strive to stay afloat in sea of piracy

By LAURA BURNS

Pirates in terms of computers are hardly swashbuckling, but are they a threat, like the buccaneers of yore?

Programmers for the TI give their views.

Larry Norton of Norton Software says he thinks everyone has been hurt by software pirates, but notes, "it's hard to put a price on what the figures are."

Gregory Kean of Kean Computing Inc. remarks that disk drives are getting sold more rapidly. "Piracy has also expanded as (more) people obtain disk drives," he says.

"It's hard to put a finger on it—mine are all accounting programs," says John Knupp of Pike Creek Computers. "Part of accounting programs is support. When things go wrong you have to call back and find out what to do. Also, accounting is not fun—that keeps all the hobbyists away from it."

Dr. Allan Swett of Intelpro says that piracy is "the single most economically devastating thing that's happening to TI programmers. In today's mail I received a letter from an unknowing purchaser of a pirated copy of my program asking for documentation."

Jim Peterson of Tigercub Software, who deals only in BASIC and Extended BASIC programs, is philosophical about piracy.

"I don't think it has hurt me a great deal. I have a catalog with about 130 programs rather than just a few," he says. Thus, he notes, if

someone copies a program of his, he might sell them something else.

"We're sure we've been hurt by piracy, but the market's so large it hasn't been that much," says Gene Harter of Not-Polyoptics.

Software pirates, he says, are not conspirators.

"The person in North Dakota is not connected to the person in Connecticut," he says. "There is not a network of piracy."

Most persons allow a friend or two to copy a program, he says, but not 50 friends.

"I think we can cut down piracy if we keep down prices," he says. "There's less of a need to pirate if the price is down."

Ken Dibble of Challenger Software says, "I believe everyone's hurt by piracy. It hurts the user, it hurts the programmer, it hurts the business. If I think for every one piece of software I produce there's going to be ten out there, I'll be reluctant to develop new stuff."

James Harvey of The Independent Mail Order Software Sales Associates says he hasn't been hurt by piracy that he knows of.

Piracy cannot be eliminated, he says, but "we can do some things in software if we want to slow that down considerably."

He notes that he has considered writing a program that would open a file and read it before displaying a



menu, so that just copying the program and giving it to somebody would not provide the program file.

"That would hurt your customers in that they couldn't make copies for their own use," he says. "I've not gone to that extreme but I see the possibility."

Harvey says he believes software buyers should be able to make backup copies. Norton says, "Our programs are protected so people pretty well can't do backups."

He adds that Norton Software will replace a diskette or cassette if a customer has problems.

"The thing with backups is that people usually make a couple dozen for their friends," he says.

"Usually the manufacturer will replace a program if anything goes wrong with it, so backups are not necessary," says Kean. Knupp notes that making backup copies for one's own use, not for resale, is well within the law.

"With my programs you can't do that, unfortunately," he says. He adds that he believes the copyright laws should have "more teeth" as far as other copies go, but "I don't know how you'd enforce it."

He says, "Unless you're on my computer, there's no way I could send you any updates. Sooner or

(Please turn to Page 10)

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PROBLEMS WITH COPIES—

(Continued from Page 8)

later, if I had a correction, you'd be really up a creek."

He adds that most persons who want to do a large mailing list or accounting program "come up on the honest side. I can vouch for that—I do a lot of C.O.D.s."

"I see no reason why program authors should be distressed by legitimate backups," Swett says. "We'll supply as many backups as our customers require at only a little more than the cost of the diskette—so counting postage, we're supplying backups essentially at cost."

Harter notes that he wishes there were a way to publish how to break protection codes "for honest people" who, he says, make up the majority of TI users. Dibble says that everyone is entitled to a backup, because everyone who uses a computer has had a program crash.

"I know of one users' group that will go nameless that had copies of some people's programs before they hit the market," he says. "Users' groups are a wonderful thing but some get carried away."

It is difficult to stop such activity,

he says.

"Is it worthwhile going to court for a few dollars?" he asks. Kean says that some people who have admitted to copying his programs "have claimed it's in the interest of my company to let other people see the quality of the programs."

Swett says he has the names of several individuals who have pirated software. He says his company has contacted the postmaster of one city and "sent a letter requesting that individual desist from piracy activity."

"A copyright is only as good as the money you have to defend it and there's simply not enough money in software to make enough money to hire a lawyer," Peterson says.

Norton says his company is currently looking into legal action against "a couple of dealers who have pirated programs and sell them at flea markets."

He notes that software piracy is currently "more an ethical problem than a legal problem," not yet well defined by law.

He says that both the United States and Canada "need to make a

stand" in this regard. However, he notes, this will not entirely solve the problem. Both countries have laws clearly forbidding the unlawful copying and selling of copyrighted videotapes, he points out, yet "everybody I know copies videotapes."

Problems exist, he says, when a person buys a database manager and makes 33 copies for his company. Otherwise, he says, "nobody's going to get caught copying software."

Most pirated copies of software are given away, the programmers agree.

However, Swett says he feels that there is "no such thing as a gift between businessmen." He says people are "letting themselves off the hook by saying it's a gift when there's no such thing."

Norton says that he decided against going into the Commodore 64 market because the piracy in that market is "ten times worse" than in the TI market.

He notes that only seven percent of TI users have the full system necessary to copy his Killer Caterpillar (Please turn to Page 12)

Ahoy! Protect yourself, mate!

Unlike sea captains of yesteryear, programmers cannot force software pirates to walk the plank. They can take them to court, but the remedies offered there may be worse than the disease. Court costs are high, and gathering hard evidence is tough.

For independent software producers an ounce of prevention may be worth a pound of cure.

It would seem that protecting a piece of software is the best insurance a programmer can have to control the product of his labor and avoid run-ins with the pirates.

There are a number of ways to protect programs meant for the TI99/4A, though the most effective involve the use of assembly language routines.

Here is a list of ways that programs can be protected:

—The protection convention of Extended BASIC is effective for most programs meant to run without memory expansion.

—The Disk Manager cartridge offers a proprietary protection feature that does not allow the Disk Manager to copy a protected disk. It is used by pressing the Function X key nine or 10 times while on any menu screen. A beep will sound and inverted "greater than" and "less than" symbols will appear at the top of the screen. Any disk initialized at this point will be protected in such a way that no program written to it may be copied.

—More sophisticated techniques involve the writing of programs as files and accessing the files via a loader program. Though it may not be difficult to break the protection on the loader, the file itself cannot be accessed directly as a program and loaded into memory. Generally, programmers who bother to write their programs in this way also include commands that prevent the program from being stopped once it is loaded. Usually the only way to get out of it is

(Please turn to Page 12)

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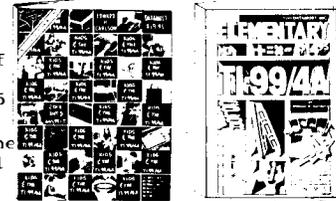


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PROTECTION FOR PROGRAMS—

(Continued from Page 10)

program and that he can look at that as "advertising" if they know how to break the protection scheme. The other 93 percent will have to buy the program.

Not all programs can be protected, he notes.

"BASIC programs are a complete writeoff," he says.

A problem with TI, he says, is that "the public got the impression that since TI stopped making the computer they have the right to get programs by any means they wish."

In the end, this means that there will be less software available, he believes.

Norton says that it is hard to say how much piracy takes place. He has heard, he says, figures ranging from one pirated copy for every legitimate copy to nine pirated copies to every legitimate copy. He says that nine out of every 10 buyers will not copy a program or break the code, but that the tenth person may make 20 copies.

Schools, Norton says, usually have complete computer systems and this can create a problem because there is usually a "whiz

kid" who copies software for his friends.

"It's like the videotape industry, or taping records for your friends," he notes. "When you start trying to sell pirated copies, people get mad."

In such a case, he says, the pirate faces a much greater chance of legal action.

"If somebody's selling pirate software, it eventually gets back to the company," he says.

Norton says that his Extended BASIC software used the XBASIC proprietary protection format, but notes that in the past few months his company has added additional protective schemes.

"Software piracy's going to go on," he feels. "People like to get something for free."

He said that if users' groups would teach people the implications of what is going on, fewer individuals would pirate software.

"I can't tell you everything we've done," is Harter's comment in regard to protection against pirates.

Dibble says his company has no plans to add further protection in that "protecting things where the

user can't back up his copy is a way to alienate the user."

Kean notes that there is no final solution in that "every protection has its counter unprotection."

Swett says that he has plans for a foolproof identification system which "can identify the original we sell so it can trace piracy that comes to our attention. We would be glad to share information regarding these techniques with any other software producers."

Harter says, "I know a lot of programmers who haven't even started programming because of fear of pirates. I think a lot of people have the idea they'll never make a profit because of pirates, but even pirates have to buy the programs to begin with." He adds, "I don't think fear of piracy is justified as a reason for not selling stuff."

Knupp says he knows of no one who has left the market because of piracy. He comments, "If you make a mistake in a game, who cares? They think it's part of the game."

In accounting, he points out, a mistake of a penny or a dollar is

(Please turn to Page 14)

...a few ideas on protecting oneself

(Continued from Page 10)

to QUIT. This form of protection is gaining popularity among TI programmers. Many of the newer applications programs are protected in this way. Of course, such protection schemes can be included only on software that requires an expansion memory and disk drive, which is one reason you are seeing more and more software that require these peripherals.

—The use of diskettes that do not have write notches is widely used by programmers writing for other machines. Such disks may be read but that is all.

Programs written on cassette can be protected using the Extended BASIC protect feature, but that's about it. Programs written in BASIC can be protected only through the use of a specially written protection program, of which at least one is available on the market.

It is widely believed that cartridges are the ultimate protection scheme for software. That may be

true in some cases, but there are some clever programmers who have been able to copy to disk virtually every cartridge program that exists, TI and third-party.

WHAT ARE THE ALTERNATIVES?

The alternatives depend largely on the honesty of everyone involved.

One common practice among vendors in other computer markets is to supply a backup disk with the original. This increases the cost of the product slightly, but it provides the purchaser with an authorized backup and relieves the vendor of the responsibility of having to provide the buyer with support down the line.

Another practice is to offer a backup disk at a nominal fee to the original purchaser of a program. A number of TI vendors are doing this, but the cost ranges from nominal to as much as one-half the cost of the original.



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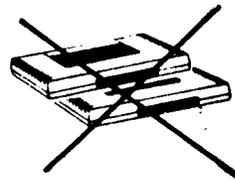
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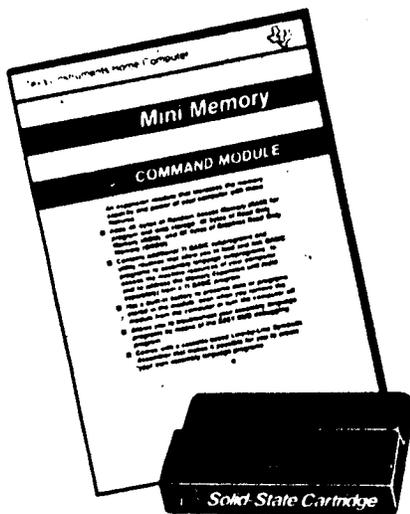


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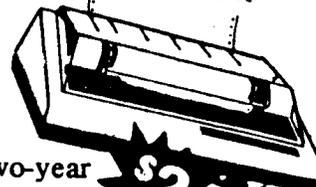
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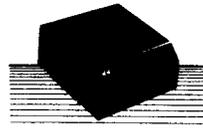
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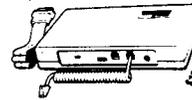
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EFFECTS ON AVAILABILITY—

(Continued from Page 12)

significant.

"If someone were to call me and weren't on my list I could find out very quickly," he says. "Accounting is a dynamic thing" which becomes perfected through use, he adds.

"We allow updates at a lower cost than going out and buying a new program," he says.

Swett says he does not personally know of anyone who has left the market because of pirates, but he has read of about a dozen who have.

"In my own case there are programs I never brought to market because of the apparent lack of support from the TI community," he says. "I'd like to make a challenge to people producing so-called backup

or disk unlocking tools to guarantee that they would compensate software developers for financial losses incurred because of their programs."

Peterson says he has corresponded with at least three programmers who have programs "on the shelf." He notes that it is not necessarily for the reason of piracy the programs haven't been marketed but "that could be a factor. It's because of the lack of market and the lack of market is because of piracy. In general, if everybody knows how to break protection and get programs for free, there's not much left to sell."

Tachyon offers 32K stand-alone

Tachyon Systems is offering a 32-kilobyte stand-alone unit that attaches directly to the side of the TI99/4A console. It is about the size of the TI Speech Synthesizer. The unit is priced at \$110, plus \$3 shipping per unit.

According to the manufacturer, the unit is compatible with all TI software. The unit includes an expansion connector, allowing the

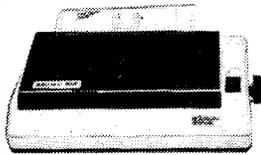
speech synthesizer, an RS232 stand-alone, expansion box or other compatible peripherals to be plugged into it. The memory is accessed through appropriate TI cartridges, such as Extended BASIC, Mini-Memory, Editor/Assembler, TI-Writer, etc. The unit comes with a six-month warranty.

For more information, contact the company at 5125 S. Westwind Way, Kearns, UT 84118, (801) 584-3527.

Dibble says he knows programmers who have given "serious consideration" to leaving the TI market. However, he adds, "Most people don't program for money. They program because they like to program."

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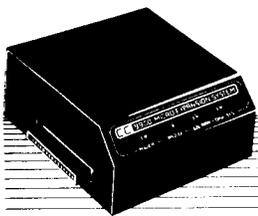


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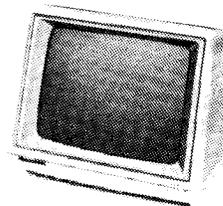
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Foundation improves 80-column card

Foundation Computing, which was on the verge of unveiling an 80-column card for the TI99/4A in August, has taken an unprecedented step by delaying the sale of the product in order to provide enhanced capabilities. The delay in shipment of the product is based on suggestions from initial purchasers.

According to company official Bill Hunter, the enhanced 80-column card will be ready for the market by October. Much of the cause of the improvements was due to a "very long, detailed letter" sent to the company from a TI user. Hunter said the writer of the letter offered "a number of suggestions."

Enhancements to the card were still being finalized in mid-September when Hunter was interviewed by MICROpendium. Although he declined to comment on specific modifications made to the card, he noted that the new card will be able to operate with a wider variety of software than the original model. Initially, the card was going to be bundled with an 80-column version of the Companion word processor and would offer an 80-column display of such programs as Microsoft Multiplan via the RS232 interface.

"The first card was designed basically to be used by people who wrote their own programs," Hunter said.

Hunter said Foundation had received numerous orders for the 80-column card when it was first announced in August, but the company returned checks to customers and told them that distribution would be delayed pending the modifications.

Those who are interested in ordering the card may contact Foundation. However, Hunter said, checks will not be accepted at this time.

Hunter feels the enhanced 80-column card will meet the needs of a broader range of customers than the original version. "We may alienate a few because of the delay, but I think it was the ethical thing to do when we knew a second version would be ready in a few weeks."

The card requires a high resolution monochrome or RGB color monitor to operate. Hunter recommends monitors in the 12 megahertz or higher band width.

An RGB monitor has three inputs (for green, red and blue video signals) as opposed to a composite monitor which has one video input. RGB color monitors are generally more expensive composite color monitors. However, they generally provide much better resolution than composite monitors.

For more information, contact Foundation at 74 Clair Way, Tiburon, CA 94920, (415) 388-3840.

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CorComp reorganizes again

Cor-Comp Inc. undertook its second corporate reorganization of the past year recently following what one company executive called "a very slow summer."

Don Scofield, CorComp's chief of engineering, said in mid-September that the reorganization "will make the company stronger." He noted that the reorganization affected "a little bit of everything."

The company's 9900 expansion

system is expected to be on dealer shelves by October, Scofield said. The design of the small box was changed somewhat during the summer. Initially, the box contained an RS232 card with one serial and one parallel ports. A second board is now available that contains 32 kilobytes of RAM memory and a double-sided, double-density disk controller. The major change in the board is the substitution of a 40-pin connector for a 28-pin connector that

eliminates the need for alignment procedures.

Scofield also noted that the company's 99000 expansion system, is still in the testing stage but that expansion boxes and front plates are already in stock. Scofield said a release date on this system will be announced at a later date. It does not seem likely at this point that the 99000 will be ready before the end of the year.

Texas Instruments vendors slash software prices

Those who have waited until now to buy TI cartridges may find that the wait was worth it.

Vendors of TI software are slashing prices on many items, particularly game and educational cartridges produced by Texas Instruments. Games such as Parsec that one retailed for about \$40 are

now selling for \$5-\$9. The price cuts do not affect a number of applications packages, including Extended BASIC, which is not readily available in many places.

The price cutting was at the direction of Texas Instruments. Though the company is not directly involved in the sale of home computer pro-

ducts, much of the outstanding inventory of its software is on consignment to dealers throughout the country. Prices charged by dealers depend largely on the price TI charges the dealers. By cutting the amount it expects to receive from dealers, the dealers are able to reduce prices so as to be able to sell off remaining TI inventories.

Intellestar to go out; special offer made

Intellestar is about to bite the dust, according to general manager Richard M. Jolles. However, the software company is offering a going-out-of-business deal to TI user groups.

Jolles says user groups may purchase all of the company's 20 programs for \$100 for groups of up to 100 members and \$150 for larger groups. Groups that participate in this offer will also acquire the right to provide copies of all the programs to its members at no additional charge.

All of the programs are educational in one way or another. Included are a life science series called CELLS-The Building Blocks of Life; Inside Frankie Stein, an animated "living simulation" of cellular interaction in the human body; and The Everything Teacher, a

question-answer series which includes TV Sweepstakes, Baseball, Space Patrol-Lost! and The Last Jellybean on Earth. Included with the latter is a program that allows users to create their own questions and answers.

Also included among the software is a very sophisticated Microsurgeon-type program called Heart Attack; Vyger, a space exploration game; Teacher's Helper, a grading system; Turn The Water Off!, a set of two programs for customized spelling drill; and Fireball, an arcade-style game that also provides math practice for players.

For more information, contact Intellestar at 25 West Middle Lane, Rockville, MD 20850, (301) 251-0046. The offer is expected to expire before the end of the year.

Graphics pad developed for TI

Super Sketch is the name of a new graphics pad which is compatible with the TI99/4A. It is being marketed by RC Distributing Co. of Fort Worth, Texas.

The graphics pad is priced at \$59.95.

The pad is about 10 inches wide and 14.5 inches long. It is connected to the TI console via a cartridge plug. The pad comes with an attached stylus arm on which graphics may be drawn.

The cursor on the computer monitor indicates the position of the stylus pointer on the pad. Thus, as the user draws, the exact image is transferred to the screen. Push button controls on the pad allow the cursor to be moved to menu selections on the screen. The various menu functions are activated by control buttons. Modes include color (foreground and background), draw, fill, brush (line width), erase and clear. Figures drawn can be automatically filled with a color selected. Packaged with Super Sketch is a user's manual and a "starter kit" with drawings to trace.

The pad is available for several other computers including Atari and Commodore 64. For more information, write RC Distributing Co., 4016 Sanguinet, Ft. Worth, TX 76107.

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ZORK I

Let your imagination go

Imagine a subterranean world filled with reservoirs, mysterious caverns and deadly creatures and you've only just begun to scratch the surface of ZORK I. This text adventure will test the skills of even the most seasoned adventurer and frustrate most. It has 110 rooms to explore and provides 59 objects which may be picked up. Just keeping track of the objects is a chore, which is made easier for those with a printer since everything that crosses the screen can be dumped via an RS232 port using either a serial or parallel interface.

ZORK I reminds me of my first encounter with an adventure game, playing on a mainframe at Texas Instruments' sprawling facility in Austin, Texas. This adventure was called simply The Cave, and it was so complex that employees often traded maps to help each other find their way through the caverns. This was several years ago and, at the time, no one had ever been able to work his way entirely through the game. This fascinated me and still does. And this same fascination was reawakened in me when I first loaded ZORK I into the TI.

ZORK I is what interactive fiction is all about. It is mysterious, intriguing, fraught with peril and so complex that keeping maps and making a record of your travels is a worthwhile thing to do.

I will mention at this point that I have not come close to identifying all the treasures (much less collecting them) and recommend that anyone who actually wants to complete the game but can't figure out everything for himself consult Infocom's InvisClues or A Shortcut Through Adventureland Vol. II—Infocom by Datamost. The latter includes hints about all of Infocom's first 10 games and retails for \$9.95. InvisClues are sold separately for each game and cost about \$8 each. Because of the complexity of this puzzle-filled game, using a hint

Review

Report Card

Performance	A
Ease of Use	A
Documentation	A
Value	A
Final Grade	A

Cost: \$39.95 (diskette)

Manufacturer: Infocom, 55 Wheeler St., Cambridge, MA 02138

Requirements: console, monitor or television, memory expansion and disk system, Extended BASIC, Mini-Memory or Editor/Assembler (printer optional)

book, in my opinion, is not cheating.

Performance: ZORK I starts out in the middle of nowhere, so to speak. Actually, it's a field. Eventually you will find your way to a vacant cottage and from there into the subterranean world. Since treasures must be deposited in the house, you must also find ways of returning to the surface.

In some ways, ZORK I is like Scott Adams' Adventureland. Most of the adventure takes place underground and the player is required to acquire objects of various kinds, i.e. swords, lanterns, etc., in order to further his search for hidden treasures. Players must overcome adversities of various kinds and figure out obscure puzzles to achieve success. There is an element of urgency in both games since the lights will go out if some way to replenish fuel is not found and the game can end with the death of the adventurer.

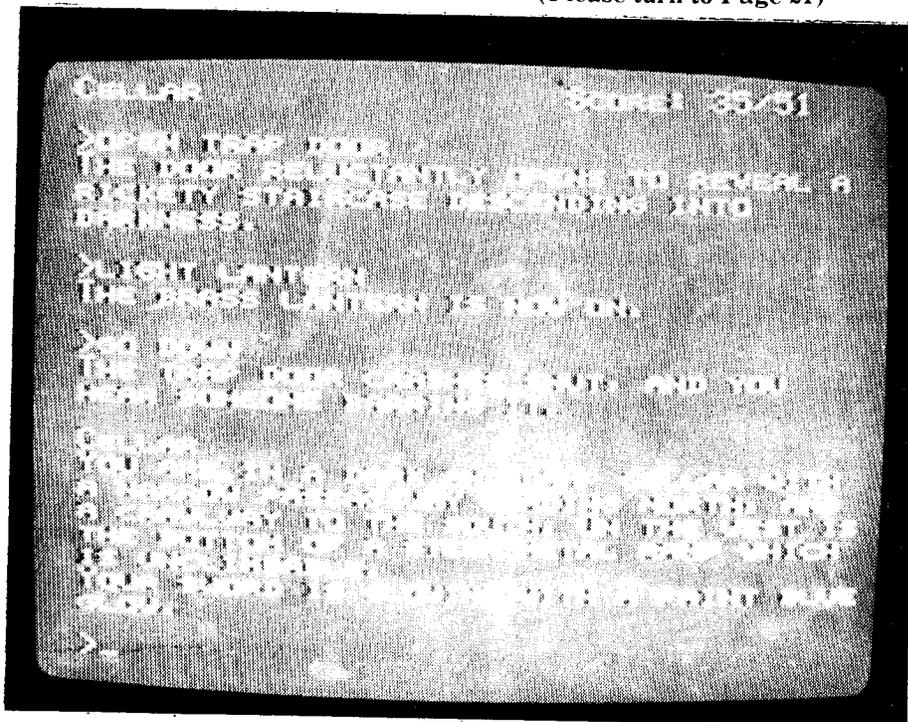
The major differences between ZORK I and Adventureland (aside from system requirements) include:

—a much larger vocabulary in ZORK I;

—far more rooms and objects (in fact, there are more rooms and objects in ZORK I than in any other Infocom game);

—the ability to use sentences rather than two-word commands (in most cases ZORK I requires that words not be abbreviated to less than six

(Please turn to Page 21)



ZORK I—

(Continued from Page 20)

letters);

—20 treasures must be found in ZORK I, compared to 12 in Adventureland.

Mental imagery plays an important part in any text adventure. If the game does not involve your imagination it is probably not worth playing. While most text adventures that I have played sketch mental pictures, so to speak, ZORK I comes close to painting pictures in one's mind. The game employs detailed descriptions of the environment and plans clues (such as pamphlets) that help you proceed through the adventure in a natural way.

For example, at one point, you come upon a dam, behind which is a reservoir. You enter the visitor's room and find a small pile of brochures designed to be read by tourists. This is quite natural since the operators of many reservoirs also provide tours to visitors. Reading the brochure provides you with information about the history of the civilization that built the dam as well as helping you gain a perspective on where you are.

What are some of the many objects that you will encounter in ZORK I? Beside the usual swords, knives and lights, you'll find a rubber raft, bicycle pump, Frobozz All-Purpose Goop and trident, and

the list goes on. The uses of some of the objects are not always obvious.

There are rooms aplenty, too, including mirrored rooms, rooms in which you cannot hear yourself think, rooms filled with slime, rooms filled with machinery, rooms with chimneys and rooms stained with blood. There are also rivers and high ridges and crevices and beaches and mountainous landscapes.

In addition to a save game feature (you may save the game five times at different stages and resave over any of the five previously saved games), ZORK I lets you speed through familiar parts by giving you the option of reducing the amount of detail that is included in descriptions. The commands for this include "verbose," "brief" and "superbrief."

A "diagnose" command is included to determine your physical condition. This is useful after a battle to determine the extent of your wounds and how long it will take to

recover. A "wait" command is also available that lets time pass without having to move. This can be useful when recovering from wounds and may also be employed to see what will happen in the game if you do nothing but wait in one spot.

The usual assortment of directional, inventory and other commands associated with text adventures are also available.

You will encounter more than one character during your adventuring who will pose a threat to you. Some will attack without apparent provocation while others seem more intent on stealing items from you rather than doing harm. However, if you initiate an attack, all of these characters will defend themselves, at least, as far as I can tell, they will.

Although most of your travels occur on foot, there are places that can only be reached by other means of transport. A raft, for example,

(Please turn to Page 26)

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Killer Caterpillar

Better than Centipede

By CHRIS BOBBITT

One of the most popular arcade games today, despite the fact that it is considered ancient in the very innovative software industry, is Centipede from Atari. It seems that no one can get enough of the quick action and superb graphics found in this game.

Killer Caterpillar, from Norton Software, is a member of the genre of games collectively referred to as "Centipede clones." Unlike its cousins, though, Killer Caterpillar is better than the game it is based on.

In Centipede, the object of the game is to destroy a rampaging caterpillar, whose mere touch means death to the player. The caterpillar wanders apparently aimlessly across the screen, back and forth, leisurely working its way to the bottom, where the player's small but destructive craft awaits. The game is by no means as simple as that. The field of play is filled with mushrooms that inhibit the accuracy of the player's shots by getting in the way. Also, to complicate matters, various other backyard beasts, such as spiders and snail-like creatures, further distract the player. To make things even worse, the caterpillar itself splits into separate but deadly pieces independent of each other if a segment in the center of the caterpillar is destroyed. All in all, it makes for a really tough game.

Killer Caterpillar reflects this plot. As with other Centipede clones, small details have been changed, usually to prevent copyright infringement. In Killer Caterpillar, the obstacles in the field of play are brick walls, and the snails are scorpions. Killer Caterpillar also has one more deadly obstacle not found in other versions of Centipede, the falling girder. If a sufficient number of brick walls have been destroyed, girders fall from the top of the screen, leaving trails of brick walls

Review

Report Card

Performance	A
Ease of Use	A
Documentation	A
Value	A-
Final Grade	A

Cost: \$29.95 (cartridge); \$19.95 (diskette and cassette)

Manufacturer: Norton Software, P.O. Box 3574 Halifax S., Halifax, Nova Scotia B3J 3J3

Requirements: console and monitor or television for cartridge version; memory expansion and Extended BASIC, Mini-Memory or Editor/Assembler for diskette and cassette versions, joysticks optional

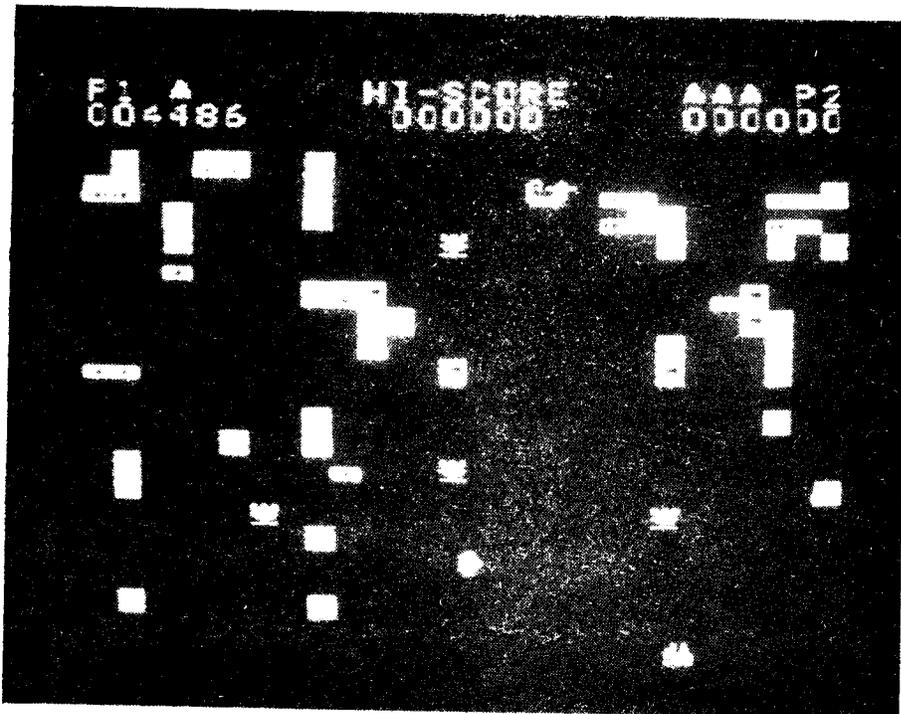
behind them. These girders will also destroy the player if he is unlucky enough not to move out of their path. This small feature adds a lot to the difficulty of the game.

As stated above, I believe Killer

Caterpillar is superior to Centipede. This opinion isn't based upon any bias on my part against Atari. On the contrary, I have enjoyed all the games Atarisoft has manufactured for the TI. Killer Caterpillar simply has better graphics than Centipede, and the game performs faster, without any of the stops and inadequate sprite coincidences found in Centipede. The reasons Killer Caterpillar is better than Centipede are technical. Killer Caterpillar uses the bit-map graphics mode of the computer, which incidently prohibits its use on the older TI99/4A computer. The bitmap mode allows the maxi-

mum graphics potential of the computer to be realized, with up to 16 colors for each 8x8 pixel block on the screen, and with the entire screen redefinable. Centipede, on the other hand, is written with the graphics capabilities found in the graphics mode used by Extended BASIC, called the pattern mode. The difference is spectacular. The bricks and

(Please turn to Page 23)



KILLER CATERPILLAR—

(Continued from Page 22)

girders in Killer Caterpillar are clearly bricks and girders, each with several colors. The animation is also superb, especially that found in the explosion of the player's own vehicle, and the tumbling of the falling girders.

Performance: The game is available on cartridge, or the game may be loaded in a variety of ways from diskette or cassette; both versions are included. Both the disk and cassette versions may be loaded using the Extended BASIC, Mini-Memory or Editor/Assembler cartridges. Both non-cartridge versions require a memory expansion.

The simplest way to load the disk version is to use Extended BASIC. The game automatically loads using the LOAD convention. The diskette versions all take a relatively short time to load and run, under 20 seconds. The cassette versions take an equal amount of time to load. All versions are the same.

When the game begins, a small demonstration of the game runs until the player chooses to stop it, by pressing any key. The player then may choose to play a one or two player game, and may choose from two levels of difficulty. In the two-player game, the plays take turns at shooting at the caterpillar, with the highest score displayed. The game, once it has begun, works much like Centipede: shoot anything on the

screen. The player(s) may use either joystick 1 or the arrow keys to control the vehicle. The speed of the game may be changed at any time by simply pressing a number key from one to nine, nine being the slowest. The game may be paused by pressing "T" for timeout. To restart the game the player simply presses any key but the "T" or the number keys. Overall, the game is very flexible, allowing the player literally to design his own playing environment.

Ease of Use: As stated above, the game is very flexible, and can be loaded and played in a variety of ways. The program is menu-driven, and easy to use. The documentation is practically unnecessary to the beginner. The more interested players may want to read about how to pause the game, or change the speed. But over all, the game can be used without even looking at the documentation other than to instructions on loading.

Documentation: The documentation for Killer Caterpillar is first rate. The manual is attractive, colorful and printed on good quality paper. It is roughly the same size as the manuals accompanying games from TI, and has a stiff paper cover depicting a rather vivid scene of giant caterpillars on a destructive rampage. It is written in an easy to read style, and is well laid out. First thing in the manual, on Page 1, are the loading instructions, followed by descriptions of the game and the cast of characters, and then some

actual playing instructions. At the end of the manual is a small section labeled "Intelligence Report" which has hints on how the game progresses in difficulty. This manual is far superior in every way to the manuals that come with the Atarisoft cartridges. The manuals compare favorably to the ones that come with TI cartridges. It contains a lot of information for its six pages and is arranged in a logical fashion.

Value: It is always difficult to pin a value on an arcade game. To some people, these games have absolutely no value. Some computer owners, however, bought their computers specifically to play these types of games. If you like fast action games with great graphics, then this would probably be the best purchase you could make. Even if you have the Atarisoft Centipede, as I do, and are satisfied with it, I still recommend this game to you. It opens up new worlds of graphics and speed, making you wonder what you ever saw in Centipede in the first place. Not only that, the disk and cassette versions are also less expensive than the Centipede cartridge. Also, with Killer Caterpillar, you needn't be concerned over whether you will receive the Commodore or Apple version of the instruction booklet.

If all future arcade games for the TI are this good, TI owners should never worry about a lack of good software. If you've been considering Centipede, stop! Send your order to Norton. You won't be disappointed.

More on Wycove Forth

Ed: The following article is a response from Wycove Systems Ltd. to last month's review of Wycove Forth. The article was submitted by Tim MacEachern, vice president of Wycove Systems Ltd. It was condensed slightly by the editor.

I appreciated the kind comments in the review and even more I

appreciate your help in publicizing Forth. Since writing Forth for the 99/4A we have not been able to get a review from any major magazine and I believe this has hurt our sales seriously. I had intended to do a few more packages for the 99/4A but was very discouraged at the lack of support. To produce a program such as Wycove Forth requires a lot of time

and attention to detail. The language has convinced me that the 99/4A is not obsolete at all, and I hope your readers will reach the same conclusion. In Wycove Forth the whole machine is available to you for fast access. It allows you to enjoy the 99/4A instead of struggling to get what you can out of BASIC.

(Please turn to Page 26)

Defender

Are you fast enough?

I found the TI version of the arcade space game Defender to be an enjoyable diversion. It is considerably more challenging to play than Parsec, which is similar though not nearly as fast moving or exciting.

Performance: Defender is best described as a game in which, try as you might to retain control, you inevitably will lose it. The game is designed to be played by one or two players taking turns. There are two difficulty levels: easy and hard. (In my mind, they can just as accurately be called hard and harder.) Each player starts out with three ships. Ships are added for every 10,000 points scored.

The action takes place above the mountainous surface of a planet, which constantly scrolls across the screen. However, the spaceship Defender suffers no damage if it happens to fly through the landscape.

As pilot of the small spaceship, it is your job to vaporize a variety of alien vessels while rescuing humanoids that have been captured by the opposing forces. In the end, you wind up not being able to rescue the humanoids at all as the enemy vessels multiply and close in on you.

This is the kind of game that teenagers who are very adept with a joystick will enjoy. I found that I reached my level of competence much too quickly. I lack the initiative it takes to sit in front of the computer hour after hour trying to gain a few thousand points over my previous best. And I am not the type of person who will purchase a book that will help me score more points at popular arcade games.

I know of no game for the TI that in its normal mode operates quite as fast as Defender. The Defender moves instantly left and right, up and down, across the screen. At first, you crash a lot, trying to get a feel for the joystick.

Review

Report Card

Performance:	A
Ease of Use:	A
Documentation:	B-
Value:	B
Final Grade:	B+

Cost: \$29.95 (cartridge)
Manufacturer: Atari Inc., P.O. Box 61657, Sunnyvale, CA 94086
Requirements: console, monitor or television, joysticks

The graphics are well done, with a "scanner" superimposed at the top of the "viewer" screen. The viewer screen shows the immediate area while the scanner shows what's in front of and behind the immediate area. The scanner is very useful, particularly in helping you avoid collisions with oncoming aliens. However, because of the speed of the game, the player has only enough

time to sneak glances at the scanner to see what's coming. Playing on a color television or monitor definitely enhances this game, primarily because it makes it easier to differentiate between the various types of alien craft.

Among these alien craft are Baiters, Mutants, Pods, Swarms, Bombers and Landers. Point values for hitting them vary, and some are more dangerous than others.

Landers are the first alien vessels to appear. They kidnap humanoids and shoot photons at you.

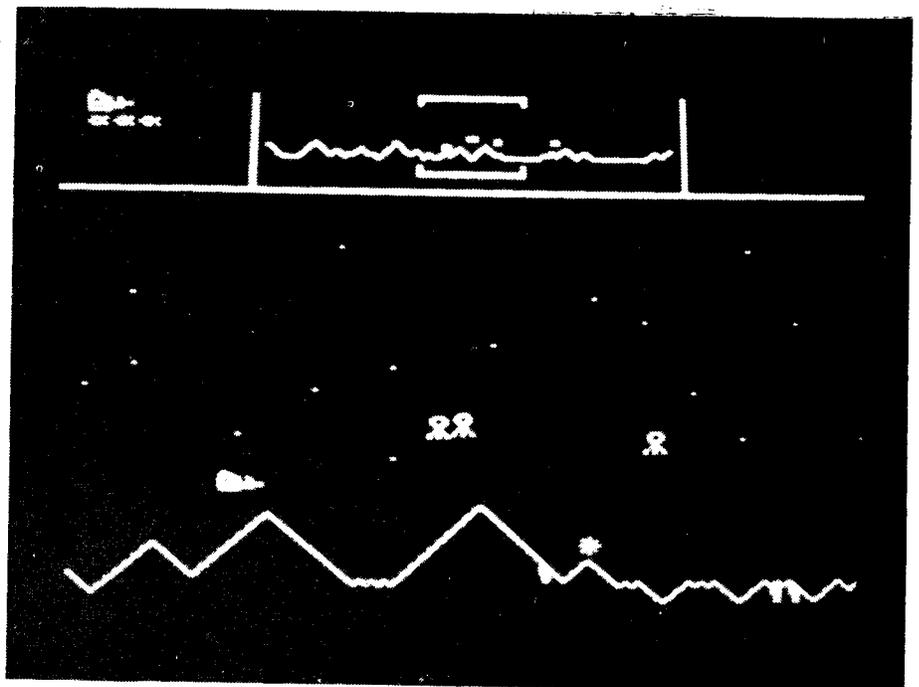
Bombers lay mines, which you cannot destroy. Your best strategy is to avoid the mines.

Baiters appear if it takes too long for you to defeat a wave of aliens. They move faster than Defender and fire white charges while homing in on you.

Mutants are transformed humanoids, which is why it is to your advantage to rescue humanoids. Mutants are difficult to destroy.

A Pod is the most dangerous alien because when you destroy it it

(Please turn to Page 25)



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DEFENDER—

(Continued from Page 24)

releases a group of Swarms. Swarms are tiny bombs that can best be likened to pieces of shrapnel from a hand grenade. Swarms continue to reappear on the screen until you destroy them or they destroy you.

The Defender, an agile and fast craft, carries two types of weapons: missiles and smart bombs. Missiles are fired using the joystick fire button. One is released each time you press the button. Smart bombs are fired using the space bar. Though Defender carries an unlimited number of missiles, it has only three smart bombs. (Additional smart bombs are earned for every 10,000 points.) Smart bombs are particularly useful when you are confronted with large numbers of alien craft. Using one vaporizes all alien craft visible on the viewer screen.

The direction and velocity of the Defender are controlled by the joystick. The harder you push the stick

left or right, the faster it goes in that direction.

The Defender also has the capability of entering hyperspace when you press any key except the "P." The "P" is for pausing the game. Hyperspace will randomly relocate the Defender on the screen.

Sound is used to good effect to represent explosions, the firing of missiles and the Defender's engines. Also, when a humanoid is being carried away from the surface of the planet, it emits a "scream" for help.

Points are scored by destroying alien craft and rescuing humanoids. Failing to rescue humanoids will result in a loss of points. Up to 1,000 points can be earned by rescuing and returning humanoids to the planet surface. If too many mutants are allowed to appear before the fifth wave of aliens, the planet will be destroyed and you will be whisked into space until you arrive at another planet.

Ease of Use: Arcade games are

simple to use by design. The speed of this game makes it difficult to obtain a high score without very good reflexes.

Documentation: The TI version of Defender comes with a colorful, four-page pamphlet that does a barely adequate job of answering a user's questions. It does not indicate how extra ships are added, for one thing. For another, it does not describe what a "wave" of aliens consists of, noting only that after each wave bonus points are tallied based on the number of surviving humanoids and the number of the wave. The pamphlet offers a number of useful strategic tips.

Value: The value of this game lies in its speed and design. Although only those who have excellent reflexes are likely to achieve very high scores, even the less adept are not likely to become frustrated because even a high-scoring game takes little time to play.

—JK

ZORK I—

(Continued from Page 21)

will help you make your way down a river. However, using a vehicle comes at some cost. For example, you cannot carry any objects that might puncture the raft. Thus, while the raft may allow you to reach a completely different region in ZORK I, you will likely arrive there without any weapons to protect yourself. Of course, that is not to say that replacement weapons cannot be found in these other regions.

Keeping score in ZORK I is more than counting up treasures. The score, displayed at the upper right hand corner of the screen, consists of two numbers separated by a slash mark. The first number represents your score and the second number represents the number of moves you've taken.

Ease of Use: Anyone who has played a text adventure will find ZORK I to be quite accessible, at least in the beginning. There are no great, impenetrable puzzles in the beginning that make your descent into the underground difficult. All input is via the keyboard and requires the use of nouns and verbs. I find this more satisfactory than coming up with the cryptic, two-word instructions required by most other text adventures.

Instructions for loading the game using any of the three TI cartridges are easy to follow. After the program is loaded, you are instructed to reverse the position of the diskette in the drive so that the game files can be loaded. The disk must remain in the drive while the game is being played since files are loaded constantly during play. For those who encounter technical problems, Infocom has a hotline that may be called for assistance.

Documentation: The TI version of ZORK I uses the same packaging as versions for other computers. Included is the well-conceived ZORK I manual, which is non-specific in terms of computer brands, and a four-page insert with specific instructions for TI users for loading and saving the game and

using a printer. Included is a subscription form to The New Zork Times, a free (apparently periodical) brochure about Infocom games. I have not seen this brochure, but the price is right.

Value: This is a terrific game. I know of no other text adventure (not including other Infocom games) with the depth of imagery and detail of ZORK I. Although it is accessible insofar as the user can discover a great many rooms and find a large number of objects without mental gymnastics, it includes some very subtle puzzles that must be solved in order to find and escape with all the treasures. There are references to Greek classics—Homer's Odyssey, for instance—that will not doubt cause problems for some players. Thankfully, the solutions to the puzzles posed by these literary references can be deduced ("Odysseus" is a good word to use when encountering a cyclops).

Having this game to play almost makes me wish I didn't have a magazine to publish so that I could have more time to devote to playing it.

It is that good.

—JK

WYCOVE FORTH—

(Continued from Page 23)

I must say that overall it (the review) is fair and... flattering to us. I will point out some things that seem to have been misunderstood, but it takes a while for someone to completely absorb a language, so I can't fault your reviewer for missing them. In particular, both Wycove Forth and TI-Forth are based on FIG Forth and any user who really wants to understand Forth should read a book on standard FIG Forth. As you will agree, once the manual gets up to 180 pages things tend to get lost in the shuffle. Here are some comments on the article:

—The memory allotted for disk buffer storage is separate from that used by the Forth programs. In Wycove Forth 12K of memory is

immediately available for programs, and the system can be reconfigured to release up to 6K more RAM memory.

—Speech. Wycove Forth is the only system around that allows the programmer to control exactly what is spoken and when it will be spoken. With the addition of the Terminal Emulator II module and the Widget from Navarone Industries, Wycove Forth can become an extremely powerful development system for speech-related work.

—Editors. There seems to be implied some idea that the 960 characters on-screen in the Wycove text mode editor are inferior to the 1,024 characters in split screens of the TI editor. In fact, we have found that for program development the 24x40 format is much superior to the 16x64 format, which was supported in our original release of Wycove Forth. The only shortcoming of the 24x40 format is that it is non-standard.

—Disk capacity. Wycove Forth uses standard disk format for storage of its programming screens. In addition, the executable Forth system itself can be extended and stored on the same disks. In order to help ensure that the screens file, which cannot be shortened, does not grow past what the programmer desires, a variable called #SCREENS is included. To use up to the 89 screens available on a disk, all that is necessary is to reset the value of this variable. Similarly, when using double-sided disk drives, this variable can be set to use the whole diskette. This is explained on Page 40 the manual.

Overall, there seem to be several points that were not clarified in our manual, but are fairly easy to do—for instance, changing the initial color scheme and starting up the bit-map mode editor (addressed on Page 44). In the particular case of Forth just about everything in the system can be changed to suit the user's desires, so it is hard to include everything in the documentation. Reviews like yours will help us determine what has been left out of the manual for improvement in our next printing.

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Newsbytes

XBASIC sold

A Lubbock, Texas, software company has obtained the rights to produce the Extended BASIC cartridge.

SunWare Ltd. president Charles Roberts confirmed that the company has purchased the rights to the cartridge from TI. Plans for continued distribution, as well as the production rights to other TI cartridges, is not known at this time.

New catalog out

Tenex Computer Marketing Systems has issued a new edition of its "Everything Book for the TI Home Computer." The magazine-sized catalog includes 48 pages of TI and third-party products. The catalog will be sent free to anyone who asks for it, according to the company. For more information, contact Tenex at 1-800-348-2778 (219-259-7051 in Indiana). Or write to the company at P.O. Box 6578, South Bend, IN 46660.

Unisource changes

Unisource Electronics Inc., a major mail-order vendor of TI99/4A products, has reorganized after being purchased by New Unisource Electronics Inc. on Aug. 21. According to Craig Reitan, president of the Lubbock, Texas, based Unisource, "This move allows an additional capital injection for the rapid growth we have been experiencing and will result in a stronger management team." Reitan says he will continue as part owner and as part of the management team.

The New Unisource Electronics Inc. will revert to the former name of Unisource Electronics Inc. after legal paperwork is finished, according to Rex Isom, president of New Unisource Electronics Inc. According to Isom, the new company has installed a 96 megabyte hard disk drive for order entry and processing and inventory control. The company

has added WATS telephone lines and increased its staff of telephone sales people. Also, a separate customer service function has been added. The company has moved into larger quarters and has beefed up its technical information and product service capability, Isom says. The company is on the verge of finishing a new catalog for the TI99/4A.

Other management changes include the naming of a new general manager, Robin Reynolds, and a new administration manager, Debbie Hood. The company will continue to use all telephone numbers and addresses used in the past.

Second Faire

"Bigger and better" is a phrase that may well be used to describe expectations for the second annual TI99/4A Computer Faire sponsored by the Chicago TI99/4A User's Group.

The group planned for a small gathering last year, expecting about 250 persons to show up. Instead, more than 1,000 attended, according to Dave Wakely, club president.

Wakely says the club has invited 75 TI vendors to this year's event. Last year some 14 vendors attended, though only 35 were invited. The group has booth space for about 30 vendors, Wakely said.

Keynote speaker for the event is expected to be Don Bynum. Bynum is the former head of TI's home computer division. He is largely responsible for having brought the TI99/4A to market.

The faire is scheduled from 10 a.m. to 4 p.m. Nov. 10 at the College Center Building on the campus of Triton Junior College in River Grove. Admission is free to members of any TI user's group and \$2 to the general public. There will be door prizes, presentations on TI-Writer, Multiplan and TI-Forth, as well as arcade game competitions and demonstrations of the group's all-TI electronic bulletin board. (312) 848-3669.

Vendors who are interested in learning more about the faire may write the group at P.O. Box 578341, Chicago, IL 60657. The cost is \$50 for a 120 square foot area.

Enhanced program

Quality 99 Software has come out with an enhanced version of its QUICK-COPYer disk copying program. Called QUICK-COPYer II, the program provides users with the option to initialize disks and works with either Extended BASIC, Mini-Memory or Editor/Assembler interchangeably. The company says the program also reorganizes disks for faster access and allows for full or selective disk backup. QUICK-COPYer II lists for \$39.95. The company has notified registered purchasers of the original QUICK-COPYer program of a half-price exchange offer.

The company is also introducing a number of new programs, including FAST-COPYer (\$19.95), which copies single-sided diskettes in two passes and double-sided disks in four passes; Draw 'N Plot (\$39.95), a utility that allows users to draw images and save them to disk to be read into another program or dump them to a printer (includes 8 plotting commands); Data Base 99 (\$39.95), a file manager that allows the user to create up to 28 fields consisting of up to 28 characters each with user-controlled output formatting to a printer; and XB-Forth (\$19.95), allows users to load TI-Forth (not included) out of Extended BASIC.

All of these programs require a memory expansion and disk system.

For information, contact the company at 1884 Columbia Rd., #500, Washington, D.C. 20009, (202) 667-3574.

Newsbytes is a column of general information for TI99/4A users. It includes product announcements and other items of interest. The publisher does not necessarily endorse products listed in this column. Vendors and others are encouraged to submit items for consideration. Items submitted will be verified by the staff before inclusion and edited to fit the Newsbytes format. Mail items to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

User Notes

PIO default, too

As announced last month, new software files for use with TI-Writer and Microsoft Multiplan will be supplied by MICROpendium free of charge to readers. Since then, however, one additional file has been added to the TI-Writer updates allowing those with parallel printers to have printer defaults, too.

The TI-Writer file updates include files providing true lower-case letters in the edit mode and a choice of printer defaults in the formatter mode. Included are two files for use with a serial printer and one for use with a parallel printer. The formatter updates also eliminate the page feed that normally precedes all printing operations. The Multiplan updates include files that provide an auto-repeating cursor, which greatly speeds up data entry.

Texas Instruments originally released these files to user groups in July.

To obtain copies of all of these files, send a formatted disk to MICROpendium, P.O. Box 1343, Round Rock, TX 78680. Include a self-addressed return disk envelope with sufficient postage attached for return delivery. Instructions to use the new files are included with each disk and may be read using TI-Writer.

Auto-load tip

There are a number of public domain auto-load programs available, but some of them will not display long programs that are stored as INT/VAR 254, which is how programs longer than about 13K are stored by the TI. Programs less than 13K are stored as PROGRAM.

Auto-load programs, of course, are like catalog programs except that after the disk catalog is listed the user may select one of the programs and have it load and run automatically.

According to the Birmingham TI Users' Group of Birmingham, Alabama, users can modify auto-

load programs so that they will display long programs filed as INT/VAR 254. BUG recommends that you add the following (or similar) line to your auto-load program where comparisons for file type are made. Here's the line:
297 IF ABS(A)=4 AND K=254
THEN 310

The line number references, of course, would depend on your program, as well as the variables. At the least, it's something to go on.

Speak up

Sometimes solutions to problems can be so obvious that one never sees them. Anyone who has ever used a cassette player to load data knows how long it can take to locate a particular program or file. Of course, we're supposed to use tape counters and write down the location of each program. But, nobody's perfect.

Here's a tip from the Nine T Nine User Group of Toronto, Ontario, that may be of use to those who neglect to put things in writing: Put it in speech. That is, before you start recording a file or program onto cassette, record its name using your voice. Doing so, you can hear your voice through the television or monitor speaker when you're searching the tape for the desired program. (Oh, yes, remove the microphone jack from the recorder to record your voice and replace the jack before recording or loading your program.)

Now, wasn't that just too obvious to mention?

Never, never

There are some things one should never do with a computer. One should never take a bath with a computer, for one. Another is to never hang up on an electronic bulletin board or telecommunications service without signing off in the proper way. Just hanging up the phone on The Source, for example, could result in extra charges because you will continue to be

billed for a connection until the host computer finally figures out you're no longer on line (this can take 20 minutes). And with many local bulletin board services you could lock out other users from the system by simply hanging up. Some systems require operator intervention to correct this problem while others do it automatically. Either way, it takes time.

What you'll pay

Here is a list of prices that TI charges for equipment exchanges (the information comes from the Hoosiers Users Group of Indianapolis, Indiana):

Item	In warranty	Out of warranty
Console	\$7	\$28.25
Power pack	\$3	\$10.00
Modulator	\$3	\$10.00
Speech Synthesizer	\$5	\$32.50
Joysticks	\$5	\$11.25
PEB	\$7	\$58.00
Flex cable	\$7	\$25.00
RS232 card	\$5	\$36.00
Disk controller card	\$5	\$47.00
Disk drive (internal)	\$5	\$63.50
(external)	\$5	\$83.00
32K memory card	\$5	\$47.00
Recorder	\$5	\$19.50

There are also sales taxes and shipping charges to consider. Exchange prices for software varies.

Leave some room

You don't want to play it too close to the vest with the Personal Record Keeping cartridge, according to Robert Hamsher, president of the Airport Area Computer Club of Coraopolis, Pennsylvania. Although the manual warns users to leave 2 percent of the available record space unused, many may try to use all of the available memory. The computer can lock up when this is done.

Those using cassette for data storage with the PRK should leave even more space unused if the

(Please turn to Page 30)

User Notes

(Continued from Page 29)

records are to be outputted to a printer. Hamsher recommends that 30 percent of the available space remain unused in this instance. Otherwise, he notes, the console may lock up.

Changing shape

Tired of that plain, blinking square called a cursor? Like to see something in a designer cursor? Perhaps in the shape of the state of Texas? According to the Columbus (Ohio) 99/4A Users Group, you can do this with a series of CALL LOADs. (We recommend caution when using any CALL LOADs as results in some cases may be unpredictable). This transformation requires a memory expansion and Extended BASIC. Here's the program:

```
1 CALL CLEAR :: CALL INIT
2 CALL LOAD(8196,63,248)
3 CALL LOAD(16376,67,85,82,83,79,82,48,8)
4 CALL LOAD(12288,48,48,63,255,254,124,24,12)
5 CALL LOAD(12296,2,0,3,24,0,2,1,48,0,2,2,0,8,4,32,32,36,4,91)
6 CALL LINK("CURSOR") ::
END
```

Enter RUN and the program loads the redefined cursor into high memory where it will remain until you QUIT or type BYE. Other Extended BASIC programs may be loaded and the cursor will remain in its redefined shape.

Line 4 carries the workload here. CALL LOAD(12288,0,0,0,0,0,0,252) results in a flat line cursor. Deleting line 4 results in an invisible cursor. Now, that could be amusing.

Soundings

The Central Iowa Users Group of Des Moines, Iowa, offers a few suggestions for creating interesting

sound effects using the Terminal Emulator II cartridge. Using the program that appears on page 37 of

the TEII manual you can create the following sounds:

```
Steam Locomotive: "KKKKKKKK"
or "QQQQQQQQ"
Helicopter: "UUUUUUUU" or
"WWWWWWW"
Small Airplane: "VVVVVVVV" or
"YYYYYYYY"
Machine Gun: "JJJJJJJJ"
Sewing Machine: "XXXXXXXXX"
```

Freeze it

Wouldn't it be nice to be able to stop the output of a BASIC or Extended BASIC program while it is scrolling data across the screen? Mike Henry of the Upstate 99/4A Users Group of Albany, New York, has devised a subroutine that allows the user to do just that. To make it work, insert a GOSUB 6000 line after every print line in the program. Then enter the routine starting at line 6000. Of course, you may number it anyway you wish. Hold any key down to freeze the output on the screen. Press any key to continue scrolling.

```
6000 REM FREEZE ROUTINE
6010 CALL KEY(3, KKK, SSS)
6020 IF SSS=0 THEN 6060
6030 CALL KEY(3, KKK, SSS)
6040 IF SSS=0 THEN 6030
6050 IF SSS=-1 THEN 6030
6060 RETURN
```

CR remover

The following program comes from Curt Purdy of Phenix City, Alabama. It is used to eliminate the carriage returns and linefeed symbols that appear at the end of every line of text when dumping data to a disk using TE-1200. Users must first convert the TE-1200 files from D/V128 to D/V80 using a converter program such as the one published

in the August issue of MICROpendium. After using this CR remover, users can load the file into TI-Writer and reformat it without having to delete each LF and CR individually.

This program may be adapted for use with other programs simply by changing the file characteristics in lines 130 and 140.

```
100 ! CR REMOVER
110 INPUT "DSK1# & FILENAME
OF ORIGINAL D/V80 FILE? ":
D$
120 INPUT "DSK.# & FILENAME
FOR NEW D/V80 FILE? ":N$
130 OPEN #1:D$,DISPLAY ,VAR
IABLE 80
140 OPEN #2:N$,DISPLAY ,VAR
IABLE 80
150 IF EOF(1) THEN 210
160 LINPUT #1:A$
170 P=POS(A$,CHR$(13),1)
180 IF P=0 THEN B$=A$ ELSE
B$=SEG$(A$,1,P-1)
190 PRINT #2:B$
200 GOTO 150
210 CLOSE #1 :: CLOSE #2
```

Clean it up

Bill W. Knecht of Houston, Texas, writes: If the end of your program has a GOTO, you have to use FCTN 4 to stop the program. When you do, you get a cluttered-looking screen. Instead of the GOTO ###, replace it with:

```
CALL KEY(0,K,S) :: IF S=0 THEN
### :: CALL CLEAR :: STOP
```

The screen will hold the display until any key is pushed. Then the screen will become blank. This is a lot neater than the clutter.

User Notes is a column of tips and ideas designed to help readers put their home computers to better use.

The information provided here comes from many sources, including TI home computer user group newsletters. MICROpendium will pay \$10 for any item sent in by readers that appears in this column. Mail tips to: MICROpendium, P.O. Box 1343, Round Rock, TX78680.

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