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MICROpendium
Volume 1

Compiled by Mike Wright
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TEXAS INSTRUMENTS
HOME COMPUTER

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Home Computer Compendium

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A New Magazine For TI99/4A Computer Users

1:1:3. What is the *Home Computer Compendium*?

by John Koloen, publisher.

It may be better to begin answering the above question by describing what the *Home Computer Compendium* is not.

As you can see, *HCC* is not a slick, high-priced magazine. Nor is it a clever merchandising scheme. We have no intention of selling you, the reader, anything other than this magazine. We have no plans to market software, books, T-shirts or anything else that cannot fit between the covers of the *Compendium*. To paraphrase a popular television commercial, we will strive to do only one thing well.

So what is the *Home Computer Compendium*?

It is a conduit, a source of information and a vehicle for the dissemination of information.

It is also unique among computer publications inasmuch as it operates under newspaper-type deadlines. All of our schedules revolve around the goal of providing up-to-date articles and news. We have the capability of going to press within a day of completing a late-breaking story, unlike other publications which must work months in advance of publication dates.

We also offer a classified advertising section, which we hope you will find useful.

Each edition will also include a minimum of six staff-produced reviews of software, hardware and other items designed for use with the TI home computer. They will be unbiased, consumer-oriented reviews with an opportunity for rebuttal on the part of vendors.

We urge you to review this edition carefully. It is the prototype of what will follow. We hope it is the smallest we ever publish, but regardless of its size we feel that the *Compendium* is an idea whose time has come.

We hope you agree.

> Sincerely,
> John Koloen
> Publisher

1:1:4. TI: Answers to your questions about what it will do for you — and what it won't.

Although Texas Instruments is no longer producing the TI-99/4A home computer, it is not turning its back on buyers of the popular, low-priced machine.

TI spokesmen in Lubbock, Texas and elsewhere say that TI will continue to provide support for the home computer "on an indefinite basis".

According to Jon Campbell, manager of press relations for TI's consumer group, this open-ended service policy extends not only to the console but to all TI peripherals, cards and software.

Citing TI's service policies regarding other discontinued items, including watches and calculators, Campbell said, "we'll continue to maintain our repair facilities for out-of-warranty repairs." He noted that users in need of service may continue to send the units to the Lubbock repair facility as has been done in the past. Repairs to out-of-warranty items will be billed to the user. Consoles come with a one-year warranty while other hardware and software items come with a 90-day warranty. There is no charge for repairs made during the warranty period.

Campbell says the company continues to service and repair calculators that are 10 years old. Although TI stopped producing watches three years ago, he notes, service is still provided for them. As of mid-December, he said, TI was still producing consoles to meet contractual obligations. TI stopped taking new orders on the consoles when it announced that it was leaving the home computer business.

As of December, however, Campbell says, "we haven't ceased manufacturing software." Although TI will not continue to produce software for a significant length of time, Campbell says, TI is engaged in negotiations with numerous companies interested in taking over production of the software.

"The plan is to eventually get rid of it," Campbell says of software production. "We're making every attempt to get other vendors to continue to produce software before we phase out of it."

He notes that about two-thirds of TI software was created by third party developers, and they are being offered the first shot at receiving the production rights from TI.

As for TI's toll-free telephone number — 800-TI-CARES — Campbell says the company has no intention of discontinuing it. It's now operating six days a week, he says, and everyone who has ever worked on the line for TI has been called back to staff it.

"It's pretty well swamped with people wanting reassurance," Campbell says.

The toll-free line is not designed exclusively for home computer users, Campbell says. It's also used by purchasers of calculators and other items sold by TI.

Asked about a bid by the International 99/4 Users Group to take over the toll-free number, Campbell said, "they've talked to us about it."

While Campbell maintains that TI isn't going to abandon users, it's apparent that the network of user groups that TI helped establish has been orphaned by the company. Campbell indicated that the company will no longer offer support to the user groups, and said that he is not aware of any plans to provide a final "wrap up".

Several user groups have told *Home Computer Compendium* that they have not been able to get in touch with TI's user group coordinator since November.

At this point, there is little information available about the availability of particular software titles, though supplies of most cartridges seem to be plentiful.

Hardware availability is another matter. There are virtually no peripheral expansion boxes remaining on dealers' shelves. However, peripheral cards are still obtainable.

The new TI service policies do not appear to be significantly different from those of the past. The most fundamental change is in the elimination of an exchange policy, whereby users could take defective units to one of TI's exchange centers and receive a new or reconditioned unit. This service was provided without charge if the unit was still in warranty or at a relatively modest charge if out of warranty.

Campbell estimates that users can expect to wait an average of two weeks for repairs to be made.

Software service will be handled in the same way as hardware service at this point. Once contracts with third party vendors have been signed, the vendors will be expected to provide service for the software. TI manufactured software carries a three-month warranty from the date of purchase. Third party negotiations seem to be concentrating on applications software.

— JK

1:1:6. Dream Machine?

The soon to be unveiled 99/64 (aka Phoenix) may be the best home computer yet.

Speculation about a successor to the TI-99/4A home computer has been settled by a California-based hardware manufacturer called CorComp Inc.

The company is producing a computer called the 99/64, dubbed the Phoenix, that it expects to have on the market by March.

According to a company spokesman, the new machine will be compatible with all TI-99/4A software and hardware. The cost of the machines is expected to be in the $500-$600 range.

Features of the new machine include 64 kilobytes of built-in random access memory (RAM) and a built-in RS232 port and disk drive controller. The machine is supposed to come with a host of other features, including expandability to one Megabyte of RAM in 64K increments and plug-in ports for such central processing unit chips as the Mostek 6502 chip used in Apple and Atari computers, the Intel 8088 chip used in the IBM-PC and the Z80A used in Osborne and Timex computers.

According to Dana Webb, in charge of public relations for CorComp, the machine will be unveiled at the winter Consumer Electronics Show.

Webb characterizes the new computer as a "modular unit". Users will have a choice of three keyboards: typewriter style, Mylar and word-processing style with a built-in numeric keypad and programmable function keys. Each will be priced differently.

The keyboard will be separate from the CorComp peripheral expansion box that is the brains of the new system. Webb describes the PEB as a "slimline version of the Texas Instruments (peripheral expansion) box". It will include a motherboard with two cartridge slots and a processor slot.

The system will come with what CorComp calls "Improved Extended BASIC" in ROM (read only memory). It will also have what Webb calls "a true Extended BASIC compiler" and an operating system that allows the user the option of choosing screen display formats. Webb says the user will be able to chose from 32-, 40-, 80- or 132-column displays. The user will also be able to choose screen color, he says. The screen will include 25 rows, with the bottom row dedicated to command lines.

The system will feature numerous built-in utilities. Webb said, including a word processor, spelling checker, spread sheet, mail-merge to the word processor. menu planner, text filer and database manager. It will also have a built-in text-to-speech capability, real-time clock, two game controller ports-one Atari compatible, the other Apple compatible-hard disk capability and networking capability for multiuser systems.

The disk drive controller card will accept up to four double-sided, quad-density drives, Webb said.

Planned for the system are plug-in cards for CP/M, Logo and Pascal.

Other standard features, Webb says, are a built-in light pen, graphics code generator and music code generator.

CorComp is setting up its own distribution network, Webb says, eschewing the major chains that TI used. "We don't expect to use any mass merchandising yet, or probably in the future," he says.

Another CorComp official indicated that the company has already turned down bids by such companies as Sears to distribute the machine.

A number of mail-order houses that currently stock CorComp's other hardware products, including a 32K memory expansion card and RS232 card for the TI-99/4A, expect to sell the new computer when it hits the market. Among these are Unisource Electronics of Lubbock, Texas, and Tenex Computer Marketing Systems of South Bend, Indiana. Neither had received any information from CorComp about the Phoenix by late December.

The International 99 Users Group of Bethany, Oklahoma. is said to have one of the machines and is supposed to be in the process of testing it. However, Charles LaFara, president of the IUG, declined to comment when asked about the Phoenix.

[The machine was never released — Ed.]

1:1:7. Vendors shifting gears; remain loyal to TI market

Nothing is permanent except change — Heraclitus © 544-483 BC)

For some, it's a newfound opportunity, with the major competitor out of the market.

For others, it's a signal that they'd better start looking for other pastures

Texas Instruments' decision to get out of the home computer market have been met with varying reactions from third party vendors. Nobody was really ready for it, but most vendors interviewed by the *Compendium* have made plans for future actions, one way or another.

Gene Harter, a general partner in Not-Polyoptics, reflects what he says was his firm's "mixed reaction" to the TI Pullout.

"At first we were dismayed," he says. "We knew the TI was the best home computer you could get at twice the price. Even at $250 that computer outclassed its competition and it just wasn't fair when that computer went away."

Yet there is a bright side.

"TI was our biggest competitor and they've gone out of business," Harter comments. "As far as business goes, it's going to help us."

Roger Dooley, president of Tenex Computer Marketing Systems, South Bend, Indiana, echoes this optimistic viewpoint.

"I think that there is going to be a large aftermarket for the next one or two years," he says.

He notes that among the third party vendors whose orders Tenex handles, there is "95 percent enthusiasm to stay in a market in which their largest competitor has deserted."

However, he notes, "in the long run people question the viability of the TI market" unless some of the rumors of a compatible console to be produced by another company prove true. (See related story Page 6). He notes that there are "two million TIs in place. Our position as a company is to support the TI market."

He feels that the "mass market channels the products used to move through were typically not very supportive. They didn't know what went with what. I think that the aftermarket will return to firms that can help them more."

Gary Siegel, president of Challenge Software, a division of Ashford Computers, says, "Our plans, I suppose, are to wait and see. We have advertising in place that involves mail order sales and we'll see what develops."

He notes that some future plans may depend on whether "the patent on the 99 is sold to a major company like Milton Bradley. That's going to affect the shape of the market, or at least the length of the demand."

Siegel says, "We don't see a lot of change so far. A lot of people have put things on hold. We hear from some places that sales are very brisk."

As for the future, Siegel says, "Not having a crystal ball, I don't know."

Craig Reitan, owner of Unisource Electronics, Lubbock, Texas, another large mail order distributor of TI products, says that his company is "in the process of selling everything as fast as we can."

He says that since consumers "aren't going to be able" to buy TI products at outlets such as K-Mart or Best Products, "mail order dealers like us are in a strong position."

His company is now "100 percent TI mail order and 70 percent retail TI," but, he observes, "five years from now that's going to be a very small business. We need to look at other businesses to be in while continuing to support the TI market."

Reitan sees a lot of short-term opportunities for consumers and manufacturers, particularly with "third party peripherals that don't have to compete with the distribution system from TI." Many consumers are delighted when "we tell them what's available," he notes.

He says that "we have a very close relationship with TI and as long as TI stays in business we'll continue to support their products."

Charles Ehninger, president of Futura Software, says that his company will also continue to support the TI-99/4A market, in which "we have a lot of good friends." However, his company also plans to develop products for the TI Professional and the IBM Personal Computer.

"The optimistic view (of TI) is that this is a static market and will never grow," he says. "The pessimistic outlook is that it will die very soon."

Futura Software specializes in business software for the vertical market, with specialized products for professionals such as architects, engineers and attorneys. The company's inventory also includes more than a dozen game titles.

He says the TI pullout from the home computer market was "a very disappointing experience, especially since we had just completed a total business system on the Winchester hard disk."

Futura was on the verge of announcing the system when TI "exploded the bomb," Ehninger said.

The week before, he notes, some TI officials had told him that TI would continue to support the 99/4A for two or three years to come. He feels that his sources were sincere in what they told him. Corporate decisions, he says, are made in "ivory towers" and not everyone gets to be there when they are made.

Mr. Moon, of Moonbeam Software (he says his first name is Mr.), notes that his company will continue to produce games for the TI home computer "as long as there is demand."

He notes that his company has recently reduced prices on all its software.

"We had intended to reduce the prices before TI left the market," he says. "That just brought it to the forefront."

The International 99/4 Users Group, which does $2.5 million in TI business annually, has a number of proposals in to TI.

Charles LaFara, IUG president, says that the IUG would like to manufacture a number of TI cartridges on a royalty basis, buying the parts from TI and assembling them for resale. Included among these would be Extended BASIC, Editor/Assembler, Terminal Emulator II and non-solid state programs such as Teach Yourself Extended BASIC and Teach Yourself BASIC. The IUG has also asked to take over TI's toll-free hotline.

LaFara feels that the IUG can help TI users "detain the obsolescence" of their machines for the next 36 to 48 months. He notes that the IUG program library contains some 2,500 user written programs. He also says that the IUG will continue to publish its magazine, *Enthusiast '99*, and plans no major changes in its operations that will affect members in the near future.

— LB

1:1:10. Many users groups see unprecedented growth coming their way.

If TI knew as much about marketing as it does about making home computers, assembly lines would be turning out the 99/4A today, and when E.F. Hutton talks people would be listening to the advice, "Buy TI."

This viewpoint was universally agreed upon by nine users' group presidents across the country interviewed by *Home Computer Compendium*.

Both advertising and pricing strategies were criticized as marketing mistakes of TI.

"Some very poor marketing of a very good computer," is the way Diane Kavanaugh, president of the MSP 99 User Group in Minnesota describes it, criticizing TI for "starting the whole price war."

Grayson Hudspeth, president of the Big Sky 99er's Computer Users Group in Montana says TI's biggest mistake was "trying to sell the computer as a game machine against the Commodore, the Vic 20 and the Atari. They weren't trying to point out the features it has as against the Apple or the IBM-PC until recently."

As a result, he notes, "nobody realized the computer was as much a computer as it was."

"Bill Cosby is neat. I like him personally," Bill Mills of the King's 99er User's Group in Hanford, California, says, while criticizing TI's "very, very poor ads" with their game machine orientation. He feels that the machines were not available in enough stores and "when they finally got in in enough stores, they went out of business."

In addition to marketing, Ron Kuseski, of the Rocky Mountain 99ers, in the Denver, Colorado, area, feels that TI should have released the specifications on its software, disk operating system and the basic operations of the computer so that third party vendors could build up the computer system.

"I hope that now that TI's out they will release them so other people can keep it going," he says.

TI has been "not very consumer oriented," comments Bob Utter, president of the Central Iowa 99/4A Users Group. "They produce a very good product, they just don't relate well with the product. Most of what they did right was too late."

"That computer is so good, people can't believe TI is going to do it," says Ota Jiroutek, president of MUNCH in the Worcester, Massachusetts, area, who comments that selling the computers for $50 was ridiculous."

Don Donlan, president of the Hoosier Users Group in Indianapolis, Indiana, says he works with a man who bought a 99/4A for $25.

By giving rebates and reducing the computer's price, TI "gave the image that this was a very cheap piece of hardware," Donlan says.

He suggests that "instead of discounting the hardware, TI would have done better discounting some of its software."

"Reducing the price below $300 was a mistake," comments Rik Papagolos, president of the Tri-State Users Group. He also believes the firm "pushed the command module too heavily," giving the impression that the computer was merely a machine into which to plug cartridges, like an Atari game machine. "It was marketed as a game machine and as an educational machine, but not as a computer."

"They spent enough money on advertising," he notes. "Their advertising budget was adequate. They just had terrible commercials. The only thing they did right was hiring Bill Cosby, but hiring him and giving him terrible commercials wasn't right." He says that the Texas Instruments user group coordinator has not been in contact with his group since TI announced it was quitting the home computer market.

"I think they're missing the ball," he says.

Charles D. Bathman, president of NET 99er in Hurst, Texas, believes that TI should have "gone out and proved that they were better than Apple. They should have advertised how good it is and more capable than machines that were more expensive."

He also believes TI was "too stingy with allowing third party manufacturers to produce software." TI "tried to get all the gravy," he says.

TI's final advertising campaign, which emphasized educational uses of the computer, was praised by many of those interviewed.

"Shock" was the word most used by the presidents to describe their reactions to TI's decision to pull out of the home computer market.

Kavanaugh notes that a month before the move was announced, a TI representative attended the MSP 99 User Group meeting.

"We got a lot of assurance on TI staying in the market," she recalls.

"We have a good computer and want to continue to use it," Bathman says. "If TI wants to get out, fine."

"It was rather shocking but people are still rather hopeful," Jiroutek says. Since the computers were selling "like candy bars" during the Christmas season, he notes, many don't believe TI will completely drop the machine. He has heard rumors of another company gearing up to produce the 99/4A.

"We feel kind of like orphans now," he says.

"Primarily the main response was concern with what was going to happen with the club," Kuseski says. "We reassured everybody that the club will continue and may be even stronger."

"There was a marked increase in purchasing both software and hardware," Papagolos says.

Initial "panic," he says, was "followed by an intellectual evaluation that TI was doing the only thing it could."

Donlan sees the announcement as drawing more persons to user groups. The Hoosier group, he says, has become "more close-knit and goal-oriented."

He points out that, because of the "dramatic price reduction," there are "literally millions of people looking for support and direction in the use of home computers."

Utter sees the reaction to the announcement as "probably not a lot of surprise — probably more concern whether they were going to be able to get equipment."

He notes that "everyone went out and started buying everything up."

Mills says reactions varied from "Why did I buy it? Why did I waste my money?" to "Now's the time to take advantage" of the low prices.

He sees "a rush for everybody that can to buy a computer or add to the system," noting that there was a lot of "panic" and a feeling of "we'd better buy now while we can."

Mills feels that TI "could have waited to see what Christmas sales might have done. It could have made a world of difference."

Hudspeth says the move doesn't bother most members of the Big Sky group any more, noting that the user group alone has several hundred programs in its library and that "support for software, if not from TI, from other vendors, is going to continue."

He adds, "We're not sure TI's not going to come back next year with, what is it, the 99/8? Some people really got a deal when they cut the price and I still feel we have the finest computer on the market."

He compares the 99/4A favorably with the IBM-PC, which he uses at work.

Some user groups have changed their emphasis since the announcement. Papagolos reports making more long-distance calls, trying to gather information, along with relying on more third party vendors for hardware and software.

Bathman says that little has changed for his group.

"We were always out there trying to find the best deals," he says. "TI's prices were relatively high compared to things you can get in the third party market."

His conclusion is that "the only people who really got hurt are TI" as a result of the decision to stop manufacture of the home computer.

Donlan says the Hoosier club is purchasing hardware to provide a backup for members faced with a temporary loss of their system and is working toward developing an electronic bulletin board. Currently, the club is using one for all computer users in Indianapolis.

Mills says his group is going into "a lot more back-to-basics". In his capacity as editor of the group newsletter, he is rewriting a lot of articles, he says, because the group is growing by "leaps and bounds" and he estimates that 75 percent of the new members don't know the basics.

Another recent development is an adventure game subgroup for both players and programmers.

Kavanaugh says a command module swap, "sort of a garage sale-style swap," is planned for the January MSP 99 meeting and the group plans to start classes in BASIC programming this year.

She notes that people are "buying the computer and knowing nothing about what they want to do with it." As a result, the MSP group is expanding very rapidly, she says.

Other presidents report similar growth or indications that it will occur. Utter reports "a rather large jump in membership," with 35 or 40 joining at the last meeting.

Jiroutek says that about 100 persons attended the December MUNCH meeting and noted that according to the local newspaper's article on Worcester-area computer groups, the TI group is the largest one there.

The president of the Worcester TRS group attended the last MUNCH meeting, Jiroutek says, and told him, "I'm not coming to spy on you, but I bought my son a TI."

He says a "real invasion" is expected in January because of the hundreds of TIs sold during December, many of which, he predicted, "were under the Christmas tree."

Kuseski says that the winter holiday months are always "big months" for recruiting, but that he hasn't compared growth to last year to see if it is greater. He notes 50 guests at the December meeting, in addition to regular members.

Mills says that his group has tripled its membership "inside 60 days."

Members are concerned, Mills says, about how long support will be available for the computer, particularly software availability. He notes concern about publication support — whether *99'er Magazine*, for instance, will become just another general purpose computer publication.

Hudspeth says the greatest concern is whether third party vendors will produce peripheral equipment for the TI.

Kavanaugh also says that buyers are concerned as to whether they will be able to expand their systems in the future.

Utter notes that "the TI peripherals have pretty much disappeared around here."

"Getting their money's worth," is listed as the top user concern by Donlan, "by at least being able to use the computer as a tool for learning more about the information age and applications of a computer as a home and business tool."

Jiroutek says concern has surfaced about spare parts and about repair if something goes wrong with the computer.

Papagolos says that concern about being able to find, for instance, a particular program has lessened because people are coming to realize "there are third party sources."

He notes that there is "a lot of junk software" on the market. "Some of it borders on the fraudulent."

He notes that some third party manufacturers have supplied the users group with software to evaluate and that members have passed on information about others.

"As such, I think TI is not going to be missed," Bathman says. "What people miss are some of the things TI promised for the future," such as the 99/8.

He says users are concerned about repair capability if they haven't bought a spare console. He notes that his group has found a place in Dallas that will repair TI products. He says users are also concerned about expansion cards and chip replacement in the future.

He says that "if members don't want to stay in TI we're thinking about selling their equipment for them." So far, he says, no one has expressed interest in selling their equipment.

Because of the price reduction, he says, many members have just gotten into the TI computer.

Utter typifies those interviewed in his opinion that user groups will grow in importance because people are looking for applications and education regarding their computers. He notes, however, that trying to get discount purchasing for the group through stores has become more difficult.

Utter comments that "it seems like most third party software coming out in module form is games." That's "only good for a while," he says, citing a need for educational and home management modules to achieve a better balance in software.

Donlan says third party vendors should realize that the installed base of TI home computers is the largest in the nation and the user groups could be used for marketing research

"A lot of hardware will go unused unless third party vendors take the initiative to develop programs and applications," he says.

Donlan says many persons who have "whetted their appetite with the TI computer" would be "willing to migrate" to a more powerful system compatible with the TI.

Bathman says that hardware repairs is a concern along with the availability of such items as graphics tablets and interfaces "that allow you to turn on lights and stuff."

He sees a need for good business and technical software — "There's enough games out there to satisfy the world."

Kavanaugh says her group will do "more with classes" and with trying to find equipment. Members wonder what is going to happen, she notes.

"The warranties are going to run out," she points out.

Papagolos feels that third party vendors could provide user groups with detailed information on whatever they develop, along with perhaps samples or loans of their products or opportunities for members to purchase them at a lower than retail price.

The TI computer and several of the company's policies came in for high praise from the user group presidents.

Papagolos commends "an exchange policy that is very favorable."

Utter notes that the computer is "powerful even though it's only 16K."

Hudspeth characterizes the computer schools set up for buyers as "excellent. It came a little bit late. They did things right at the end."

The cartridge "makes the computer a multipurpose tool," Donlan said.

Kavanaugh says a selling point for her was that a small child could use the computer without damaging it.

Through the clouded crystal ball, most presidents see their groups continuing and growing for at least the short run. "I anticipate a minimum of three years," Mills says, "but who can predict in all honesty what the computer world is going to be like in three years?"

— LB

1:1:13. Sentiment wasn't the reason

B-1 Nuclear Bomber, the first game converted by Avalon Hill for the TI-99/4A, was also "the first (computer) game we ever marketed," says Mike Cullum, director of the game maker's software development company, Microcomputer Games Inc.

However, the decision to market B-1 Nuclear Bomber for TI was not solely for such a sentimental sounding reason.

"It's one of our better-selling games," Cullum says. "Also, it's 16K, and the original game is all text so it was an easy conversion."

The game "plays the same in all versions," according to Cullum, except that there are graphics on versions for the Atari, Apple and Commodore computers.

B-1 Nuclear Bomber was programmed in BASIC for the TI because "without using graphics it was easier and our market research showed there are a lot of people without Extended BASIC, Cullum says.

B-1 Nuclear Bomber was brought out to test the TI market, Cullum says.

Galaxy, a science-fiction fantasy game in which as many as 20 players compete for control of up to 40 solar systems, will test the TI market with Extended BASIC, according to Cullum. Galaxy is expected to be on the market by March.

There's not much difference in programming in BASIC between the TI and other computers, such as the Commodore 64 or Atari home computers, Cullum says.

"The BASICs are all close. It's just a matter of getting familiar with the machine. We find it easy to go back and forth in BASIC," Cullum says of his in-house staff of programmers, each of whom specializes in a particular brand of computer.

Cullum says he cannot specifically recall how long it took to translate B-1 Nuclear Bomber for the TI. However, he notes, it takes from four to six months "to write and debug a BASIC program that size."

Comparing computers from a programmer's standpoint, he says that the TI is "not one of the easier ones to write an assembly code on." However, he notes that the graphics are better compared to a machine such as Radio Shack's TRS-80. Programming sound effects is easier on the TI than the Commodore 64, he says.

Avalon Hill's Microcomputer Games, including those for TI, are distributed through computer stores, retail stores and large distributors. They may also be ordered directly from Microcomputer Games Inc.

— LB

1:1:14. Review: B-1 Nuclear Bomber

This game's right on target

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation A Value . . . . B Final Grade . . . . A-	**Cost:** $16.00 (tape)
	Manufacturer: Microcomputer Games, 4517 Harford Rd., Baltimore, MD 21214. (301) 254-5300
	Requirements: console, monitor or television, cassette recorder

B-1 Nuclear Bomber is the first computer game translated into TI BASIC by the Avalon Hill Game Company. Microcomputer Games is the company's computer games division.

The game is a text-only simulation programmed in BASIC. I was fascinated by the challenge of trying to penetrate a web of Soviet defenses to drop a thermonuclear weapon on a major population center. All moral considerations aside — this is a game, after all — things seem to happen so fast I didn't notice that it wasn't written in Extended BASIC. Incidentally, it runs perfectly well in Extended BASIC.

Performance: There are no preliminaries in this game. The first thing you see is a message indicating that war has begun and you are to fly your B-1 Bomber from Thule AFB to a target in the Soviet Union. You are told what your primary target is and then given a "fail-safe" code to arm your one megaton nuclear warhead.

You control your mission through four types of commands: flight control, navigation, combat and bombing. Flight commands allow you to change course or altitude as well as the distance you fly on any heading. Navigation commands allow you to determine what course to set to reach a particular target and lets you check the status of your mission. You can also use radar and use the search command to locate Soviet defense complexes in your flight path. Combat commands allow you to fight off surface-to-air missiles and MIGs that are launched against you. You may use electronic countermeasures, take evasive action or fire Phoenix missiles. (Phoenix is spelled "Pheonix" in several place in the program and missile is spelled "missle" throughout.) You have six of them. Bombing commands are used only when you've reached a target, whether primary or secondary. I've not been able to bomb a primary target and return safely to the air base. I reached the base once only to find out that the crew had died of radiation poisoning from a nuclear airburst. Such are the wages of war.

There are 20 Soviet defense complexes from which SAMs and MIGs are launched to intercept you. Once they come within range of the Phoenix missile you may destroy them. There may be six or more SAMs and MIGs going after you at any one time after penetrating into the interior of the country so you must be constantly monitoring your situation.

Your computer keeps track of enemy contacts by displaying the type of aircraft or missile launched against you and the time, in seconds, before it will hit your plane. This summary appears frequently and you may call it up by checking your status. The status command lets you know how much fuel you've got left, your altitude, your course and similar data. All of these displays are in text.

Regardless of whether you drop your bomb on a primary or secondary target, the Soviet defenses will continue to fire on your plane until you've left Soviet airspace.

Ease of Use: Using only keyboard input, the game relies on two-letter commands. "ST", for example, is the status command. "EC" represents the electronic countermeasures command. You may enter the entire word, but the first two letters is all the computer "reads". The game seems to be crash-proof. A 12-year-old who played it found no trouble in getting used to the command structure. An eight-year-old, however, was less than impressed. The absence of graphics, predictably, disturbed him.

Documentation: The game comes with an eight-page manual that includes a map of the Soviet Union showing the locations of all targets and defense complexes. The cassette includes versions of the game for the TI-99/4 and 4A, TRS-80 Model I/III and the Timex-Sinclair microcomputers. It comes in a large attractive box. Included in the box is a catalog of Avalon Hill games.

Value: I enjoyed playing this game, though I'm not sure it's worth $16.00. However, it may be that that's what you'll have to pay for games from major game companies. Distribution costs are high and the flashy (read expensive) packaging is necessary to attract the consumer's eye.

Nonetheless, I hope Avalon Hill is successful with this game. This company has a raft of simulation games available for other computers that I'd like to see on a TI screen, including Nukewar, Legionnaire, Computer Diplomacy, Tanktics and Telengard. I hope this is the start of something very good.

— JK

1:1:15. Review: Tandon TM 100-2 MiniSeries floppy disk drive

Take a Tandon for a drive

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation A Value . . . . A Final Grade . . . . A	**Cost:** $274.95 bare drive for Peripheral Expansion Box, includes cable (add $60 for external drive with chassis and power supply)
	Manufacturer: Tandon Corp., 20320 Prairie Ave., Chatsworth, CA 91311. (213) 993-6644
	Requirements:disk drive controller, disk drive manager cartridge, console, Monitor or television.

The TM 100-2 MiniSeries floppy disk drive is an outstanding piece of equipment.

Not only does it read and write to both sides of a double-sided floppy disk, but it has the capacity to read and write to double-density disks. While this is not a consideration as far as the TI-99/4A is concerned, it may be if you ever decide to purchase a system by another manufacturer. For example, the TM 100-2 is compatible with the IBM PC and other computers.

Those with the TI Disk Manager II module may be puzzled by the fact that prior to initializing a disk a prompt asks whether the disk to be initialized is single density. Although the prompt will not allow the user to choose anything but single density, it was included in the DM II cartridge so that TI wouldn't have to rewrite it if the company decided to provide a controller card that writes and reads double density disks. Of course, that consideration is moot at this point.

Performance: This review will touch only briefly on the technical specifications of the TM 100-2 disk drive. Those who hunger for more may visit a dealer for product information materials. Suffice it to say that the drive utilizes 80 tracks per diskette (40 per side), has an unformatted double density storage capacity of 500 kilobytes per disk and operates at 300 RPM. The heads are guaranteed for up to 20,000 hours of use. The track-to-track access time is 5 milliseconds. The average access time is 75 milliseconds. All of this information comes from the manufacturer.

I have found the drive to be very reliable, having used one for the past year. Only once have I had a mechanical problem, that involving the No. 2 head. The repairman couldn't figure out why it went out, but because most such problems involve the No. 1 head he had plenty of No. 2 spares. He switched it out for the service charge only, which was $35. 1 have not had any problems since.

You might ask, why would anyone want to buy this particular disk drive when there are so many to choose from? Well, for one thing, this drive allows the user to exploit fully the disk storage capacity of the TI system. Because it can read and write to double-sided disks, you have twice the storage capacity of a single-sided drive.

By initializing disks using TI's Disk Manager Il cartridge, this double-sided drive provides the user with about 180 kilobytes of storage, double TI's own single-sided drive.

Ease of Use: Connection to the computer is simple, requiring only a screw driver. The most difficult part is threading the ribbon cable from the PEB disk drive compartment to the disk drive controller card.

Documentation: The TM 100-2 comes with a comprehensive manual detailing its features and specifications. A manual describing how to use disk drives with TI home computers is included with the manual that accompanies TI disk controller cards.

Value: At $275 or less (I know of one dealer who sells them for $240), the TM100-2 is as affordable as any double-sided drive. Manufactured by the world's largest disk drive maker, the drive has proven to be a reliable and efficient mass storage device. Since this drive is compatible with a number of other computer brands I consider it to be a long-term investment, one that I am likely to continue using regardless of the type of computer system I use.

— JK

1:1:16. Review: Void, from Kean Computing Inc.

A game to keep you jumping

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation B Value . . . . B Final Grade . . . . B+	**Cost:** $19.95 (tape, disk) plus $1.50 postage and handling
	Manufacturer: Kean Computing Inc., Box 571, Kingston, NJ 08528
	Requirements: console, monitor or television, cassette recorder or disk drive and disk controller, Extended BASIC cartridge, joystick optional

I found Void to be an imaginative and highly challenging game, one that I would recommend to anyone who thinks he's a joystick jockey. This game has excellent graphics and action and is a real test of hand-eye coordination and problem-solving abilities. With 20 screens, it is also highly addictive. I stayed up several nights trying to advance just one more screen, and every one that I managed to reach was different from those that preceded it.

Performance: Void is an arcade-type game that requires quick reflexes and quick thinking to win. You actually can win this game by finishing the twentieth screen. The farthest I got while reviewing Void is the sixteenth screen.

I found every screen to be well done, not only from a graphics standpoint but also in terms of how imaginative each is, despite operating under the same basic requirements. Sound effects are well done, too.

Starting with nine lives (none are added for the rest of the game), you must cause a man-like figure to jump or run over obstacles while avoiding everything from spider-like critters and moving walls to a low-flying moon Oat you may, if your timing is excellent, jump over. Beginning at one end of the screen, you must propel your man to the opposite end either to obtain a "key" by which the next screen can be reached or to slip through an exit that allows you to descend to the next level. Each level has its own colorful screen.

The difficulty of each screen depends on a number of factors which are impossible to describe briefly. Suffice it to say that the uniqueness of each screen is such that each is a challenge unto itself.

Oh, yes, if you jump too far, your man will fall off the screen. If the man is overtaking by one of the critters or runs into certain stationary obstacles, he will also fall off the screen.

The man will run left or right depending on the direction you push the joystick. Pressing the fire button and using the joystick simultaneously permits the man to jump. You must combine jumping with running to outwit some of the faster moving monsters you encounter.

Keyboard input is easy. The **1** and **2** keys control direction while the **0** key is used to make the man jump. This is preferable to the use of the unwieldy "arrow" keys as found in many games. I found more success using the keyboard than I did using joysticks.

There is no scoring in this game per se. You measure your progress by the number of screens you manage to cover before losing your ninth life. The number of lives you have left is displayed every time a life is lost.

Ease of Use: It seems that using a joystick in any fast-moving game programmed in TI Extended BASIC is a mixed blessing. I found the TI joysticks to be the least useful of those that I tried. At certain points, the program did not seem to react to the joystick command fast enough to avoid being overtaken by an approaching critter.

The fact that figuring out some of the screens is not a piece of cake simply adds to the challenge of the game.

Documentation: The four-page manual that comes with Void actually devotes only one page to a description of the game and now to play it. I would like to have seen more detail in describing the various levels, though not a whole lot about how to play them. That would be like giving away the plot of a mystery to someone who has yet to read it.

Value: This game is fun to play and, until you manage to reach the twentieth level, a challenge. The graphics are superb, the screens are imaginative and the action is as fast as I, for one, can handle. It seems to be a bit on the high-priced end of the Extended BASIC scale, though the only thing that keeps the value from being rated "A" is the fact that purchasers must include $1.50 for postage and handling.

— JK

1:1:17. Review: Beanstalk Adventure from Tex-Soft Software

It's not the Giant that gets Jack

Review	
Report Card Performance . . . C Ease of Use . . . . A Documentation C Value . . . . B- Final Grade C	**Cost:** $11.95 (disk)
	Manufacturer: Tex-Soft Software, P.O. Box 33084, Granada Hills, CA 91344. (213)366-6631
	Requirements: console, monitor or television, disk drive and controller, Extended BASIC cartridge, 32K memory expansion

I have mixed feelings about the Beanstalk Adventure. The first night I had it the kids and I played it for hours. The combination of a well-known storyline, the anticipation of how it unwinds and the challenge of finding one's way through a landscape that seems vaguely familiar kept the midnight oil burning for more than one night.

Alas, though we seemed at one point to be on the verge of solving the adventure and defeating the giant we also found out that this game is relatively easy to crash via the input of perfectly intelligible words at the wrong time. Mentioning the phrase "cut axe" causes a syntax error, stopping the game. (I tried cut axe to try to cut the beanstalk down, a particularly sensible thing to do in view of the story). Other unusual entries caused the computer to lock up tighter than a drum. Having stumbled upon this anomaly, we started entering other words and they too locked up the machine. It had the effect of dampening my enthusiasm, to put it mildly.

Ordinarily such problems, though not actually "bugs," wouldn't bug me, but in a text adventure game you expect to make mistakes in typing, not to mention entering words randomly in the hopes of finding one that works. Here, though, entering an unusual command may result in the complete destruction of your patience.

Performance: Beanstalk Adventure loads automatically from diskette and is unprotected. The program is actually a translation for the TI Home Computer.

Predictably, the storyline of this adventure resembles the tale of Jack and the Beanstalk. As the central character, Jack, you are told by your mother to sell the family cow. After finding your way to a village, you have the option of selling it to a butcher or trading it for the fabled magic beans. Naturally, you take the beans.

Hurrying back home, you plant the beans. The beans grow into a giant beanstalk and you climb it just as Jack did. Reaching the giant castle you explore it and start collecting items while avoiding the oversized ogre. The number of permutations is large, and I won't spoil the story by detailing them. The actual gaming is a lot of fun. Although I had not completed the adventure by the time I discovered the anomaly, I was until then intrigued by it. The storyline is entertaining and logical and filled with twists, much like a good mystery.

Because the program is written in Extended BASIC, data entry is a bit on the slow side. Even so, this never became a problem for me. The computer was always ahead of my ability to decide what to do next.

Ease of Use: The game loads automatically and data entry is quite straightforward, using single letters to represent directions of movement and two-word commands for other input. It also has a save game feature. A solution is included with the adventure for those who are completely frustrated by the game.

Documentation: Instructions for the game are on the diskette. A brief, printed message also accompanies the disk, asking the user not to distribute duplicates, and soliciting comments and suggestions for modifying the game. It notes, too, that all purchasers will be told about revisions that are made.

Value: This is essentially everything I'd expect a text-based adventure to be. There is only one problem with it, which I amply detailed at the beginning. But it is a problem that I find impossible to overlook.

— JK

See 1:2:4, 1:8:29.

1:1:18. Review: Microsurgeon, from Imagic.

Just what the doctor ordered

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation A Value . . . . A Final Grade . . . . A	**Cost:** $29.95 (cartridge)
	Manufacturer: Texas Instruments
	Requirements: console, monitor or television, (joystick and speech synthesizer are optional)
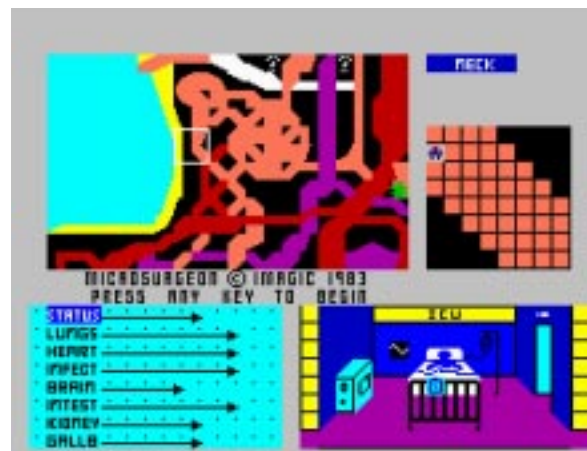
Microsurgeon, designed by Imagic and produced by Texas Instruments, is arguably the best game cartridge ever distributed by Texas Instruments. It is also one of the newest and among the last to be manufactured by TI. In terms of its quality, I would compare it to the Scott Adams Adventure Series.

Performance: Microsurgeon has been produced for a number of computer and video game machines, ranging from the Apple to Intellivision. The object of the game is straightforward: you play the role of a surgeon whose job it is to save the life of a patient by directing a microscopic probe through his body to the organ or organs that are diseased. You determine the treatment to employ, choosing from ultrasonic rays, antibiotics and aspirin. Medication is introduced by using the fire button on the joystick or through keyboard input. Having stabilized the patient's condition, you guide the probe out of the body to conclude the operation.

This is a very sophisticated game and describing briefly how it works is difficult. It is impressive in many ways, including its excellent graphics, use of sound effects and overall design.

The first thing you notice about this game is the graphics. The screen is divided into four separate displays of different shapes and sizes. The largest display is the surgical screen, displaying an inside view of the body of your patient and the location of the probe within it. This display "windows" horizontally and vertically as you make your way through the arteries and vets.

The status screen monitors the patient's vital organs, warning you in advance of developing problems. A small close-up scanner screen shows a magnified view of the location of the probe. A fourth screen represents the patient's room in the Intensive Care Unit. The patient is in a bed, hooked up to an intravenous bottle. Occasionally, he will be visited by a doctor.

Microsurgeon includes several types of sound effects. If you have a speech synthesizer attached, you will occasionally hear the voice of a woman calling for a doctor. Other sounds include representations of an electrocardiogram and heart beat. These can be turned off if desired.

There are three levels of play: Student, Intern and Surgeon. You choose the level at the beginning of the game. You also choose which patient to treat at the beginning. There are 1,000 to choose from.

Success in this game is a relative thing in most cases. You can treat your patient enough to stabilize his condition and he will survive, even though the status screen may show that some of his organs are in "fair" or worse condition. Of course, if you do not treat his disease before the status indicator reaches the critical mark, you are in danger of losing him. A very critical condition can go terminal at any time. When two organs become terminal, the patient dies and the game ends.

Your score is measured in the amount of research dollars you are able to accumulate. You start out with a certain sum based on the patient's condition and add to or subtract from it based on your success at treating his condition.

Another complication in doing surgery in Microsurgeon is the need to maintain a power supply for your robot probe. This creates a time limit on your operation. The power supply is drained off according to how fast you are operating and how much medication you use. You can gain power units by hitting viruses with aspirin.

The graphics used in this game are like nothing I've seen in any other TI game. Color is used to distinguish the lymphatic system, veins, arteries and organs. The graphics include a representational display of the upper torso of a human body.

Each medication has its own shape and color, as does each disease. Among the medical problems you will encounter are tar deposits in the lungs, tumors, tapeworms, kidney stones, gallstones, cholesterol buildup, viruses and infections.

Ease of Use: While the joystick is used to control the robot probe (you may also use the keyboard to do this though it is easier to use the joystick), commands to increase the speed of the probe or turn the EKG monitor or heart beat sound on or off are entered via the keyboard. Selection of medications is also done through the keyboard. Once you get accustomed to which keys to hit, the game is easy to play. Of course, you must have a steady hand to guide the probe through the patient's veins, arteries and lymphatic system.

Documentation: The manual that comes with Microsurgeon is comprehensive and extremely well designed. Included is a full-color reproduction of the body as it appears in the game, with coding to allow you to identify the body parts.

Value: I enjoyed playing this game for a number of reasons. It is multi-dimensional and requires intelligence on the part of the player to succeed. It is also educational insofar as a player must gain an awareness of the body and the location of its organs to do well. Though this is not a game for younger children, those in their early teens who tried it were fascinated by it. Part of this may have been due to the fact that were studying the human body in school. TI has always had a reputation for producing mediocre game software for its home computer. Finally the company started coming out with the good stuff, and now it's out of business. Too bad, this is good stuff.

— JK

1:1:19. Review: On Gaming, from C.A. Root

What you see is what you get

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation A Value . . . . A Final Grade . . . . A	**Cost:** $19.95 (tape), $21.95 (disk)
	Manufacturer: CA Root Associates, 33125 15th Ave., So., Suite B109, Federal Way, WA 98003. (206) 941-1984
	Requirements: console, monitor or television, cassette recorder or disk drive and controller, Extended BASIC cartridge, joysticks (disk version requires expansion memory)

If you want to save a lot of time designing graphics on the TI-99/4A this is the program to have. It is excellent for the purpose.

You're probably familiar with the Character Generator program that's listed in the back of the user's manual that came with your console. Well, this program does much the same thing, only much better. Although I do not write programs myself — I'm more interested in adapting unprotected programs to my own use — having this programming aid gave me second thoughts about putting together a definitive graphic version of TI-Trek.

Performance: This graphics editor allows users to create graphics using a four-grid editing table. Each grid consists of 64 squares, each square representing a pixel. By comparison, the character generator program in the TI manual consists of one grid of 64 squares. There is also a small window — called a "print table" — at the bottom of the screen where the graphic will be displayed after entering the command mode. More on that later.

All input is via a joystick, which is only one of the many unique features of On Gaming. The fire button is used to turn a square "on" or "off". All the user has to do is to move a cursor to the desired location and press the fire button. Holding the fire button down allows the user to create a continuous line.

Grids, which are white with colored lines when not being used, turn grey as the cursor moves from one to another. This lets you know which grid you are working on without having to count rows or columns.

When finished with the editing stage — the program will store as many as 10 sets of designs at a time — the user moves the cursor to the right side of the screen to a list of commands. Moving the cursor off the editing table automatically moves the program into the command mode.

The Edit command allows the user to call up any of 10 "edit sets" for further editing on the editing table.

The Print command allows the user to get a readout on the hexadecimal code of the contents of each of

the four grids. This command also allows the user to rotate foreground and background colors of the characters displayed on the print table and it lets the user choose which grid to display as well as the magnification. If you choose to display only one grid, the magnification may be either a factor of 1 or 2. When you choose to display all four grids you may use a magnification factor of 3 or 4. Once the character is shown on the print table, the user may also rotate the foreground and background colors via the joystick.

Having viewed the results of his design work, the user may return to the editing table, clear the screen, copy any or all of the grids to another previously defined edit set or list the hexadecimal code on a printer for future reference. The user may also write the hexadecimal strings to cassette or disk and read them into the program again.

There is also a Manual Mode which allows the user to enter ASCII characters into an edit set.

The niftiest feature of this program is the way the joystick-cursor is used to enter data. All of the commands are activated by locating the cursor above the command desired. Simply pressing the fire button will activate the command.

So much for the software: another valuable tool that comes with the On Gaming graphics editor is a manual that provides numerous tips on how to write more efficient game programs. Most involve programming tips aimed at increasing the speed of a game or reducing the amount of memory that is used. Chris Reutercrona, who created On Gaming, notes that the manual is as important as the software in this package.

Although I did not try out all of the tips, most of them offer suggestions that pick up where the Extended BASIC manual leaves off. The On Gaming manual provides examples of programming with sprites, call statements and other items referred to in the Extended BASIC manual. I found the section about "sprite homing" to be of particular interest.

While I regard the software part of this package to be the No. 1 reason to buy it, the manual is certainly worthwhile having.

Ease of Use: I found this program to be easier to use than I had expected. Frankly, I thought this was going to be a difficult program to evaluate. Not so. After a few moments of getting used to the joystick-cursor routine, I was in high gear and ready to go. The program is crash proof, as far as I could determine, and protected. The cassette version will not write or read from disk.

Documentation: On Gaming comes with a 52-page manual. The size of the manual is what threw me at first. Only the first 16 pages have to do with operating the program. The remainder is a guide to help the user develop his programming skills, referred to above.

Value: This is a great program to have if you're even slightly interested in programming graphics. It is a big time-saver. It is also one of the most elegant applications programs I have seen for the T199/4A.

— JK

1:1:20. Review: Database 500, from 99/4 International Users-Group.

Put your records in order

Review	
Report Card Performance . . . A Ease of Use . . . . B- Documentation A- Value . . . . B Final Grade . . . . B	**Cost:** $14.95 (disk)
	Manufacturer: International TI-99/4 Users-Group, P.O. Box 67, Bethany, OK 73008. (405) 948-1023
	Requirements: Extended BASIC cartridge, disk controller card, one double-sided disk drive (two are recommended), Disk Manager II, monitor and television, printer recommended.

Database 500, for double-sided disks, and Database 300, for single- sided disks, is the first non-exchange program offered by the International T199/4 Users Group. It is also the first module of its Master 99 series, deigned for"serious applications of the Texas Instruments 99/4(A) Home Computer in extensive home or small business environments", according to the IUG magazine *Enthusiast'99*.

Database 500 comes on a disk and consists of five unprotected programs written in Extended BASIC:

> (1) Load
> (2) Main program
> (3) Print routine
> (4) Sort routine
> (5) Subfile selection routine

Database 500 stores about 500 records on a doubl6-sided floppy. Database 300 stores about 300 records on a single-sided disk.

Database 500 permits users to create records that consist of up to 16 fields containing a total of eight screen lines of data. The files can be sorted along any field or in combination, which makes it very useful for cataloging. Printing, too, is very flexible. The user can decide not only which fields to print, but where to print them.

Performance: Database 500 does exactly what IUG says it will do. Because it uses relative files to write directly to disk, users may store a great deal more data than can be stored by programs such as Texas Instruments' Personal Record Keeping cartridge, whose capacity is that of memory available in the 99/4A console.

The program loads automatically out of the disk when you go into Extended BASIC. After initializing a file disk — Database 500 uses all 716 sectors of a double-sided disk — you load the main program. This is the workhorse part of Database 500. This part of the program includes the following six functions:

1. Enter Records
2. Update Records
3. Display Records
4. Scan Records
5. Repair Files
6. Create Record Files.

You must choose function six at the very beginning. After loading a blank disk that must be named "DBF", you will be asked to enter a master file name. The program will then prepare the disk for use as a data file.

After initialization, you may begin entering records. The data entry screen includes eight lines of 28 spaces with the caret symbol appearing at the beginning of each field. Each 28 space line includes two fields that may be used. Also displayed are the current record number and the name of the file you are working on. After finishing a record, you have a choice of either saving it or redoing it. You may return to the menu by typing "END".

You may also update, display and scan records by record number or by a field identifier if the file has been sorted. For example, if you identified and sorted a field by a person's name, such as Johnson, you could enter "Joh" and thereby locate the record.

Scanning may be done sequentially, alphabetically if sorted, or by the use of a subfile name that you may have created.

Records may be changed or deleted via the update mode. Deletions occur when the file is sorted. The repair file function allows you to replace deleted files in the exact sequential position they were originally entered.

The sort program arranges data in alphanumeric order. It can sort 500 records in seven minutes, according to the IUG.

Getting back to the main program, the printer routine is very flexible, giving the user complete control over what parts of a record to print as well as where to print it on the page. You may also insert spaces and blank lines to make the printout more readable.

Among the most useful aspects of this program is the ability to create subfiles within the main record file. This may be done in several ways, including basing the subfile on a keyword that is in the field or a keyword not present in the field, or by numerical relationship, such as greater than or less than other records in the field. You may also use two keywords on which to base a subfile.

Ease of Use: It will take several hours for the new user to get used to how the system works, but that is to be expected for any applications program. Perhaps the most frustrating problem I ran into is the fact that the data disk must be separate from the program disk because of the manner in which the two are accessed. For someone with only one disk drive, it means a lot of disk switching. But that's the price you pay to have 500 records on file.

Documentation: IUG provides an 11-page manual to guide the user through the program.

Value: There is only one problem with Database 500, and in my mind it renders the program inappropriate for business use. Namely, data input proceeds at a snail's pace. You cannot simply type away, entering words as quickly as your fingers hit the keys. There is a pause between each keystroke so that the letter can be registered. This is not an inconvenience for one-finger typists, but it becomes increasingly frustrating for those who type faster than 20 words per minute. Maximum data entry efficiency is achieved by finding a typing speed which keeps up with the program but does not outpace it. if you exceed the processing speed of the program the data you type will not be registered.

What does this mean for the home user?

Well, I can only go on the basis of my experience. We have a very large library and I ordered this program primarily to catalog our collection of books. However by the time I finished inputting the sixth shelf of books — there are more than 36 shelves in total — I decided that I don't need a catalog that badly. It took about six hours to get that far, only part of which was because of the time it took to fetch books from shelves and open to the cover page. Now I'm thinking of reducing the number of entry fields per record to just author's name, title and location. I figure this will speed entry along, though I had visions of including such relevant information as publishing date, page numbers, type of fiction, etc. The tradeoff here is that if I use Database 500 to its fullest potential I will pay for it in the number of boring hours I must spend inputting data. On the other hand, if I settle for a less comprehensive data file I can expect to finish the task without literally losing a lot of 'sleep to do it.

Despite this criticism, the low price is exceptional for such a sophisticated program. If you've got the time to use it, this could very well turn out to be one of the best bargains you will ever find in applications software for Texas Instruments home computers.

— JK

1:1:22. User Notes

Ever wonder how to get a sort routine to run faster? Or may you've had a problem getting your printer to print graphics. Maybe your console is acting up from overuse (we hope not under-use) or you'd just like to pick up a few pointers that will make you a better programmer.

Whether you're new to computers or have been programming for years, we think you'll find something of interest in this monthly column of TI user notes.

The information provided here is culled from newsletters published by TI-99/4 user groups from across the country. But we don't want you to get the idea that non-user group members can't contribute ideas or tidbits that may help other computer users better utilize their equipment. If you've got an idea that may he of interest to readers, let us know. If you've discovered an undocumented feature of a piece of hardware or software and would like to share it, by all means send it in. Remember, we're all in this together.

Password?

So you've got some top-secret programs that are for your eyes only. Your problem is how to keep the secret without getting a reputation for being unsociable. Here is a brief routine that can be written into a program that will ask a user for the password before running the program. You choose your own password.

```
100 P$="PASSWORD"
110 CALL CLEAR
120 INPUT "ENTER SECURITY PASSWORD":PW$
130 IF P$<>PW$ THEN 32000
140 PRINT "CORRECT PASSWORD"
. . .
32000 CALL CLEAR
32010 PRINT "SECURITY VIOLATED"
32020 PRINT "PROGRAM ABORTED"
32030 FOR I=1 TO 2000
32040 NEXT I
```

In this example, which comes from a users group in Sydney, Australia, you would write your program between lines 140 and 32000. You may number it anyway you wish and add all manner of bells and whistles to let the "violator" know he's been found out.

We dare you

The Airport Area Computer Club of Coraopolis, Pennsylvania has a 5-line program that it would like to see run side-by-side on the TI and Commodore home computers. It is a test of calculation powers. Here it is:

```
100 FOR N=1 TO 100
110 IF SQR(N)<>INT(SQR(N)) THEN 130
120 PRINT N
130 NEXT N
140 END
```

GROM problems?

Have you ever plugged in a cartridge only to have the system lock up on you 15 minutes later? Well the Central Iowa 99/4A Users Group has an idea that doesn't cost anything to implement and may help unlock those keyboards. Assuming that the root of the problem lies in a loose connection between the cartridge and the GROM port, the Iowans suggest you insert a matchbook cover underneath the cartridge to improve the fit. This should be done as you slide the cartridge in.

3rd party repairs

This may not be of much help to most TI users, but the NET 99er group out of Hurst, Texas, reports than an electronics shop in Dallas will repair TI consoles and peripherals and cards. Our conclusion is that whatever is happening in Dallas is probably happening elsewhere, too.

There's a switch?

Yes, there is. But don't look for it on the outside. It's inside so to speak. According to the SGV Users Group in West Covina, California, disk drive owners can switch their disk drive off by using a CALL LOAD command from either the Editor/Assembler or Mini Memory cartridge. Be warned, however, that once you turn it off you won't be able to turn it on without first turning the console off, which means you'll have to save your data to cassette. Also, if you try to access the disk drive after you've switched it off, the system will lock up.

Why would anyone want to turn the drive off ? Well, the disk drive uses up about two kilobytes of RAM for its operations, memory that isn't available for programming. Turning the disk drive off frees this memory. The only other way to turn the drive off is to unplug it, which probably isn't worth the trouble. So here's your software switch:

```
CALL LOAD (-31888,63,215)
```

Alligator clips

The Kings 99er Users Group of Hanford, California, has a suggestion that takes the hassle out of hooking up your TI to the TV. They suggest you purchase a pair of "antennae clips" from Radio Shack for about $1 and attach them to the RF modulator thus eliminating the need to take out a screwdriver to attach or detach the modulator.

What next?

The Rocky Mountain 99ers, of Denver, Colorado, know what to do after they've entered OLD CS1 when they really meant to enter SAVE CS1. All is not lost, they say. Before doing something really silly, like turning the console off and losing everything, they suggest you type **SHIFT E** and press the **ENTER** key. You'll get an I/O error, but don't worry. You'll still have the program in memory and get a second chance at saving it.

Tone dialer

Members of the 99/4A Owner/Users Group of Wonder Lake, Illinois, have learned how to use the sound capabilities of their computers to dial the phone. Listed below are the ten tones required by a standard "tone phone". The Wonder Lake group says that if you place the telephone mouthpiece near the speaker of your monitor or television and use their program, you can let your computer do the dialing. You'll need to add your own input lines, but this will get you started.

```
1      CALL SOUND (100,1209,0,697,0)
2      CALL SOUND (100,1336,0,697,0)
3      CALL SOUND (100,1447,0,697,0)
4      CALL SOUND (100,1209,0,770,0)
5      CALL SOUND (100,1336,0,770,0)
6      CALL SOUND (100,1447.0,770,0)
7      CALL SOUND (100,1209,0,852.0)
8      CALL SOUND (100,1336,0,852,0)
9      CALL SOUND (100,1447,0,852,0)
0      CALL SOUND (100,1336,0,941,0)
```

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. We encourage everyone to contribute items for publication in this column.

1:1:23. Newsbytes

Quick disk backup

Quality Software claims that its Quick-Copyer utility program is 10 times faster than the TI Disk Manager cartridge when it comes to doing backup copies. Quality Software, of Washington, D.C., says Quick-Copyer "is almost like having a second disk drive, only it is faster and cheaper". The company says its program will copy a single-sided disk in three passes or less, six passes or less for a double-sided disk. The program will run out of Extended BASIC, Editor/Assembler or Mini Memory. A 32K memory expansion is required. The cost is $39.95 plus $2 for shipping and handling. [See 1:2:4, Where to order]

MB drops expander

After more than a year of development and after finally releasing its long-awaited voice expander system for the TI-99/4A computer, Milton Bradley is leaving the home computer market. It is one of the first non-computer companies to suffer heavily from the turmoil in today's home computer market. Prior to TI's announcement that it would cease the production of home computers, Atari told Milton Bradley that it would not honor its contract to utilize a similar voice recognition system with its home computers. The company then had its hopes pinned solely on TI. When TI dropped the ball, Milton Bradley was left standing out in the cold with a $100+ system that would allow users to play high-priced game software, not all of which used the voice recognition capabilities of the MB expander. The voice expander finally reached the market in November but was withdrawn almost immediately. The company cited the lack of software support as the reason for recalling the expander.

Actually, it may not have been a very good idea in the first place, according to some analysts. Game cartridges for the system were priced as high as $50. One cartridge, a simulation of baseball, was very similar to Intellivision's baseball cartridge. The basic difference was in the voice-recognition capabilities of the expander. However, there is some question as to whether consumers would agree to pay $100 or more for the expander hardware plus $50 for a game cartridge that could be purchased for half the price on other systems, sans the voice recognition capabilities. Voice recognition at this point remains more of a novelty than a useful feature in home computers. So what happened to the several thousand MBX systems that were produced? According to a TI spokesman the units were gobbled up by TI and Milton Bradley employees.

"Beige" problems?

A number of recent purchasers of the beige TI-99/4A consoles have reported problems getting non-TI cartridges to work. Last summer TI threatened third party software developers that it would modify the GROM (cartridge) port in new consoles in such a way that the console would not be able to "read" non-TI cartridges. Although *HCC* has not been able to confirm this problem, we've been told it is limited to consoles that display a 1983 copyright on the title screen. *HCC* has not seen such a screen, either. Most, if not all consoles, display a title screen with a 1981 copyright.

Just a little late

Texas Instruments has published a book about home computers. Entitled *How to Feel at Home with a Home Computer*, the 264-page book sells for $12.95. The book came out in mid-December, more than a month after the company dropped out of the home computer market.

Infocom drops out

Infocom, the maker of such games as Zork I, II and III and Deadline, has reportedly changed its plans to translate its games for the 99/4A. This appears to have been a last-minute decision since the company had already begun publishing ads in major computer magazines that indicated game versions for the TI-99/4A were available. The lack of an adequate distribution system was cited as the key reason for the change of plans.

_99er_ changes format

By now everyone must know that *99er Home Computer Magazine* is now called *Home Computer Magazine*. The magazine decided to try a more generic approach after TI announced that it was leaving the home computer market. The new format will provide coverage of TI and other computers. This is the third name change for the publication in the past two years. Formerly, it was called *99'er Magazine*.

Mailing list offer

TI will reportedly provide vendors of software and hardware with its lists of TI home computer owners. With some one million owners, estimates range up to two million, vendors may be able to launch huge direct-mail campaigns, though the costs may prove to be prohibitive to all but the very well-heeled.

TI layoffs continue

The real losers of TI's decision to leave the home computer market may well be the employees in Lubbock and Abilene, Texas, who built the 99/4A. A week before Christmas some 500 workers were furloughed at the Abilene plant and another 100 were told they would be cut from the payroll at the Lubbock plant. Several hundred other employees involved in the production of the 99/4A in Lubbock were reassigned to other TI facilities in Texas, company officials report

Newsbytes is a column of general information for TI-99/4A users. It will include product announcements and other items of interest. 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. Items may be mailed to the Compendium, P.O. Box 1343, Round Rock, TX 78680.

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Home Computer Compendium

Volume 1 Number 2   March 1984 $1.50

Inside this issue:

We bring you stories about TI99/4A compatible hardware, games you can play on your TI home computer, an update on the Phoenix, a look into the future, a glance back to the past, in fact there's so much that we couldn't possi-

1:2:3. Comments

What's next for home computer users?

It's hard to believe, but the TI-99/4A has been around for less than three years and already it's out of production. But that's the way it is in high-tech. Here today, gone (or upgraded) tomorrow.

So what's next for TI home Computer users ?

I don't have a crystal ball so I won't pretend to have all the answers. But there are many indications that the TI home computer market is not quite like any other, and I think its uniqueness will play in the favor of TI owners.

Why ?

For one thing, regardless of how many TI consoles are on the market — I've seen figures ranging from a low of one million to a high of four million — the perception among vendors is that the market is large enough to support many product lines.

My personal view is that the "real" TI market is much smaller than one million. No doubt, many who purchased the 99/4A during the fourth quarter of 1983 have already tucked it away in a closet. There are also those who, having purchased the computer, either do not have the income or the desire to expand the system. That leaves those users who like the system and have or are in the process of expanding it. This is the real market that vendors want.

Here are some predictions about what may happen in the home computer market:

1. **Diversification:** Just about everybody who has been depending on the TI market exclusively is or will be diversifying. However, few will be closing their books on the TI home computer.

2. **New Companies:** Now that the big cheese is out of the market, the little cheeses will be able to come in from the sidelines and call some plays. I'm not talking about companies forming to deal with the TI market exclusively. I'm talking about established companies creating TI product divisions to sell products for the TI home computer that they've been selling to users of other brands.

3. **New Products:** Don't look for anyone to pick up the rights to the TI-99/4A, despite what you hear. The only companies foolhardy enough to do this are in the red ink business. Do look for lots of TI compatible hardware, starting with CorComp's 99/64. Also, look for increased interest in such peripheral devices as light pens and graphics pads.

4. **New Software:** Yes, you'll be hearing a lot about new software. Actually, much of it will be old software translated or adapted for use by the TI home computer. Despite the current trend, not all of it will be cartridge-based. There are limitations to using cartridges as the medium for software distribution. In fact, any "serious" software developments will require disk drives and memory expansions. Even TI couldn't get TI-Writer or Microsoft Multiplan to work out of a cassette recorder. Look, too, for a good database program that will run using the Extended BASIC cartridge and expansion memory.

5. **New Publications:** There will be a greater diversity of publications for TI and compatible computers. It's clear that no one publication can serve the needs of all TI users. However, these publications will be oriented toward a specific TI audience. They will be smaller than the general interest computer publications that you find on newsstands, but they will be packed with information that is useful to TI users. Why is this? Look at the former *99er Magazine*. It never developed the kind of advertising support it needed to compete in the general market. Rather than keep its focus on a market that was not growing very rapidly, it chose to expand its market by including other computers and, hence, advertisers.

So much for now.

— JK

1:2:4. Feedback

GROM solutions

I would like to share the following with your readers. This is something that we just encountered.

When TI built the silver and black 99/4A units, a built-in problem was provided at no extra cost. A felt pad is positioned around the slot where the command module's card plugs into the computer's GROM connector. This felt pad is used to burnish (clean) the contacts of the command module's card when inserted.

This is where the problem begins. The material in the felt pad builds up lint inside the GROM connector (and inside the command module) that prevent the contacts of the two from mating. This causes many rather weird things to happen. For example:

1. After inserting the module and initializing the system, the cursor quits flashing (indicating computer lock-up).

2. After inserting the module and initializing the system, the keyboard comes "alive" and randomly provides a character that can not be stopped unless the computer is turned off.

3. And, after inserting the module and initializing the system, if you grasp the module and move it from side to side, either number 1 or 2 listed about will occur.

To correct this problem, the GROM connector and module contacts must be cleaned from time to time. Caution must be used, however. DO NOT attempt to clean the GROM connector when the computer is on: DO NOT use anything sharp or metallic: and DO NOT use excessive pressure or force.

What I recommend is a very thin, long-bristled brush with a wooden handle. With one hand open the door covering the GROM connector to remove any lint build-up. Blowing into the connector occasionally will also help remove the lint. (A can of compressed air would even be better but I didn't have any).

I've helped fix two computers with this problem so far. Each computer was approximately one year old at the time when it really acted up.

I would also like to point out that the article you published in the February issue entitled "GROM Problems" (User Notes) is exactly what I just addressed. However, that article did not fix the problem. In fact. in my opinion. I would not even recommend placing the matchbook cover beneath the module!

Chuck Moats, President, Cedar Valley 99er Users Group Marion, Iowa.

Adventuring

I have both the TI-99/4 and the TI-99/4A, furthermore, I have what I believe to be the most complete system for the TI system. I am 38 years old and still a child at heart. Therefore, I have always purchased each and every command module available, with the exception of those designed for very young children. I consider the game cartridges as adult material and have hours of fun playing games. With the Scott Adams' adventure series already mastered (with the exception of Adventure 14 — Return To Pirate's Isle. . . which I'm working on now) as well as numerous other computer text-adventures solved, I consider myself a real adventure fan. Therefore, I must take offense to your opinion as to the "anomaly" of the Jack and the Beanstalk adventure available from Tex-Soft. I never had a syntax error during my own adventure with this game. Furthermore, I would say that of all the text-adventure games available to date for the TI that the Beanstalk adventure ranks number one. Far ahead of all others, it gives the seasoned adventurer a real run for the money and still offers the novice adventurer a firm beginning for future adventuring. Perhaps you fail to realize what other adventures have to offer in comparison to value.

Still, you have a point. Value is in the eye (or mind) of the buyer. I know of no better value, all things considered, for the time and money spent than that of adventuring, and the Beanstalk adventure is an excellent buy. I do realize that your review was in itself favorable and I feel that if you do indeed go on other adventures you'll realize that your single negative problem with the "error messages" produced in adventuring were not the real fault of the adventure but rather the fault of the adventurer himself.

I look forward to future issues of your magazine and hope that you have an enjoyable and profitable "adventure" in your publication.

D. Larry Gibson Kettering, Ohio

The Feedback column is for readers. It is a forum to communicate with other readers. The editor will condense excessively lengthy submissions where necessary. We ask that writers restrict themselves to one subject for the sake of simplicity. Our only requirement is that items be of interest to persons who use the TI-99/4A home computer. Mail Feedback items to: Home Computer Compendium, P.O. Box 1343, Round Rock, TX 78680.

1:2:4. Debugged

For want of a digit

Last month we told you about a program statement that would allow a user with a disk drive to turn the drive off without disconnecting it from the computer. Well, we left out a single digit, an 8 to be precise, and without it, it won't work. We appreciate the thoughtfulness of readers who pointed out the error. The correct statement is:

```
CALL LOAD (-31888,63,215)
```

Where to order

Last month's Newsbytes column included an item about a disk backup utility program called Quick-Copyer [See 1:1:23, Quick disk backup]. We neglected to include ordering information: Quality Software, 1884 Columbia Rd. No. 500, Washington, D.C. 20009. The phone number is (202) 667-3574. The company says the program will copy disks in three passes or less. The cost is $39.95 and it requires either the Extended BASIC, Editor/Assembler or Mini Memory cartridge.

Bugged

Before we tell you what we did wrong, let us apologize to those readers who tried to run a brief routine included in last month's User Notes. Copied from a user group newsletter, it worked perfectly. Until WE put it into print, that is. It seems we covered over a part of Line 110. The program, which ran under the heading "We dare you", demonstrates the computer's calculation powers. Readers were urged to run it side by side on a TI and Commodore 64 (not that everyone has a 64). As one of our readers noted: ". . . a Commodore 64 home computer could not have done any worse than a TI! Unless, of course, it prints 'bad line in 110' slower than a TI."

Here is the correct version (we promise):

```
100 FOR N = 1 TO 100
110 IF SQR(N)<>INT(SQR(N)) THEN 130
120 PRINT N
130 NEXT N
140 END
```

1:2:6. TI signs with Imagic, Sierra; list of million names available.

Texas Instruments signed software production agreements with Sierra On-Line and Imagic in January [1984] and is making its list of TI home computer owners available to a firm in New York that is expected to publish a quarterly catalog of TI vendors.

The software agreements were announced at the Consumer Electronics Show.

The agreement with Imagic means that the software developer will take over production of software that it had licensed to Texas Instruments last year. Late last year TI introduced several Imagic titles, including Microsurgeon, Jaw Breaker, Fathom, and Moonsweeper. In addition to producing these titles, Imagic is expected to release a fifth game cartridge, Wing War.

The agreement with Sierra On-Line involves the production of educational software that has been developed by TI and the Walt Disney company. Some half-dozen programs will be released, using such familiar Disney characters as Professor Ludwig yon Drake, Pinocchio and Peter Pan. The programs were developed by TI but all aspects of their continued development and production will be carried out by Sierra On-Line, according to a TI spokesman in Dallas. The programs are expected to be marketed for other computers as well.

March Direct Marketing (MDM), of New York, is expected to produce a quarterly vendor catalog that will be sent to some one million TI users free of charge. The company will be using TI's list of home computer users, which is also available at a charge to other vendors, according to a TI spokesman.

Although officials of MDM could not be reached for comment, the TI spokesman said TI worked with MDM to develop the vendor catalog concept. It is not known when the first of these catalogs will be available.

"The problem is not designing software to be used with the 4A but in getting it to the market," the TI spokesman said in explaining the value of the catalog to vendors. Vendors may contact MDM at (212) 286-0460 for more information about the proposed catalog.

A TI spokesman says the mailing list includes the names of all TI owners who sent in rebate cards or owner registration forms prior to TI's announcement that it was leaving the home computer market. The spokesman indicated that home computer owners who are not included on the list may have their names added by sending the owner registration card to TI. Or, they may send a letter with their name and address and the serial number of the computer console to TI. Such information should be sent to the following address: Texas Instruments, P.O. Box 53, Lubbock, Texas 79408.

The information may also be phoned in via TI's toll-free telephone number — (800) 842-2737. However. the line is often swamped with callers and the likelihood of getting through is not very good.

"We're apologetic about it," a spokesman said, "but we're probably getting to only one in four or five who call. The wait on the line can get to be very long."

The spokesman said that TI is continuing to negotiate with other third-party vendors regarding software production rights. He noted that the company will offer whatever assistance it can to vendors who support the TI-99/4A.

"We're licensing anything that is necessary for use with the 4A." the spokesman said. He noted that some one million of the computers were sold during the last three months of 1983.

— JK

1:2:8. Phoenix to hatch soon

CorComp Inc., the California-based company that says it has developed the successor to the TI-99/4A, is beginning to firm its plans for delivery of the new machine, the 99/64. At the same time, company officials are planning a publicity drive that may get under way in mid-February [1984].

However, as with everything regarding the 99/64, all dates and deadlines are projections. As an example, in December CorComp officials indicated that the new computer would be on the market sometime during the first quarter of 1984. Now, however, that seems unlikely.

The 99/64, which is supposed to be fully compatible with all TI-99/4A software and hardware, is a feature-laden machine. It was described in the February edition of the *Compendium*.

The computer is dubbed the "Phoenix" after the mythical bird of ancient Egypt. According to company spokeswoman Betty Loeffel, 1,000 of the machines will be distributed by the end of March as display models for vendors. The company is calling this model "the silver edition."

If all goes according to plan, Loeffel says, the computer will go into mass production by April, with delivery to dealer shelves to follow.

Meanwhile, in late January, the company was scheduled to introduce several new hardware products to go along with the 32K expansion memory card and RS232 card it already markets for the TI home computer.

Ready for delivery late last month, according to Loeffel, were a peripheral expansion box and a disk controller card. A bundled system that includes the PEB, memory card, RS232 card and disk controller card is priced at only $300, Loeffel says.

The peripheral expansion box is supposed to be similar in appearance to the TI PEB and includes an opening for a disk drive.

According to Loeffel, who is the company's chief financial officer, CorComp is able to price the bundled system at $300 because of cost-cutting production techniques. For example, the company has been able to reduce the cost of producing its RS232 card by 48 percent through such techniques, she says.

Loeffel says the company is referring all inquiries about the new computer to its vendors. "Our phones have been ringing constantly," she says. "You wouldn't believe it. We can't get off the phone."

— JK

Phoenix Distributors

Here is a list of the national distributors of the 99/64 computer, according to a spokesman for CorComp Inc. Sales of the new machine will also be conducted by some l,000 local vendors throughout the country. The list may not be complete.

— R&S Distributing, Bridgeport, New Jersey — (800) 257-0453
— Unisource Electronics, Lubbock, Texas — (806) 745-8835
— Microsphere Inc., South Bend, Indiana — (219) 272-7488
— Microtronics, Oak Park, Michigan — (313)968-0050
— Computech, Springfield, Missouri — (417) 869-1684
— C&R Distributing, Acworth, Georgia — (404) 928-8791

The Phoenix

Here is a list of some of the features that the Cor-Comp 99/64, aka Phoenix, will offer, according to CorComp Inc. A more complete description of the machine was published in last month's edition of the *Compendium*. The basic system is expected to be priced in the $600-$700 range.

Keyboard: choice of three styles (Mylar, word-processing with numeric keypad and typewriter styles.) Each will be priced differently.

Memory: 64K RAM, expandable in 64K increments to one megabyte.

Disk controller: built-in card, capable of controlling up to four double-sided, quad-density drives.

RS232: built-in RS232 port.

Cartridges: two slots for cartridges, compatible with all TI cartridge software.

Processor slot: one slot for a second processor chip, such as the Mostek 6502 used in Apple and Atari computers, the Intel 8088 chip used in the IBM PC and the Z80A used in Osborne and Timex computers.

Game ports: two game controller ports, one Atari compatible the other Apple compatible.

1:2:9. Foundation's got plans

New products compatible with the TI-99/4A are expected to be forthcoming from Foundation sometime during the first quarter of this year.

Bill Hunter, vice president of operations for the Tiburon, California, company, declined to reveal the nature of the new products, but said that the TI market "looks like a very ripe market" at least for the short term.

"As far as we know, we are the first third-party hardware manufacturer for the TI," Hunter says.

Foundation produces 32K and 128K memory cards for the TI, and Hunter says the company has noticed increased interest in these TI-compatible products — particularly the 128K memory card — since TI left the market.

The 32K card works in the same way as the Texas Instruments 32K card, allowing the user to access the memory via the Extended BASIC and other applications cartridges. However, since the TI computer can directly address only the first 32K of extra memory larger amounts of memory must be accessed in a different way.

The Foundation 128K card uses a bank switching technique that is controlled by an EPROM (erasable programmable read only memory) chip that Foundation calls "DSR." The memory is included in four banks of 32 kilobytes. The chip, which functions as a disk file emulator, is plugged into the card.

Some early purchasers of the 128K card had found delivery of Foundation's DSR chip to be slow.

However, Hunter characterizes this problem as "very ancient history."

He says the problem resulted because the firm had been shooting for September as the target date for delivery.

All the new 128K cards being shipped, he adds, include the DSR disk file emulator chip and are being shipped from stock. The firm is quoting a two-to-four-week delivery time.

The majority of 128K card purchasers, he says, use a 32K bank for programming and the remaining 96K for file storage.

— LB

1:2:10. Pole Position, Jungle Hunt coming

If your Atarisoft PacMan is lonesome on the shelf next to your TI computer, take heart.

Ms, Pac Man will soon be available to cozy up next to him, according to a spokesperson for Atari.

Currently, Atarisoft titles for the TI-99/4A are PacMan, Dig Dug, Centipede, Defender, Donkey Kong, Robotron: 2084, Stargate, Shamus, Picnic Paranoia, Protector and Super Storm.

Scheduled for release at various times throughout the spring are: Joust, Pole Position, Ms. PacMan, Moon Patrol and Jungle Hunt.

Atari will release educational and home applications titles for the TI-99/4A later in the spring, but the spokeswoman declined to give specific titles. At this point Star Raiders does not seem to be among the games to be translated for the TI.

She said she is unaware of any plans for development of hardware or disk or cassette-based software for the TI.

The list price for the Atarisoft cartridge games for the TI is $44.95.

Bruce Entin, Atari's vice president for corporate communications, says the company has met with "very good response" to Atarisoft, from both consumers and dealers.

Now that Texas Instruments is out of the market, Entin says, "consumers who own those machines are asking; 'What are we doing for software?'"

"Dealers recognize that there's something like two-million TI machines out there," he adds.

Despite Atari's plans to add non-game software later this year, Entin feels that games are always going to be an important part of the home computer software market.

He says that about 60 percent of the time people use a home computer is spent on entertainment. The challenge, he says, is to develop software that provides an "entertainment crescendo."

Now that the novelty of home computers is wearing off, marketers are becoming more aware of the need to compete with the hundreds of other leisure-time activities available to consumers.

To be competitive among all these choices, he says, software needs to be "especially compelling."

Entin feels that there will be no more computer price wars such as those of the recent past.

"The home computer market went through a phase of a downward spiral of prices. We think that's over," he says.

"Manufacturers and consumers alike are looking at computers for what they can do rather than how cheap they are," he says.

— LB

What the [Atari] games are about

As for the games that are available:

It seems almost superfluous to describe PacMan, a game that inspired a popular song, a television show and a breakfast cereal, but for those who have just returned to civilization from some remote corner of the globe and want to catch up on the computer era, PacMan is a chomping circular creature who eats dots and sometimes energy tablets which enable him to immobilize the ghosts which chase after him.

Dig Dug burrows tunnels in search of fruits and vegetables that he eats to score points. As the player guides him horizontally and vertically across the screen, to dig new tunnels, he is attacked by monsters that lurk behind the fruits and vegetables.

When you play Centipede, the screen is a mushroom patch and you live at the bottom. Centipedes, scorpions, spiders and fleas descend from the top of the screen to attack you, so you have to shoot fast or be stung.

In Defender the player is the pilot of a spaceship shooting through the galaxy at hyperspace speeds whose mission is to fly along the surface of a dangerous planet and save the humanoids there from an assortment of strange invaders.

In Donkey Kong (another game with its own breakfast cereal and TV cartoon series), Mario the carpenter bounces, climbs and rides up girders and elevators, trying to get to the top of a building where his sweetheart is held prisoner by the gorilla Donkey Kong. The player tries to keep Mario from falling or being bumped off as he heads for the top of the building.

When you play Robotron: 2084 you are the only one who can save the world from the Robotrons, a swarm of robot monsters bent on destroying humanity. The object is to rescue the remaining humans before the Robotrons destroy them.

Stargate is a sequel to Defender, in which the player pilots a spaceship to a planet where aliens try to capture helpless humanoids. As an array of creatures attacks constantly, the choice must be made between fighting the attackers and saving the humanoids.

Shamus is a detective who is pitted against a horde of robot henchmen controlled by The Shadow. The player guides Shamus through a deadly maze, using only razor-sharp daggers as a defense against the enemy's laser blasts. Successful players will ultimately come face to face with the Shadow for a final conflict.

Ants, wasps and spiders swarm across the screen as you try to enjoy a picnic in Picnic Paranoia. You have to swat them furiously to keep them from carrying off the food, but they can paralyze you with their bites if you aren't careful.

In Protector, the player is a space fighter pilot maneuvering through meteoroids, lasers and rockets whose mission is to rescue 18 survivors stranded near a volcano before the volcano erupts. Alien attackers complicate the mission and try to destroy the pilot.

In Super Storm, the Earth is being invaded by creatures who are trying to drown all life by raising the levels of the oceans. The player controls a fleet of warships representing the planet's only defense.

And here are the story lines for the new games:

In Joust, the player is tested against natural disasters, armed riders from the Dark Region and birds of prey. Astride an ostrich and armed with a jousting pole, the player tries to knock the outlaw knights off their buzzards.

Pole Position puts the player in the driver's seat of a race ear. Drivers have the option of four levels of difficulty, and compile points for meters driven, seconds left over at the end of the race and bonus points for each car passed.

Ms. PacMan is similar to PacMan, with the chomping, circular character portrayed as a female.

Moon Patrol turns the player into the captain of a land cruiser patrolling the moon's surface. Alien spaceships try to thwart the player's mission as he defends himself while maneuvering through craters and boulders which could destroy the moon buggy.

In Jungle Hunt, the player Performs such feats as swinging on ropes from tree to tree and battling with alligators to save a damsel in distress.

— LB

1:2:11. For disk drivers

By the time you read this, TI users with disk drives may be able to play any Infocom game on their 99/4As. Reports in December that Infocom was not going to market its games for the TI home computer have been revised.

Joan Fasanello of Infocom, interviewed in late January, said the company now plans to release all of its games for the TI "within the next month, maybe sooner."

Fasanello said Infocom writes all of its games to disk, regardless of which of the 18 makes of computer they are written for. She said the disk drive is the only special equipment a user will need to play the games.

Infocom's games, which are text adventures, include Zork I, Zork II, Zork III, and Starcross at $39.95 each; Enchanter, Suspended, Planetfall, Deadline, The Witness, and Infidel list for $49.95 each.

Fasanello said that the Infocom software will be available at department stores, computer stores and "any place where they sell computer products."

The Zork trilogy is designed so that each is a complete and separate story unto itself, so that they can be played in any order the user chooses. However, these games, which take place in an imaginary, subterranean realm, share a common thread.

Zork I is subtitled "The Great Underground Empire." The player seeks the Twenty Treasures of Zork and tries to escape with them and his life while being confronted with various perils.

In Zork II, "The Wizard of Frobozz," one's opponent in the subterranean realm is, you guessed it, the Wizard. In Zork II you encounter its subtitle character, "The Dungeon Master."

Starcross takes the player to the year 2186 and a rendezvous with a huge spacecraft from the outer fringes of the galaxy. Included are aliens from another world and a light-years-old puzzle that only the player can meet.

In Enchanter, the player is a novice magician in combat with the Evil Warlock in a battle of spells.

Suspended takes the adventure game player underground once again, this time in a cryogenic capsule deep within an alien world. An earthquake disrupts the systems of the Underground Complex and the player must stabilize them to save this alien world from destruction. The player commands six robots, each of which perceives the world differently. The game has three levels of play and an option which allows the player to customize the game.

Planetfall goes a hundred centuries into the future to a Stellar Patrol ship of the Third Galactic Union. The ship explodes and the player is jettisoned to a mysterious planet where he encounters floods, pestilence and a mutant Wild Kingdom. Together with your trusty robot companion, Floyd, you explore the planet and attempt to discover how to save it.

Deadline refers to the 12-hour deadline the player has to solve a classic locked-door mystery. There are six suspects. The player gets a dossier containing lab reports, police findings, suspicious-looking pills and more. Clues and motives are provided along the way as the player attempts to track down the killer.

The Witness is another detective game, harking back to the days when the "whodunit" reached the height of its popularity. Again there are suspects to choose from, a police file, and clues, motives and alibis along the way when blackmail turns into murder.

In Infidel, the player, a soldier of fortune marooned by his followers, seeks the great pyramid. On entering the pyramid, the player must decipher its hieroglyphs and unravel its mysteries one by one — always in danger of death.

For users who get frustrated trying to work these text adventures out, Infocom has InvisiClues booklets for each game. Clues range from hints to full answers in each booklet and are written in invisible ink. The player uses the developing marker included with the booklet to make the selected clues visible.

Also available are blueprints for the detective games and guide maps for the other adventure games.

— LB

1:2:12. Victorian precursor

Boole Paved the way to the computer age

"You are sad," the Knight said in an anxious tone: "let me sing you a song to comfort you."

"Is it very long?" Alice asked, for she had heard a good deal of poetry that day.

"It's long," said the Knight, "but it's very, very beautiful. Everybody that hears me sing it — either it brings the tears into their eyes, or else —"

"Or else what?" said Alice, for the Knight had made a sudden pause.

"Or else it doesn't, you know. The name of the song is called 'Haddocks Eyes.'"

The characters in *Through The Looking Glass* were in a chess game, and Lewis Carroll, the author, was indeed referring to the binary logic of another Victorian mathematician, George Boole, in this passage. But even Lewis Carroll probably could not have predicted that, thanks to Boole, chess games could be played by computers.

Boole's contribution to logic was developing a system whereby logical statements could be expressed in algebraic terms. This is done by breaking them down to yes-no decisions ("it brings tears to their eyes, or else it doesn't").

Boole was born in 1815, the son of a shopkeeper in Lincoln, England. After a meager education at a National School, the boy struggled to teach himself Latin and Greek and also took a commercial course. At the age of 16, he became an assistant teacher, or "usher," in a school.

He spent four years as an usher, teaching at two different schools. At the age of 20, he opened a school of his own and, as he was teaching mathematics, began devoting his spare time to studying it.

Immanuel Kant, the German philosopher who died in 1804, expressed the opinion toward the end of his life that logic, as a subject, was complete.

To comment in the form of the syllogism of classical logic, all philosophers are capable of mistakes. Kant was a philosopher: therefore, Kant was capable of making mistakes. And in this case, he made one.

In 1854, after his mathematical publications had earned the self-educated Boole a professorship, he published his masterpiece, *An Investigation of the Laws of Thought, on which are founded the Mathematical Theories of Logic and Probabilities*.

He explained that he wrote the work "to investigate the fundamental laws of those operations of the mind by which reasoning is performed: to give expression to them in the language of a Calculus, and upon this foundation to establish the science of Logic and construct its method: to make that method itself the basis of a general method for the application of the mathematical doctrine of probabilities: and, finally, to collect from the various elements of truth brought to view in the course of these inquiries some probable intimations concerning the nature and constitution of the human mind."

Boolean algebra, despite this vast scope, can be learned by someone with a background of high school algebra.

The Boolean variables are confined to two possible values or states (Yes and No, True and False, On and Off). In the binary number system used to design computers, the variables are represented as 1 and 0.

Such a simplified system of notation requires a good deal of tedious repetition, which is why many persons find programming tedious. It is rather as if communication all took place in the form of the game "Twenty Questions" in which an object is to be guessed only by asking questions to which the answer is "yes" or "no." The computer, however, often takes many more than 20 operations, and only the animals, vegetables and minerals programmed in could be "guessed." All mathematical functions on a computer such as the TI-99/4A are reduced to addition — which would be a tedious way to go about it oneself, but thanks to engineering technology, can be done on the computer more quickly than working them out with pencil and paper, even with the added advantages of subtraction, multiplication and division.

After publication of *The Laws of Thought*, Boole married Mary Everest, niece of the man for whom Mount Everest was named. In 1857 he was elected a fellow of the Royal Society. In 1864, he died of pneumonia.

Bertrand Russell and Alfred North Whitehead emphasized the value of symbolic logic for mathematicians in their great work *Principia Mathematica* (1910-1913). The practical application of the Boolean logical patterns to the simplicity required by an on-off switch was first postulated by Claude Shannon, a graduate student at the Massachusetts Institute of Technology, in his 1938 master's thesis.

Though Jules Verne and other writers of science fiction have proved to have prophesied the future, it is not at all certain that some day a computer like HAL in Stanley Kubrick's 2001 will turn on human beings and make independent decisions. Though reducing the logical process to the binary function has amazing practical applications, making a number of "yes-no" decisions may not be what human beings are doing when they are thinking logically. Hubert L. Dreyfus, in his controversial book *The Limits of Artificial Intelligence*, points out that the MacHack computer program came up with a good move in a game of chess after considering 26,000 possibilities in 15 minutes. Dreyfus says a human player can come up with an equal or better move in the same amount of time, in which the human can consider only 100-200 possible moves. Thus, he says, human beings are doing something besides considering alternatives.

Dreyfus cites Gestalt psychologist Max Wertheimer, who says that trial and error (a binary process) excludes the most important aspect of problem-solving, a grasp of the essential structure of the problem.

Interestingly, in a pamphlet written by Boole's wife, she records her husband's opinion that knowledge is gained from an invisible, undefinable source — "the unconscious" — as well as from direct observation.

Whether the artificial intelligence researchers at Stanford and other places will overcome the current limitations is not for me to say. Still. it's consoling to know that right now my home computer can't be VERY much smarter than I am. Also, it's handy to be able to do things on it I'm not smart enough to do all by myself.

"I know what you're' thinking about." said Tweedledum: "but it isn't so. nohow." "Contrariwise," continued Tweedledee, "it if was so, it might be: and if it were so it would be: but as it isn't, it ain't. That's logic."

— LB

1:2:13. 1100? That's 12, right?

Perhaps you are young enough to have studied "new math."

Or old enough to have struggled with helping your kids with "new math."

But if not, or if you need a bit of review since the days you thankfully put the math books behind you, when thinking of computers you must realize that the decimal system we find so natural is completely arbitrary.

Computers, being binary, not decimal, operate on a binary system.

In the binary system, 10 does not represent "ten," but two. The number written as "100" represents four. Three is 11, five is 101, seven is 111 and eight is 1000. If you are doing your budget in a ledger with a pencil, this is obviously an unhandy way to go about it, compared to the decimal system. And you don't type it into your computer that way either.

Instead. you type in, say, your $12 subscription to *Home Computer Compendium*. Each key of your computer that you touch sets off a series of switches, on and off. The 12 that you type is 1100 in the math your computer uses, but still shows up as 12 on the screen so that you can read it without adding in your head. And if you type in the dollar sign, that is coded in with a series of on-off combinations as well.

Whatever your computer is doing, it is doing is by addition.

In binary logic, possibilities are aligned by the basic logical operations. These operations are conjunction ("and"), disjunction ("or"), negation ("not"), implication ("if-then") and bi-implication ("if and only if"). Each has a different "truth value" according to the truth of its components.

For instance, the sentence "Caroline and Stephanie are girls," is true, but the sentence "Caroline and Albert are girls" is false, assuming that Caroline and Stephanie are both girls and Albert is a boy.

However, "Caroline is a girl or Albert is a girl" would have the truth value of "true": so would "Caroline is a girl or Stephanie is a girl" because the "or" function here does not have the "either/or" implications it has in ordinary speech. "Caroline is a canary or Albert is an albatross" would, however, be false

So, depending on which logical function is being used, a circuit can be designed which can be on if Switch A and Switch B are both on, or if either were on, for instance. Or, the circuit can be programmed to come on only if Switch A is on, or Switch B is on, but not both. And so on

The thousands of switches on each silicon chip are what makes the huge number of operations on your TI-99/4A possible. The fact that so many switches can be placed in such a tiny space is also what makes it possible for you to have a computer in a corner of your house.

— LB

1:2:14. Review: Star Trek

Enterprise takes you far

Review	
Report Card **Performance** **A** **Ease of Use** . . . **A** **Documentatio** **A** **n** . . . . **B+** **Value** . . . . **A** **Final Grade** ..	**Cost:** $29.95 (cartridge)
	Manufacturer: Texas Instruments
	Requirements: console, monitor or television,(joystick, speech synthesizer optional)

Star Trek is a creation of Sega Enterprises and a production of Texas Instruments. It gets its name from the popular Paramount Pictures Corporation film.

This space shoot 'em up is one of the handful of cartridge-based programs produced as a cooperative venture between TI and major software developers. All were released during the fourth quarter of 1983 and no more are expected.

Performance: Star Trek is a well-designed, fast-moving game that gets more difficult as your skill improves. In other words, the more Klingons you destroy the deadlier their replacements get until they manage to destroy you. You cannot "win" in this game

But I'm getting ahead of myself.

The game starts immediately after selecting the Star Trek option following the title screen. The Star Trek theme is played as the game's title screen appears. Pressing any key results in a male voice saying "Welcome aboard, Captain" if you've got a speech synthesizer attached.

The screen is divided into three rectangles. The upper half of the screen includes two rectangles. One is the Radar Scanner. which shows an entire sector of space. The other contains a group of bar-graph type indicators that monitor your energy shields. photon torpedoes and warp drive.

The lower portion of the screen provides a simulated 3-D view from the bridge of the Starship Enterprise.

Play starts upon "boarding" the Enterprise. You find yourself in Sector 1 with several Klingon vessels and a single starbase. Starbases can provide the Enterprise with one energy shield, one photon torpedo, and one warp drive unit. To receive these items, you must use impulse power to pilot the Enterprise directly over the starbase.

Of course, the Klingons don't just go away. Even though you've docked with a starbase, you still must destroy all of the Klingons in Sector 1 to advance to Sector 1.1. You may do this by firing your phasers at close range, or by firing a photon torpedo when the target is out of range of your phasers. A photon torpedo is capable of destroying several Klingons when it explodes. The Klingons will be firing at the Enterprise throughout the game so you must try to maneuver your starship in such a way that the Klingon shots will miss. Each Klingon hit costs you one shield.

But that's not all the nefarious Klingons will do, While there are 2 classes of Klingon battle cruiser — red, which pursue the Enterprise, and yellow, which attack starbases — they will change color if not destroyed and commit hara kiri by colliding with the Enterprise. Each collision costs the Enterprise two shields.

And, as the captain, you mustn't forget the blue Anti-Matter Saucers that are allied with the Klingons. These appear randomly and try to attach themselves to the Enterprise, draining it of its warp drive energy. They can be destroyed with phasers only, and are worth 5,000 bonus points.

Nomad is another Klingon ally. This little device appears in the last level of a sector. It scatters explosives throughout the sector and detonates them when the last one has been laid. It moves rapidly, but if you can destroy it with your phasers before it has finished its work you will gain bonus points and the Enterprise will suffer no damage. Easier said than done.

Having destroyed the Klingons in Sector 1.1, you advance to Sector 1.2, 1.3 and later to Sectors 2, 3 and beyond. As you progress through the sectors the action gets faster and deadlier. If you can get beyond Sector 6, you are a better starship commander than I.

The graphics in Star Trek are clean of line and functional. There's not much to see in outer space, you know. Sound is used to represent the explosion of torpedoes and the firing of phasers. You also hear a plink when a Klingon crashes into the hull of the Enterprise. The speech synthesizer is used more effectively in this game than in Parsec. The voice is much clearer in this game. It announces the sector number as you enter it and offers such encouragement as "Excellent maneuvering, Captain" during the course of the game. Color is well-integrated into the game, both in terms of function and appearance.

Although the 3-D viewer takes up half the display screen, its function is limited. It provides a close-up view of oncoming Klingons and torpedoes and has a targeting feature to use with the phasers. However, if you haven't already destroyed the Klingons before they loom large in front of the bridge you can be sure that the Enterprise will suffer damage. Everything on this screen moves fast as you rotate the bridge to put the target in view. You will be able to watch only one screen at a time so your best bet is to destroy the Klingons before they get near the Enterprise. The depiction of Klingon vessels and other objects is more fully developed in the viewer than the graphics used by the radar screen.

Points are scored for each Klingon, Anti-Matter Saucer and Nomad destroyed. Points are also accumulated for using a starbase, though you can get four times as many points for not using a starbase. A multiplication factor is used in tallying the score based on the "round" number. For example, Sector 1.1 is round 1 and Sector 1.2 is round 2. This factor affects points awarded for all but the Anti-Matter Saucer.

Ease of Use: This game can be played with joysticks or the keyboard. I prefer the keyboard because not all joystick commands come naturally. For example, to move the Enterprise forward in warp drive, you have to pull the stick back. Very unnatural.

The keyboard commands use the left and right arrow keys for direction and the **H-J-K-L** keys for everything else.

Documentation: TI has once again provided an excellent manual for its software. It includes strategy tips as well as the usual how-to material.

Value: I enjoyed playing this game, but I reached my level of competence after several hours. I've little hope of getting beyond the sixth sector. But for those who think they can do better every time they play a game, this one will provide quite a challenge.

— JK

1:2:15. Review: Escape from Balthazar

Crime pays in this game

Review	
Report Card Performance . . . A Ease of Use . . . . B+ Documentation B Value . . . . A Final Grade . . . . A-	**Cost:** $10.75 (tape)
	Manufacturer: Inter-8 Enterprises, 502-285 Loretta Ave. South, Ottawa, Ontario K1S 5A5
	Requirements: console, monitor or television, cassette recorder, joystick optional

I did not expect much from Escape From Balthazar when I loaded it into the computer. Happily, I found it to be an amusing game that anyone can run on a minimal TI-99/4A system. The graphics and movement are better than I expected for a game written in console BASIC at this price.

Performance: The distributors call this an "animated adventure." I think that's a little misleading. I'd call it a game of action. It is not actually "animated," though the graphics are well done. Sound is also incorporated into the game.

There are nine levels of difficulty, which the user selects before the game starts. Then a screen is drawn, representing the map of a city. There are numerous streets, buildings, trees, a hospital, a casino and a food store. According to the storyline, you have escaped from prison after having been incarcerated unjustly. A vengeful guard gives chase. He is armed with a gun. You are unarmed. Starting out with a small amount of money, you must somehow raise enough funds to bribe a pilot to fly you out of Balthazar to freedom. This is easier said than done, but that's where the fun comes in.

To raise money, you move up and down the streets robbing businesses. While committing your crimes you must also avoid the relentless guard who chases you wherever you go. If you are shot, you may go to the hospital where treatment will be provided if you are willing to pay a bribe. If you are shot too many times, the game will end. You must periodically stop at the food store for meals. The food store will give you nine meals, for a price, and you will "eat" them as the game progresses. If you run out of food, you will starve, thus ending the game.

After accumulating a bankroll, you may enter the casino. A second screen is drawn and you play blackjack against the house. For every hand you win, you receive a piece of gold. The pilot will fly you out of the country for seven pieces of gold, so you've got to be pretty lucky at the card table. If you run out of money, you are sent back onto the streets where you must again prey on the merchants of Balthazar to raise another bankroll.

There is a group of status indicators on the right side of the screen. One records the number of meals you have left another records the number of wounds you've suffered, a third records the amount of money you've accumulated and a fourth records the number of gold pieces you have. You win the game the instant you've won your seventh piece of gold.

It seems that bribery makes the world go 'round in Balthazar. Everyone is on the take, including the shopkeepers. At times you'll be required to pay a bribe to a merchant who refused to give in to your robbery attempt. Remember, you're unarmed.

Ease of Use: Escape From Balthazar may be played from the keyboard or with a joystick. After a couple of games, moving up and down the streets was easy. Level 1 is relatively simple. I cannot imagine how one could win this game at Level 9. It is very difficult.

Documentation: The game comes with a five-page manual that adequately gets a new player through the game.

Value: This game is a very fine value at the price, It works well, seems to have no bugs and keeps your interest. I have no qualms in recommending it to anyone who has a basic TI system.

— JK

1:2:16. Review: Garkon's Getaway

Have fun with escapism

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation B Value . . . . A Final Grade . . . . A	**Cost:** 16.95 (tape)
	Manufacturer: TEXware Associates, 350 First North St, Wellington, IL 60973. (815) 984-4186.
	Requirements: console, monitor or television, cassette recorder, Extended BASIC cartridge, joystick.
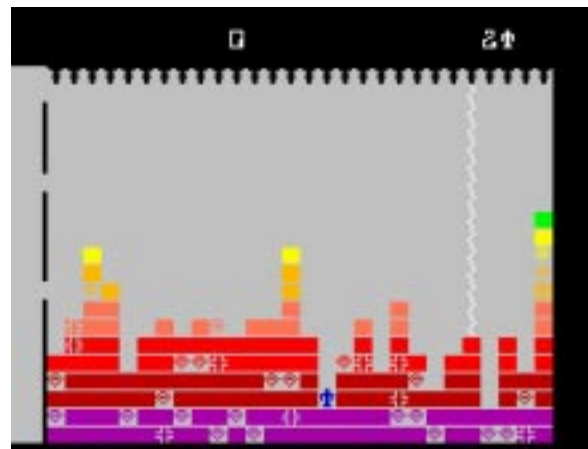
Garkon's Getaway stands among the most entertaining games written in Extended BASIC that I have seen. It is fun to play and fun to watch. The graphics are well done and the challenge is such that once you start playing you don't want to stop.

Performance: Garkon's Getaway, written by Bill Zielinski, is a game of escape. According to the game's story-line, Garkon is trapped in the dungeon of a wizard. Your job is to help him escape by climbing through an opening in a wall at the left side of the screen.

Ironically, you can't escape without the help of the wizard You see, the wizard has installed lasers in the ceiling which fire randomly at the dungeon floor. Wherever the laser beam hits, a colored block is formed, thus raising the floor of the dungeon There are 28 blocks to each row and 20 rows. If Garkon is unable to escape by the time the entire dungeon is built up, well, it's curtains.

Using the joystick, you move Garkon about in the hopes of avoiding the lasers. If a laser should happen

to hit Garkon, forming a block over his head, he "dies." His demise is depicted by an angelic, white figure rising to the top of the screen to the tune of "Taps" Fortunately, Garkon starts out with nine lives. The game also ends when Garkon runs out of lives.

As long as Garkon manages to keep from being struck by the laser, the laser beam continues to lay down colored blocks. (This process is interrupted only long enough to allow Garkon's angel to rise out of sight.) However, this by itself would not be of much help, since Garkon is able to jump up only one block at a time. Since the lasers are aimed randomly, the floor is built up randomly. But Garkon is not simply a powerless victim of fate. He is armed with a gun that is capable of vaporizing blocks, one at a time. By vaporizing blocks, Garkon can adjust the level of the block rows, creating a stairway of sorts to the exits, which are located at the left side of the screen.

There are three exits, each at varying heights. The lowest exit is easiest to reach. The highest exit is extremely difficult to reach. Bonus points are awarded by virtue of successfully escaping through one of the exits. The lowest exit adds 1000 points to the total score and one life. The second level adds three lives and 3000 points. The third level adds five lives and 5000 points.

Points are also scored for each block Garkon vaporizes. Plain blocks score few points. Treasure blocks, which are shaped differently than the plain blocks, are worth more. The value of any block also depends on which row it is on. The higher the row, the more a block is worth. There are also Zapper blocks which, when vaporized, cause an entire row of blocks to be created on the floor. While Zapper blocks do not produce points, they come in handy when trying to compensate for the randomness of the lasers. The lasers do not create a block over the spot the Garkon is standing on when the floor is being zapperized, to coin a word.

Having escaped, Garkon is returned to the dungeon for another round of dodge the lasers.

This game has many strengths, including the use of color. The combination of colors used in the various rows of blocks is actually pretty, going from magenta at the bottom, to red to yellow to green. Also, I did not feel frustrated by this game, despite the fact that the action is fast-moving and relentless. You have to think very fast, not only in deciding which blocks to vaporize but to avoid being hit by a laser.

The graphics, though simple in design, are effective and flawless. The sound effects, those representing the laser in particular, are realistic and do not become annoying despite the number of times you hear them.

The only drawback I can see is in the fact that Garkon is able to move only two squares at a time without pausing. I suspect this is due to the limitations of Extended BASIC. This creates a problem when trying to jump out of the way of the laser when it is about to shoot. The program must either fire the laser or respond to the joystick command to move Garkon. At times the joystick seems to take precedence over the laser and at other times it is the other way around. The fact that you can't predict whether the joystick will take precedence at any particular point is bothersome at first, but I adapted to it. Written in assembly language, this game would have enormous potential.

Ease of Use: Garkon's Getaway is simple to play and, once you get started, obvious. All input is through the joystick. The program, as far as I could tell, is crash proof.

Documentation: The game comes with a brief but adequate manual.

Value: I enjoyed playing this game a lot. So have others of varying ages who tried it out. And the price is right.

— JK

1:2:17. Review: Sky Diver

Jump out, and Geronimo!

Review	
Report Card Performance . . . A Ease of Use . . . . B Documentation B Value . . . . B Final Grade . . . . B	**Cost:** $19.95 (tape)
	Manufacturer: Maple Leaf Micro Ware, P.O. Box 1341, Kanata, Ontario K2K 1X3
	Requirements: console, monitor or television, cassette recorder, Extended BASIC cartridge.

My initial reaction to Sky Diver is very positive. It is a well-designed game. The fact that up to four players may compete, not simultaneously of course, makes it that much more attractive.

Performance: The object of Sky Diver is to maneuver a parachutist toward a target in the center of the screen. Points are awarded on the basis of how close to the bull's-eye the chutist lands and the velocity at impact.

Accomplishing this feat is not as easy as it may seem. There are a number of factors to contend with, including wind velocity and direction and rate of descent. While the player may compensate for the wind by heading into it, he cannot compensate for hitting the ground too hard. Broken legs and worse are the result of opening the chute too late.

The game starts with a red airplane that moves across the screen. Direction is controlled by the left and right arrow keys while altitude is determined by pressing the up and down arrow keys. At some point, the player may release a blue streamer. As it falls to the ground, one can determine what effect the wind will have on the parachutist.

Having reached the desired altitude, the chutist jumps from the plane on command and free falls until the parachute rip cord is pulled. This is done by pressing a key. However, there is a 10 per cent chance that the main chute won't open. At this point, the player may try to use the reserve chute.

I was intrigued by free-falling. What you see is the figure of a chutist as seen from above. By using the arrow keys, you can make the figure circle over the target or move to any area of the screen. Of course, as the fall continues, the rate of descent increases. If the parachute is opened too late, you won't be able to prevent the chutist from hitting the ground hard. Just as in the sport of sky diving, drag develops gradually.

After the rip cord is pulled, the parachute blossoms over the sky diver. Rate of descent is gradually reduced and from here on the player maneuvers the chutist via input from the **1** and **0** keys. A little indicator arrow at the right of the screen points in the direction the chutist is moving.

The game continues until one player has scored 500 points or all the players have been eliminated by death or injury. The accumulated total for each jumper is shown at the end and beginning of each jump.

The graphics are simple and colorful. When the chutist is about 500 feet from the ground the scale of the target changes, becoming larger. An indicator arrow on the left side of the screen lets the player know the velocity and direction of the wind. Indicators at the bottom of the screen report the chutist's altitude, rate of descent, time and distance from the bull's-eye. There is a tone that sounds to mark the passing of "seconds." These are game-time seconds, not real time.

Ease of Use: Prior to the start of the game, a screen appears showing the player how to maneuver the airplane and the chutist. However, I was confused for my first several jumps. Once I had it in mind that the number keys, and not the arrow keys. control the jumper, I had no trouble guiding the chutist to the target.

Documentation: Although the manual includes plenty of information about how to play the game, it's all in text. It would have been nice to have a chart of some sort, similar to the instructions that precede the game, included with the manual. Larry Sabo, who created the game. says that he is redesigning the documentation to include a chart.

Value: As a multi-player game, Sky Diver is fun. However, I would like to have seen the total scores of all players shown at once at some time, but there is no scoreboard feature. This is not an arcade game, so you shouldn't expect everything to happen with lightning-like speed. Persons ranging in age from 8 to adult who tried the game out all had good things to say about it.

My principal reservation concerns the price. Although I have no doubt about the quality of programming that went into this game, I feel it would be more successful if it were priced at a dollar or two less. I realize it is not my business to set prices, but it is not possible to determine the value of any item without referring to the price at some point.

— JK

1:2:18. Review: Mail-Call

For your appointed rounds

Review	
Report Card Performance . . . A Ease of Use . . . . B Documentation A Value . . . . B Final Grade . . . . B+	**Cost:** $25.00 (disk)
	Manufacturer: Wattsware, 1739 Burning Tree Dr, Vienna, VA 22180
	Requirements: console, monitor or television, disk drive and controller, Extended BASIC cartridge, printer recommended, 32K memory expansion helpful.

Mail-Call is a relatively new applications program for the TI-99/4A Home Computer. Utilizing relative files and written in Extended BASIC, it is more useful than Tl's Mail List software, which runs out of console BASIC and carries a list price of $69.95. This program seems to have a place in the middle ground between the simpler, slower mailing list programs and the sophisticated, faster mailing software such as TI-Count/Mail, which has a list price of $99.95.

Performance: Mail-Call consists of two protected programs. One handles the mailing list chores and the other is available in case the user wants to convert the mailing list into a file that can be read by the TI-Writer text processing program. This is a very useful function in itself for those who use TI-Writer in conjunction with correspondence.

The capacity of the Mail-Call program is equal to the capacity of the disk drive. A single-sided, single-density drive can store about 600 pages. Each page consists of a title, first name. last name, street address, city, state, ZIP code and another line for coding purposes.

This program is simple to operate, with all entry based on screen prompts. It automatically sorts files alphabetically based on the last name.

It also provides full editing capability, including deletion and correction of pages. Data is accepted in upper and lower case.

The user may view the files by scanning pages or by listing pages. Scanning provides a list of entries based on the sequential page number and name. The user may also list the contents of all pages to the screen. Both of these commands may be terminated at any point.

Printing of the pages is done with little user choice in formatting. Listing a hard copy of the file contents allows 11 items per printer page. The program is preset to print single row labels ($31/2 \times 15/16$ in.) using a four-line address.

However, the user determines what information to include on the labels as well as which labels to print during any run. He may choose to print all pages, or only those based on the last name, ZIP code, city, state, user code or page number.

Of course, by using the conversion option and TI-Writer, the user can incorporate Mail-Call files in correspondence. Although the Mail-Call files can be converted to suit TI-Writer, TI-Writer files cannot be converted to be used by Mail-Call.

Ease of Use: This program is easy to use. The only problem I had initially was while using the conversion program. I entered an improper file name and the program stopped and the computer spit out an error message. There was no problem in getting it going again.

My principal reservation has to do with the fact that all operations run out of a single disk drive, resulting in a lot of disk switching. I'd like to see an option that permits the use of two drives, one for program storage, the other for data storage. (The company says it recently modified the program so that it can also be used with multiple drives.) Also, as the mailing list gets longer, the time it takes for items to be added increase proportionately. Writing each entry to disk took from 11 to 15 seconds on average. I don't know what can be done to speed it up since it seems to be a limitation of Extended BASIC and not the programmer. At this price, I'm willing to put up with a few inconveniences. The fact that it won't accept nine-digit ZIP codes doesn't bother me at all. Who uses them?

Documentation: Mail-Call comes with a well-done booklet that addressed every question I had about the program.

Value: I don't recommend this program to those who are constantly updating and adding large numbers of names to a mailing list. Because it does not sort by ZIP codes, it is inappropriate for those who use third or second class mailing permits. Also, it is not designed for use with Canadian or other non-U.S. addresses.

However, I can recommend it to virtually anyone else who has a need to keep track of names and addresses and to print mailing labels on a periodic basis. User groups, church groups, PTAs and other organizations could benefit from this program. The program serves its intended purpose well, which is to bring order to the chaos of mailing

— JK

1:2:18. Review: Prowriter Printer

Works like it's made for the TI

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation B Value . . . . A Final Grade . . . . A	**Cost:** $389.95 (parallel interface)
	Manufacturer: C. Itoh Electronics Inc., 5301 Beethoven St., Los Angeles, CA 90066.
	Requirements: console, monitor or television, RS232 interface and cable.

The Model 8510A Prowriter is a rugged and reliable dot matrix printer that works well with the TI Home Computer system. During the test period for this review, using such programs as TI-Writer, Microsoft Multiplan, Personal Record Keeping and other software that makes use of a printer, it operated without any modifications, either to the printer, the computer or the software.

Performance: This 80-column printer has a number of features that I did not expect to see in the under-$400 bracket. The User may choose to use perforated (fan-fold) paper, roll paper or plain, single-sheet typing paper. The printer comes with a choice of six languages (including Greek), several type fonts (compressed, pica, elite, proportional and elongated) and a bit image graphics mode. The machine uses a cloth ribbon that comes in a cartridge.

The user may operate the paper feed forward or reverse. The machine will print an original and up to three copies, according to the manufacturer. It does not seem to accept anything as thick as an envelope, however. The machine can accommodate paper up to 10 inches wide.

The alphanumeric character format is 7 dots horizontal by 9 dots vertical. The bit image graphics mode uses an 8x8 matrix.

The machine comes standard with a parallel interface. A serial interface is available at an extra charge. The printer comes with a 1 kilobyte buffer, but a 3K buffer is also available at an extra charge. The manufacturer says it operates at a speed of up to 120 characters per second in the bidirectional mode. DIP switches allow the user to select bidirectional or unidirectional printing.

So much for some of its more obvious features. How do I like it?

I like it. I like it. The print quality is quite good (see sample) and the ribbon is long-lasting. I used the same ribbon to print hundreds of pages of copy, much more than I could ever get out of a cloth ribbon on a typewriter. Although I've seen the ribbons advertised for as much as $9.00, I've not paid more than $4.95 for one and have not had any problem locating them. Incidentally, loading and unloading the ribbon is a snap.

The Prowriter uses a Centronics-type ribbon cable to link it to the computer's RS232 port. When I purchased it, the dealer had to have the cable fabricated as a custom job. It cost about $25 for a five-footer, which is about what most such cables cost for any printer.

DIP switches are conveniently located and easy to reach. The on-off switch is on the side of the machine. There are three buttons on the front of the machine: one for top of form feed(which advances the paper to the next page) and a line feed, which allows you to advance the paper one line at a time as long as you hold the switch down. The third button simply activates the other two.

There are also lights on the front panel to indicate that the power is on, that the selection switch has been activated and whether paper has been loaded. The print head will not operate if there is no paper to print on. A lever on the top of the printer allows the user to choose either friction feed, for single-sheet paper, or pin feed for perforated paper.

Paper can also be advanced manually.

The printer is ruggedly packaged in molded plastic. Most moving parts are made of metal. Though it has printed more than 2,000 pages, not a single screw has ever loosened. Despite weighing only a bit more than 18 pounds, it seems to operate with virtually no noticeable vibration.

So, how noisy is it?

That's a fair question, insofar as the printer is likely to be located within several feet of your computer. The noise level is about 69 decibels, which is roughly equivalent to the decibel level of a noisy office, ordinary traffic or a telephone conversation.

Ease of Use: The printer is easy to use. Instructions for setting the DIP switches are clear. The manual that comes with the Prowriter includes many software selectable settings for different character sets and line spacing.

Documentation: The printer I reviewed came with two manuals and a T-shirt. One of the manuals was written by Leading Edge Products Inc. The other is a production of C. Itoh. Both cover the same ground, though the Leading Edge manual is written in such a way that even a first-time printer purchaser can get his machine up and running after scanning the first few chapters. The C. Itoh manual provides more detail about the internal workings of the machine. The two complement each other.

The T-shirt didn't fit.

Neither manual includes any specific information about setting up the printer for the TI Home Computer. However, the explanations provided for other computers were easy to follow and utilize on the TI. Although I often had to hunt for the information, I was always rewarded by finding out what I wanted to know somewhere in one of the manuals.

My only criticism of the manuals is that neither has an index. The C. Itoh manual has an excellent table of contents that helps to compensate for the non-existent index. The Leading Edge manual, however, begs for an index. Then, I've been spoiled by the documentation that Texas Instruments provides with its products.

Value: This is a fine, general-purpose printer that certainly would have a long life in the home or small business. Prices have come down dramatically since it was introduced slightly more than a year ago at $795.

— JK

1:2:22. Newsbytes

Tax deductible

Ben Hur Software, 1114 W Main, Crawfordsville, IN 47933, is offering it's 1983 Tax Preparation Aid for use with the TI Home Computer. The software is available on cassette or diskette. Tile program addresses itself to the federal 1040 individual long form and the Schedule A form for itemized deductions. By entering different data, users may be able to reduce their tax bills to the legal minimum, the company claims. The company says the program uses prompts for input and does all the mathematics automatically. Output is to screen or printer, showing what to write on each line of the tax forms. The price is $26, postage paid.

The disk version is said to be somewhat more sophisticated than the cassette version. Both require Extended BASIC. The company also produced a tax program for 1982. The 1983 version is said to incorporate improvements from the 1982 version.

Of course, the program is tax deductible.

Percom's loss

Percom Data Corporation may not be one of the big losers in the recent home computer shakeup, but the company certainly has learned a lesson.

Reportedly, the company is switching emphasis from the volatile home computer market to the business market. The company is merging with Esprit Systems Inc., a producer of video display terminals, and is expected to concentrate more of its resources on intra-office networks. Percom has already spent more than $1-million in product development over the past year to get ready to step into the network market. The goal of networking is to link computers in an office for data exchange and other shared operations. Esprit will provide the marketing channels to distribute the Percom office products.

Esprit was expected to pay $3.5-million by the end of January to purchase Percom. Nonetheless, Percom says it will stay in the home computer market as long as the market remains profitable. It produces a single-sided, single-density floppy disk drive for the TI Home Computer that includes a disk drive controller card. Percom produces similar products for Atari home computers.

In the chips

Despite a disastrous experience in the home computer market, Texas Instruments remains as one of the world's leading semiconductor manufacturers. TI produced $1.55-billion worth of semiconductors during 1983, according to Integrated Circuit Engineering, an Arizona-based consulting company. IBM, the world's leading chip manufacturer, produced $2.4-billion worth of semiconductors in 1983. Unlike TI, which sold most of its chips. IBM used most of its chips in its own products. Motorola also produced $1.55-billion worth of semiconductors during 1983.

The leading Japanese manufacturer of semiconductors in 1983 was NEC, with $1.34-billion in chips. Hitachi was of the only other company in the billion-dollar club, producing $1.04-billion worth semiconductors.

Software sales

Pewterware Computer Software, P.O. Box 503, Gulf Breeze, FL, 32561, is offering TI users a sales kit for its TI home computer software. The cost is $49. The company says that purchasers use the kit to demonstrate the company's game programs to prospective buyers. The salesman then earns $4 and up for each sale. The sales kit includes copies of the company's five game programs and a program that includes several games. Outstanding sales people can earn monthly bonuses, in addition to the profit from each sale. The company's inventory includes Up Periscope and Bluegrass Sweepstakes.

Anyone for a software party?

How to order

Last month's Newsbytes column carried an item about *How to Feel at Home with a Home Computer*, the new 264-page book by Texas Instruments. We got so caught up in the irony of TI coming out with the book after ending production of its Home Computer that we neglected to provide ordering information. Here it is: Texas Instruments Inc., P.O. Box 225012 M/S 54, Dallas, TX 75265. Or call (214) 995-4844. which will put you in touch with TI's Dallas Learning Center. The cost is $12.95.

Exchange update

It seems to be a case of the left hand not knowing what the right hand is doing. Last month we reported that repairs to out of warranty TI hardware would be done through the company's Lubbock repair facility. This information came from TI spokesmen in Dallas and Lubbock.

Now we've learned from TI Exchange Center employees that they are continuing to exchange defective hardware whether in or out of warranty. "We're still exchanging them," one employee said. "And we'll continue to exchange them until we're told otherwise, and we haven't been told otherwise." Of course, users are billed for exchanges of out-of-warranty hardware just as they would be if they sent the items to Lubbock for repairs.

Newsbytes is a column of general information for TI-99/4A users. It will include product announcements and other items of interest. 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. Items may be mailed to the Compendium, P.O. Box 1343, Round Rock, TX 78680.

1:2:22. User Notes

TI Adventure copies?

There is a use for the Tunnels of Doom cartridge that TI may not have intended. Those who bought a number of TI's Scott Adams Adventure games on tape and have since purchased disk drives may be frustrated by the fact that they can't copy the tape to a disk. Not to mention that it would be more convenient to have all the adventure files on one disk. We know of a third-party cartridge that allows you to copy the data files, but you may be able to do it with the Tunnels of Doom cartridge, too.

Here's how it's done: With the Tunnels of Doom cartridge in the console, load the adventure game data from tape. After it's loaded, do not start the game. Instead, press **FCTN BACK** and then save the data to disk, giving it whatever file name you'd like. Allow about 52 sectors for storage.

Then, when you want to play the newly transferred program, insert the adventure cartridge into the console and load the program out of disk. The adventure appears to play normally, though there may be some random graphic characters that may have gotten transferred.

Speaking of BASIC

If you've got a Terminal Emulator cartridge and Speech Synthesizer you can have your programs listed via the computer's "voice". We don't recommend this for long programs, but if you've been locked up in a cabin in the out-back for months and miss the sound of a human-like voice, this may be of interest. This hint comes from the Rocky Mountain 99ers group in Littleton, Colorado.

1 — Install speech synthesizer and Terminal Emulator II.
2 — Load program in BASIC.
3 — Type in LIST "SPEECH".
4 — Listen closely.

Be warned, however, that once you start this routine the computer will go on talking until it has finished the program. The Los Angeles 99ers Computer Group says you may run only selected portions of the program by adding a colon followed by the line number you want it to start with, a dash, and the line number you'd like it to stop talking. This is the same technique used to list programs to the screen or printer. Failing this, if you get the TEII started on a long program, the only way to get out of it is to turn the computer off.

Are those chimes?

Last month it was telephone tones. This month's sound idea has to do with a routine that emulates chimes. This comes from the NET 99er group in Hurst, Texas. It will run in BASIC or Extended BASIC, they say.

```
100 (Program Lines)
200 GOSUB 1000
210 (More Program Lines)
1000 RESTORE 1080
1010 READ TONE
1020 IF TONE=99 THEN 1090
1030 FOR NOTE=-5 TO 30 STEP 5
1040 VOLUME=ABS(NOTE)
1050 CALL SOUND(-99,TONE,VOLUME,TONE*2,VOLUME,TONE*3,VOLUME)
1060 NEXT NOTE
1070 GOTO 1010
1080 DATA 2000,2200,2420,2000,99
1090 RETURN
```

Let the bells ring.

Forward and back

Those with Extended BASIC can save time in their programming chores by scrolling forward and backward. It's simply a matter of hitting the **FCTN REDO** key. You may start your scrolling anywhere you'd like by NUM and the line number. Then hit the **FCTN REDO** key to get things started. Now, if you want to scroll backwards, just press the **E** (up arrow) key. If you'd like to go in the other direction, press the **X** (down arrow) key. You can move forward and backward through the entire program if you'd like. This can be very useful when debugging a program.

No more quit

There are few things more frustrating than having 30 minutes worth of keyboarding done away with by a power outage. Even more annoying is losing the data because of hitting the **FCTN QUIT** key inadvertently. Is there a TI user who hasn't done this at least once?

Those who have a 32K memory expansion and Extended BASIC can prevent this latter problem from ever happening. Here is a one-liner that disables the **FCTN QUIT** key:

```
CALL INIT:: CALL LOAD(-31806,16)
```

Type it in after entering Extended BASIC.

Although you won't be able to use the **QUIT** key to leave Extended BASIC, you can still type "BYE" to exit to the title screen.

Keeping track

Extended BASIC programmers can use the exclamation point at the end of a program line to enter remarks. In BASIC, however, TI says the remark statement, REM, is supposed to come at the beginning of a line. For programming purposes, the computer ignores anything that follows a REM statement until it reaches the next programming line. However, the Hoosiers Users Group of Indianapolis says the REM statement can be written on the same line as a program statement, with a few limitations. First, the program line, including the REM statement, cannot be longer than one screen line. This may limit this technique to remarks following GOSUBs, GOTOs and other short commands. Here's an example:

```
100 GOSUB 200 REM DRAW LINE
```

The Hoosiers caution that the line must end with a blank space.

How many bytes?

Several cartridges, such as Extended BASIC, affect the amount of random access memory available to the user of a TI console. Powered-up in BASIC, the console has 14,536 bytes of user-available memory. Insert a Terminal Emulator II cartridge and the amount is reduced to 14,024 bytes. Insert the Extended BASIC cartridge and you've got 13,928 bytes available. If you add a disk drive to your system. deduct another 2088 bytes.

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. We encourage everyone to contribute items for publication in this column.

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1:3:3. Comments

What we need is a good database program

> How long will the hardware producers hang in there? Producing hardware calls for a significant investment, both in time and money, and the big question now is whether there is a market large enough to make it worthwhile.

Why hasn't anyone produced a good database management program for the TI?

While I'll accept written answers throughout the month, I can't think of many good reasons. Not when you look at the growing proliferation of word processing programs available for the TI. Why so many word processing programs?

It doesn't make any sense. More computer users could put a good database program to work than will ever use a word processing program.

Why?

Economics. It's cheaper. Word processing requires printers, and printers are expensive. Database programs can print to the screen and everyone with a keyboard has a screen of some sort.

Part of the problem may lie in the fact that a good database program requires at least 48K of memory. With databases, the more memory the better. Even so, it's a good bet that there are more TI owners with memory expansion cards than there are owners with printers.

WHO'S PRODUCING WHAT?

The next several months will be very interesting for TI users in the market for hardware and hardware producers in the need of a market. CorComp and Mikel Laboratories Inc. are planning to produce expansion boxes. There are already several sources for memory expansions and RS232 interfaces. Disk drives have never been a problem, though obtaining disk drive manager cartridges may be. There's no shortage of monitors to choose from, color, green, amber or black and white. And, I predict there will not be a shortage of new software for the TI, though obtaining it is probably going to get more difficult as time goes on.

But how long will the hardware producers hang in there? Producing hardware calls for a significant investment, both in time and money, and the big question now is whether there is a market large enough to make it worthwhile.

There are essentially two schools of thought on this issue: One, that everyone who has any intention of having a fully configured TI system already has one. Two, that as long as a manufacturer can produce affordably priced hardware there will be no shortage of people to buy it. If the market is firm, the real problem will be in reaching it. But that could be a bigger problem than anything that occurred during R&D.

This is where TI retailers come in. And I'm not talking about the K-Marts, Sears and department stores that TI relied on. I'm talking about the local businesses scattered all over the country that have dealt largely, if not exclusively, in TI Home Computer products. We'll be publishing a feature next month about these businesses so I won't go into great detail now. But it is my belief that anyone who is serious about marketing products for the TI Home Computer must reach these dealers' shelves. TI users may buy their software at the nearest discount house, but when they need to have a problem solved or want to see a piece of software that doesn't have the mass appeal of Donkey Kong, it's to these businesses they must turn.

WHAT DO YOU WANT?

Now that we've published our third edition, it's time to ask what you the reader would like us to write about. We're not asking this question because we have run out of ideas. Far from it. Rather, we're more likely to run out of space. So we'd like to know what you want to see covered in these pages. As you already know, we tend to focus on product news, reviews and features.

Tell us what you think. It will be of considerable help.

And while I'm on the subject, I appreciate the little notes many of you have included with your subscriptions, particularly the ones which give us ideas for stories, or questions to ask. In a way, that's what our job is — to ask questions for you. And the better the questions, the better the answers. So, if there's something you'd like to know about, let us know what it is and we'll do our best to find out for you.

— JK

1:3:3. Debugged

The saying is: three strikes and you're out.

Well, this is our third try with this item and we hope we get it right. In our first issue, we mentioned a program called Quick-Copyer that allows users to copy disks much faster than the TI Disk Manager cartridge permits. Although it costs $39.95, we neglected to mention that there is a $2 shipping-handling charge. Purchasers must note whether they want the Extended BASIC, Editor/Assembler or Mini Memory version when ordering. For more information, call or write: Quality Software, 1884 Columbia Rd. No. 500, Washington, D.C. 20009, (202) 667-3574.

1:3:4. The last of the MBX games are almost gone and just about forgotten

If you see a Milton Bradley game for the TI-99/4A computer on a dealer's shelf, you'd be wise to snap it up if you want it.

Milton Bradley no longer produces cartridge games for the TI computer and after the cartridges that are now out are purchased there won't be any more available, according to a Milton Bradley spokeswoman.

The games were originally designed for use with the Milton Bradley Expander, the game playing peripheral that was supposed to give TI users voice control capabilities. Some of the software that was designed to operate with the MBX unit permitted users to control the action on the screen by voice commands. However, only a limited number of the units were produced prior to TI's pullout from the home computer market. Production ceased at that point and the units that were produced were quickly gobbled up by TI employees. However, more cartridges were produced than MBX units and some of these cartridges have found their way to retailers' shelves.

The spokeswoman said most of the cartridge-based games will operate on the TI computer without the expander unit, but the voice command capabilities cannot be accessed. Three of the 10 games that Milton Bradley produced, she said, cannot be played without the expander peripheral. These are: Championship Baseball, Terry Turtle's Adventure and I'm Hiding.

Games that can be played with the TI console are: Meteor Belt, Space Bandit, Big Foot, Super Fly, Sewermania, Sound Track Trolley and Honey Hunt.

"Sound Track Trolley, for instance, is a very delightful children's game where you match things up and follow a tune," she said. "On the TI without the expansion unit you can play the game and do the matching but you can't follow the tune."

— LB

1:3:4. Mikel has RS232; developing PEB

Mikel Laboratories Inc. says it is stepping up production and distribution of its RS232-C interface system for the TI-99/4A.

The Southern California company is selling its stand-alone unit for $149.95.

The unit allows home computer owners to use a printer or modem with their computer without buying a peripheral expansion box.

The company also offers a cassette interface system that includes a cassette cable and recorder for $49.95. It markets TI cassette cables for $11.95.

Mikel says it is developing a line of peripherals for the TI computer, including a peripheral expansion box, memory card and other accessories.

According to Mikel spokesman David Zislis, there seems to be no shortage of ideas for the TI-99/4A. "We're finding there's a lot of engineers out there who have developed different kinds of hardware," he says.

Zislis thinks the TI market will remain firm for some time, noting, "What we're getting is a lot of people calling every day and then I talk to vendors who say there's lots of people coming in for TI products. My perception is it looks pretty good."

1:3:6. Whither has the Phoenix flown?

Things are changing very quickly at CorComp as it becomes apparent that the company will not be able to deliver its 99/64 computer to dealers this spring. In January company officials had said that demonstrator models of the TI-compatible machine would be at dealers' stores by early spring.

A new management team came on board in February and immediately began passing the word that production of the computer has been delayed. A former CorComp official indicated in early February that the 99/64, dubbed the Phoenix, "was sent back to R and D."

The new company officials are saying very little about the machine, except to express satisfaction in the interest being shown in the computer. Spokesperson Jacki Sagouspe indicated that the marketing of the machine has been delayed.

However, she said, the company's peripheral expansion box may be marketed this spring. The company also will market a disk drive controller card and an RS232 card for the box. The company also sells a 32K memory card.

It is not certain at this point whether the box will be physically compatible with TI-manufactured cards. Although company officials told the *Compendium* in early February that the box, with several cards, would retail for about $300, that may change before it actually reaches dealer shelves.

— JK

1:3:6. Educational software

Sierra-Disney pact includes 3 cartridges

Walt Disney and Sierra On-Line are cooperatively developing three software cartridges for the TI-99/4A. As reported last month in the *Compendium*, the two companies had signed agreements with Texas Instruments to take over development and marketing of several cartridges that were under development by TI before it left the home computer market.

According to Terry Bochanty, marketing manager for Walt Disney Personal Computer Software, Disney had been working with TI to co-develop ten educational game cartridges. However, when TI quit producing home computers, development of the software stopped. Sierra On-Line has taken over where TI left off and now some of the cartridges will be completed and marketed, Bochanty said.

Five of the ten cartridges were in the development stage before TI dropped out, Bochanty said, with three of the cartridges on the verge of production. Those three are expected to be marketed sometime by mid-year, he said. Although titles had not been determined by mid-February, Bochanty said the games involve three subject areas: astronomy, chemistry and language arts.

All three cartridges utilize popular Disney cartoon characters.

The astronomy cartridge, for children ages 8-11, uses Peter Pan. The chemistry cartridge, aimed at children over 11 years old, features Professor Ludwig von Drake. The language arts cartridge, for children six years old and older, features Pinocchio.

Prices have yet to be determined. Bochanty indicated that the cartridges would be marketed through a catalog that will be mailed to some 1.2-1.5 million TI users.

The programs were originally designed to take advantage of the speech synthesizer, Bochanty said, but require nothing more than a console to operate. At this point there are no plans to develop any of the remaining programs, he said. However, that could change depending on how well the first three sell.

Disney has been producing educational films and similar items for 30 years and, Bochanty notes, "we know how to reach and teach kids."

1:3:7. Programmer portraits

What have these six men got in common? A TI, for one thing.

Jobs that have been around a long time have stereotyped images attached to them.

Even though we all can think of exceptions to them, we have mental images: Policeman — tough-talking; schoolteacher — prim and proper; salesperson — over-friendly and glib. Except, perhaps, for braininess, computer programmers haven't had many common qualities attributed to them by popular culture yet. And interviews with a group of programmers across the country (one in Canada) show them to be as diverse as the programs they write.

GETTING STARTED

The decision to become a programmer came after experience using a computer for most of those interviewed.

For K.E. Vaughn of Vaughn Software in Arvada, Colorado, after he bought a computer and found out he was "pretty good at it," he decided he would rather sit at a computer than try a business trade."

He says that a field in which it is possible to see the results immediately and apply creativity make programming satisfying.

Vincent Lannie of Texas Software Design in Baytown, Texas, says that the things I was doing on my own would rival anything on the market by a third party operator," and that got him into programming.

Scott Emory, a partner in EB Software in Santa Ana, California, says, "I just started reading books about it, then I got onto the computer and I guess I had an aptitude for it. It seemed pretty easy to me."

Two of the programmers got their start in computer courses. Dr. Allan Swett of Intelpro in Brossard, Quebec, who is also a math professor at a junior college, says he started programming in 1966 as a student at Penn State "with really old-fashioned stuff, where you'd gnaw your fingers to the knuckles about whether you got a comma in the right place."

He continued in the mathematics field but has "become more interested and motivated in making a going concern out of business."

Walt Dollard of Pittsburgh, Pennsylvania, who is 19 years old, says he began in high school 4½ years ago when he took a computer course.

By contrast, Larry Hughes of Quality 99 Software in Washington, D.C., started programming so as not to take any further courses. His programming career began 25 years ago.

"I was in college, a math major," he says. "To get a job in math you had to get a Ph.D. and I was tired of school."

At the suggestion of an instructor who said that programming looked like an upcoming field, he applied at Univac in Los Angeles.

"The upshot is, I didn't want to be a mathematician so I took an easier job as a programmer."

Gene Harter, a partner in Not-Polyoptics in Woodbridge, Virginia, saw programming as a variation of what he was already doing.

"I program games," he says. "For years before I programmed computers I would design games on boards and paper and I was always really interested in what a computer could do. I even got to the point where I designed games on programmable calculators — that's all I could afford.

"In 1980 I got a TI computer for $1,000. I knew what I wanted to do at that point."

WHY TI?

Economy was one reason.

Vaughn says, "I wasn't sure I'd be very good at a computer. I picked the TI because it was cheap."

Now, he says, "It's like a first love. I'd hate to switch," though "if they bring out the new 64 we may go into that."

Swett says, "Had I been a few hundred dollars richer I might have bought an Apple, but TI blows the Apple away. I regret that it's not being made any more."

Emory says, "One, it was available and not as expensive as the others, plus there was a lot of good software I could use."

Harter cites the price also.

"Even at $1,000 that was a good price at that time."

Dollard says the TI "looked interesting with the color graphics and I sort of thought I'd give it a try."

It's the best," Hughes says flatly. "That's very true. Two-and-a-half years ago I compared the specifications, TI was clearly the best but too expensive."

He says that when the TI made the "big drop down to $500 that's when I got it. It was such a bargain. The primary reason I got it was I'm a programmer and I wanted to do my own programming."

Hughes notes that TI BASIC is the only home computer BASIC that meets the American National Standards Institute standards for minimal BASIC. He also cited TI's guarantee and the company's "excellent reputation for reliable hardware."

SHAKESPEARE THE PROGRAMMER?

What is it like in this relatively new field? Could there be, for instance, a similarity between a struggling young writer and a struggling young programmer ?

"You have to be creative in both fields," Lannie pointed out, a view which was often echoed.

Vaughn, however, points out that "the process of programming versus writing is different. With writing you can be inexact."

"Programs normally speak for themselves in terms of quality," Swett says. "Writing is more subjective."

However, he says, a similarity arises in having to make "very small strides on the way to establishing credibility — establishing a business."

"There's a lot of programmers out there who are trying to get a good program out like authors trying to get a good book out," says Emory. "Every once in a while one will come out with a really good one and make it big."

"When you're writing a program, more often than not you're working with an original idea. That's similar," Dollard says.

However, he says that writing a program does not take as much time as writing a book and that, "with only 16K in the console," the programmer is limited while "if you were writing a book the possibilities are endless for the information you could put in."

Harter sees "a lot of similarities. I know because we also accept other people's works and it's really similar. People apply to us all the time just like a writer would go to a publisher. Sometimes they're very good and I don't know what to say because they're not the kind of game we want to put out or they're the kind of game we don't think would sell very well for us. For me, it's like self-publishing. It's like when printing was first invented and a writer could get in on the ground floor by forming his own publishing company."

Hughes says that writers and programmers are the same kind of person with "just slightly different skills."

For instance, "both create something from nothing," and can take pride in "elegant, fine-tuned work. Both professions take self-discipline also, he notes.

KINDS OF PROGRAMS

Some programmers specialize in games, others in utilities or applications. Being "more into utility" is "mostly a personal decision" for Vaughn.

"I was tired of watching sprites go from here to there and yon," he says. "With games the only thing you do is exercise your joystick hand."

He also notes that at user group meetings there is "a crowd in their mid-30s. It's a more dedicated and loyal user than with games. There's a lot of game software on the market."

He notes that his products include an Extended BASIC mailing list program which can store up to 750 names on one disk.

"I really think my talents lie in serious applications," Swett says.

He says that with the Companion word processing program, "we have a splendid product, and we'll develop auxiliary programs according to demand."

A filing routine is "in the works," he says.

"Games are limited," Harter says. "I like the idea of utilities. Hobbyists and people who are serious about computers will buy utilities. If I want a game, I'll make a game. I'll buy a utility. The market is shrinking down to the people who really like computers. Games can be sold to anyone at all, but that market is going away."

Harter says Not-Polyoptics will be "coming out soon with a word processor."

I'm not a game person," Hughes says. "Nothing against those who are game persons, but I personally am a utilities man — I prefer to call them, not utilities, but useful programs, programs to help me and others use the computer better."

"That little TI with 16K has more memory than the first IBM business computer in 1958 that cost $200,000 and took up a big room," he says. "When I saw they could make a little computer as big as a telephone book do what a big computer could do and people were using it to play games, I thought 'what a waste.' I think the general population is realizing that computers can do more than shoot down spaceships."

Game programmers, of course, look at things differently.

Lannie says he "couldn't really answer" why he does games, but notes that "when people send us other type programs we send them back. We won't even look at them."

Emory says that games are "fun to write, probably not as tedious as business software. Of course, they don't make enough money."

Dollard says he writes "basically just games" because "utility programs pretty much exist already. Word processing is already out there."

He says he has written "a few little routines to help myself at home — nothing special. There are times you have to write a utility to help you with math homework or something."

EXPECTATIONS AND REALITY

"When we started, I expected we were going to be the Steve Wozniak of software, but you can't become an overnight millionaire," Vaughn says. (Wozniak is the founder of Apple Computers). "We found out the process was slower. There are too many other good programs out there."

Swett says he found "sort of an inertia" in his lifestyle as an academic. "I wanted to see whether I was capable of competing in the marketplace. I measure the success of the business in terms of whether it's profitable or not — it isn't yet."

Lannie says going into programming was "just a way to spend some free time and be creative on my own. You can say it's a form of expression." His expectations have been fulfilled "many times over," he says.

"At first I really didn't expect to even sell programs," Emory says. "Then I got some ideas and then I started selling programs. It's sort of like a hobby, almost."

Dollard says he merely signed up for the high school computer course and "expected nothing. I fell in love with it and started trying to do everything I could with it. I didn't expect anything, because computers weren't a big thing then. People had heard of computers, but they didn't have them in their home."

He started in business as a "a trial experience" with an ad in *99er Magazine* a little more than a year ago.

"Making a living is really what I wanted to do when I began," Harter says. "I thought either I could do this or get a job with someone else. I've been really lucky. Anyone who can make money this way is lucky. Anybody whom we publish — anyone who's not in the company and we pick them — is lucky. Any programmer who doesn't have his own company is going to have a hard time. Companies aren't going to be formed as readily as they have been, also."

Hughes says his expectation was "to make a living in a fun way. I think it's terrific that people pay me money to write programs. I do it at home for fun anyway. It's not easy, but that's part of the fun. When you solve a problem it gives you such a great feeling."

Hughes expresses concern about the "popular magazine fallacy" that "you can be a programmer and make a million dollars." He also says that putting computers in the schools and "saying that 20 years from now every child will be a programmer" is like "putting pianos in all the schools and saying 20 years from now everybody's going to be a Chopin. Some have a talent and some don't."

DISAPPOINTMENTS

Vaughn says his greatest disappointment as a programmer was "probably spending about six months on a bit-map program in machine language and finding out it was utterly worthless." With experiences like this, he says, "sometimes you'll go back to square one and sometimes you'll say, 'To heck with it.'"

Swett says his greatest disappointment is with "the inflexibility of the business community. I have a quality piece of software and they'll say 'Is this for a TI? We don't distribute for TI.'"

"I think my biggest disappointment is that people don't think third, party software is of such quality," Lannie says. "There's a lot of bad software and that tends to reflect on everybody when in fact there's also a lot of great software."

"It was certainly disappointing when TI dropped the computer," Emory says. "I've also been disappointed with TI and their instructions for assembly language — the help that they give you with the manual. I couldn't learn to do it 'til I went to an outside source."

Dollard also lists as his greatest disappointment "that TI pulled out. My greatest personal disappointment was probably some programs I was looking forward to writing and I ran out of memory space. They were just too big."

This occurred, he adds, before he acquired a disk drive.

Harter says his greatest disappointment is "the limitations of the machine. We' deliberately limited our market to programs anybody can run. I've grown beyond 16K but we're still limited to 16K because most people don't have any more."

However, he adds, "It's fun getting as much out of 16K as you can."

Harter also says that "it would be fun getting recognition. People like a game, but people won't know what was put into it. I'm also disappointed in computer manufacturers, that they haven't expanded their technology more than they have."

SATISFACTIONS

His greatest satisfactions, Harter says, come from "mostly things that I know I've accomplished and nobody else does. There aren't many people who take a program and pull it apart and see how it's done. But I know how I did it and I'm proud of that."

Also, he adds, "just making a living is an accomplishment."

Hughes says, "The greatest sense of accomplishment is when you succeed in completing a project. It stands up there for all the world to see and it works. For years afterwards and maybe thousands of miles away people are using and enjoying and benefitting from my work. That makes me proud."

Vaughn lists his greatest sense of accomplishment as "probably getting over learning TMS machine language. It takes some time before you get a grasp of what machine language is — getting over the fear of machine language."

Emory also says his greatest thrill was "probably with mastering machine language. Once I figured it out I was so relieved. Also, coming out with our first game was pretty exciting. Seeing our game in the stores was pretty neat."

"The biggest thrill as a programmer is when customers give you feedback that tells you your product is as good as you think," Swett says.

Lannie's view is similar: "Probably gaining satisfaction from people having used your products and those products having been received well."

Dollard also says it is "probably the feedback I've received with the computer business."

He produces adventure games which have "a multitude of places you can get stuck. People I've sold games to have written to me. They say they love these games. Some say they like mine the best of all third party games. That really makes me proud. I've had no complaints in over 1,000 letters."

THE HARDEST THING

"The hardest thing" about being a programmer, according to Dollard, "is creating the idea. That can take two or three times as long as the programming."

Emory says, "Two of the hardest things are coming up with a good idea, first, and the next hardest thing is completing it. Getting all the bugs out — that's the worst."

"The difficulty is the machine itself," says Harter. "You have to work inside the limitations of the machine. That includes what's in the machine and what memory it has. You get frustrated."

However, he adds, "You have to do it a long time before you get to the point where the machine's too small for you."

Another difficulty, he says, is TI getting out of the market.

"If we're going to stay, we have to find another computer," he says.

"I deal with business people who are just beginning to get computers in their offices," Hughes says, "and it's hard to get them to tell me exactly what they want to get the computer to do."

A computer, he adds, is "a dumb machine" which will nevertheless work very fast if given exact instructions — getting those instructions from others is a difficulty.

"Regardless of what kind of program you have, there's always going to be somebody that doesn't like it," Vaughn says. "I find that very difficult to take, personally."

"Sometimes the biggest problem is time constraints, especially if you have a fertile mind," Swett says. "I have an idea a day but I don't have a staff of 100 programmers to carry them out. It takes so long to get the coding polished, and by that time I have 10 more ideas. But I can only work on one idea at a time."

"Finding time to put the ideas into the computer" is difficult, Lannie says, "I don't have time to pursue each project."

OTHER COMPUTERS

Emory says he does not write programs for computers other than the TI.

"Not for sale," he adds. "We have, just for fun. We're a pretty new company and we thought breaking into the market, the easiest was the TI. A couple of computers are very expensive just to get your game out, like Apple and Atari."

"Shifting to another computer will be a real burden," says Harter.

"Coleco would be good but so much of their stuff is proprietary. They're gong all out just like TI did to make the software market all their own. The IBM market is so huge the competition is just fierce. It's just too big for us to get into. Apple has a lot of programs for sale."

He says that CorComp's Phoenix "looks good" and that Radio Shack's home computer "is cheap and it's popular. We may end up supporting one of those two."

"In the business area I've worked on 12 different computers in seven different languages," Hughes says. "In the home area, only on TI. The reason for that is I thought I might absorb everything there is to know about TI and then move on, but I'm still learning about TI."

TI, he notes, has built-in hardware for the multiply-and-divide function and a 16K memory, whereas for the original Apple, for instance, the memory is 8K and the multiply-and-divide function is on software.

"By no means is the TI an old-fashioned, out-of-date, consigned-to-the-graveyard child's toy," he says. "It's still a very powerful machine whose potential has barely been scratched. That's not to say it won't be superseded."

For instance, he says, the proposed Phoenix looks to be "even more powerful and more wonderful."

Vaughn produces only items for the TI-99/4A at present, except for "some in-house used items for the TRS-80. It's mostly because that's where the market is."

He says the quality of a lot of software on the market is not good enough and that when people "get a taste of ours" there is a market.

Compared to, for instance, Apple, "there are not very many producers of for this machine. Since TI canceled there's a lot on the market, but six months from now people will be needing software for this machine."

Swett says he is negotiating with several companies to write software. Because he has written Companion for the TI, he says, his "credibility is very high," with "expertise I can hand them on the basis of this program package."

"I'd just rather concentrate on the TI," says Lannie, conceding that he may have to convert to another machine in a year or two. "I wouldn't jump in with Apple just now. The market's saturated."

Dollard says he works only with TI because "that's all I own presently. Even if I did have another computer I wouldn't have the time to spend on it.

"Studying takes up a great deal of my time," says Dollard, a sophomore electrical engineering major.

FUTURE PROSPECTS

"The future looks dim right now" for TI programmers, Lannie says, "unless another manufacturer decides to pick up rights to the TI console."

Others are somewhat more optimistic.

"The market's not expanding, but the people who have TIs will not be throwing them away," Emory says. "Hopefully, with the Phoenix the market will expand. The people who are out there are still buying."

A TI is worth getting if it can be found, according to Dollard.

"I would say that for a very cheap price of only $50 to $100 you can pick up an excellent computer," he says. "This investment for a parent with a kid in school could be very important. You can learn a lot in six months at home, what would take you two years in college. An adult can learn whether or not he's interested in computers for $50 or $100 before buying an IBM PC at $2,000."

"The TI's a special problem," Harter says. "We don't want to give up on the TI. There may have been two million owners a month ago but a lot of those have put their computers in the closet. The market is still very big. Many people wanted a computer and bought a $50 computer. There's no reason to get another one if you already have this one. There's a hard core market that will be around for a long time."

"I've had three 1972 Chevrolet Vegas. That car was universally panned. Even though Chevrolet stopped making them, they're still around. Edsel owners, too: They keep their ears and they love their cars."

He notes that the TI computer will continue to be serviced. "They don't fall apart," he says. "They're very well built. If other companies feel different and abandon TI, we'll just be in a better position."

Harter says, "As long as there's places to advertise, there'll be people selling things for the TI."

"I definitely will stay in until I don't break even any more," says Hughes. "The TI's not relegated to the scrap heap by any means. There's tons of things you can do that haven't been done yet. Five years from now there may be computers that will be better but this one will still do a good job at a very good price. The new ones will have more memory and more power, but they will cost $500, $600, $700. Certain jobs don't need all that memory or all that power. It is like having a Ferrari race car. You might compare the TI-99/4A to the Volkswagen. College kids still buy them, and they work. The TI will not all of a sudden become a piece of scrap iron."

Vaughn says that with other companies "things are becoming larger," while producing software for the TI is becoming "a cottage-type industry. It's sort of a do-it-yourself computer." Sharing of programs is common, he notes, as is going to four or five sources to get what you want for the TI.

— LB

1:3:11. Going Forth

Wycove Forth is fast and doesn't require a disk drive

Wycove Systems Ltd., P.O. Box 499, Dartmouth, Nova Scotia B2Y 3Y8, (902) 469-9897, has come out with an improved edition of its Forth program. The company says Version 2 is an expanded version of the original issue. The manual has also been rewritten.

Forth is an interpretive language combining the speed of compiled languages with the ease of programming of an interpreter, the company says. The program sells for $50.

The program requires at least 32 kilobytes of memory and either the Extended BASIC, Editor/Assembler or Mini Memory cartridges. Purchasers receive the 177-page manual and both the disk and cassette versions of the program. Samples of Forth programming are included.

The company says the program supports all capabilities of the TI-99/4A.

Among the features of the program are:

— 32-column graphics mode display;
— 40-column text mode display;
— 64-column bit-map mode display with 32 sprites and line drawing primitives provided;
— speech support for the 300 predefined words included in the TI Speech Synthesizer vocabulary;
— full support of sound routines with the capability of specifying a complete tune at one time rather than one set of notes;
— file control words to control peripheral devices;
— high level language control structures, including DO loops, WHILE loops, UNTIL loops, nested block IF structures and CASE statements.

Using several benchmark programs, the company says the Forth program operates 30-45 times faster than comparable programs executed in BASIC.

Forth is also configurable, the company says. This means that the user can change or extended its vocabulary. Disk directory programs are also included.

Although the source code is available, it is not provided with the basic package since it is not needed for its operation. Purchasers who desire the source code may obtain it on diskette from the company at a charge of $100.

The company says Forth will provide purchasers with a programming language that is far faster than Extended BASIC and suitable for general computing, game and graphics applications.

1:3:12. Budget programs

Finding the one that's right for you

The following three reviews concern home budgeting programs produced and marketed by independent programmers. There was no particular reason as to why these programs were chosen for review, other than that each is sufficiently different from the others to give readers a good idea of what is available on the market. There are many others available for the TI home computer and we hope to review some of them in the future.

Although direct comparisons will not be made, each program, it seems to me, is aimed at a different audience. The TXMasters Home Budget is for those who do not have printers while the DCH Budget program requires a printer, memory expansion and disk drive. A printer is optional for the Budget Masters program.

So, who needs a home budgeting program ?

Just about anyone who wants to gain control of his finances. The assumption here is that if one has control of something one can use it to his advantage.

The simplest use of a home budgeting program is to keep track of expenses as they occur. The user defines the expense categories he wants to audit and then inputs data as disbursements are made. By doing this the user can detect trends in spending that he may want to change. Also, he will have a record of expenses that will let him know where the money goes.

Of course, tracking expenses is only the beginning for those who are serious about budgeting. The heart of the budget lies in predicting how much to spend on certain expense categories. The real challenge, then, is to live within the budget predictions. This is often far easier to say than to do.

There are varying levels of complexity among budget programs. Some will provide the user with more data than many small businesses need to do business. How much a budgeting program will do for the user depends not only on the price but, in many eases, on the amount of hardware it takes to run it. Those with a system that includes a disk drive, memory expansion and a printer are more likely to want a program that fully utilizes these peripherals. For those with only a console, it doesn't make sense to buy all these peripherals just to create a family budget. The expense of the hardware would be enough to blow any budget.

Although I do not pretend to be an expert on financial matters, I am familiar with enough home budgeting programs to know what I like. And one feature I believe to be an absolute must is the ability of the user to define his own budget categories. This is one reason I decided not to include a review of TI's Home Budget cartridge, in which all categories are predefined. There's enough standardization in the world already without encouraging more of it.

The value of any budgeting program depends entirely on the user. If the user takes budgeting seriously, a home budgeting program ought to result in enough savings to easily pay for itself. Even if no actual savings are realized, the data that comes from home budgeting can help the user redirect his finances in such a way that he is able to spend more of his money on those things he truly wants.

At any rate, home budgeting is a useful endeavor and among the most common applications for a home computer.

— JK

TEXAS INSTRUMENTS
HOME COMPUTER

1:3:13. Review: Monthly Budget$ Master

Modify it for your circumstances

Review	
Report Card Performance . . . A Ease of Use . . . . B Documentation B Value . . . . B+ Final Grade . . . . B	**Cost:** $12.00 (cassette) $14.00 (diskette)
	Manufacturer: SA2 Software, P.O. Box 2465, Naperville, IL 60565
	Requirements: console, monitor or television, cassette recorder or disk drive and controller, Extended BASIC cartridge, printer is optional though recommended

Monthly Budget$ Master comes in three configurations: two that come on cassette and one that comes on disk. The disk version and one of the cassette versions are written in Extended BASIC. The second cassette version operates out of console BASIC. This review is based on the cassette-based Extended BASIC version. It should be noted at this point that the program designers, Steven and Susan Albert, warn that the cassette version cannot be transferred to disk without major modifications by the user. Purchasers of the BASIC or cassette versions may trade for an upgrade at a cost of $5.

Performance: As the title suggests, this program is designed to track monthly expenses. It does this through the use of 31predefined categories and as many as 14 user-defined categories. Each predefined category may have more than one entry, though only the total is recorded. Each month may include up to 75 entries. For example, you may enter, say, four weeks of grocery bills but only a cumulative amount will appear in the printout or on the screen display. However, the four entries would constitute four of the 75 entries.

Because the program comes unprotected, the user may modify it to his heart's content.

This menu-driven program includes two parts. The main program is devoted to the accumulation and display of data on the screen while a second program, which is loaded separately, is used to output data to a printer.

The main screen of the main program features an eight-item menu. Included are commands to review account codes (the preset categories use one or two-letter codes), enter data, revise data, save data, erase data, input data from cassette, output results to screen and quit. The output to screen command allows the user to choose either screen display or printer options. Choosing the printer option results in a message telling you to load the printer routine into memory.

Account codes are simple to understand, based usually on the first word of the budget item they represent. "F", for example, represents "food."

Data entry is directed by screen prompt. Each entry must include the account code and the amount. Entering a non-existent code results in an error message. You may then reenter the proper code and continue. At any time, you may press a key to return to the main menu. Also, this screen displays the number of data entries you have left before the available memory is used up. Total amounts for any data entry may be Up to $99,999.99.

The revise data screen lets you change any data entry. It includes a command to change data filed under the predefined categories and another command to change data filed under a user-defined category.

The save data screen lists the number of items in memory. You are asked to enter the name of the month prior to actually saving the data. This feature allows you to use up to 20 characters, essentially to define the data file. As with all the screens, if you change your mind you may press a key to return to the main menu without affecting the data in memory.

The erase data screen gives you a choice of erasing all data in memory or erasing either predefined data or user-defined data.

The data input screen allows you to load data out of one of two cassette recorders. While loading, the name that you gave the data file, whether the name of the month or something else, appears as well as the number of data entries.

The output screen allows you to display the data on the screen or to call up the printer routine. The screen display is not nearly as effective as the printer routine, which uses 64 columns. The printout includes the name of the category, the amount budgeted, the actual amount spent; the difference between the budgeted and the actual amount and the percentage of the actual amount to the budgeted amount. One problem with the screen display is that once you start you must view all data before you can return to the menu. Although this takes only 20 seconds or so, I'd just as soon have the option to return to the menu immediately after viewing the data I wanted to see.

The budget is divided into five sections: variable expenses, fixed expenses, utilities and credit, off-budget expenses (user defined) and monthly balance. The monthly balance category shows the entries made for income, dividends and interest income and other income sources. It then shows the entries made in federal, state and social security taxes. The amount spent under the total of budget categories is then deducted from the net income and the amount of money remaining is reported. This screen summarizes total expenses and displays the net results for the month.

Ease of Use: Using any financial program takes a bit of experimenting and reading. You have to learn the codes and functions before you can get down to business, and this budget program is no exception.

Because all data entry is directed by prompts, data entry is a snap. All totaling and other operations is done by the program.

Documentation: Monthly Budget$ Master comes with a lengthy manual that takes the user through each step of the program. Though it has a table of contents, I would like to have seen some sort of index.

Value: This program has a number of things going for it, and one of them is its price. Because the program comes unprotected, the user has the prerogative to modify it to fit his own circumstances. In fact, the manual provides advice for the user who wishes to redefine account names, codes and other items. I think any user will appreciate this kind of flexibility.

— JK

1:3:14. Review: Budget Master

No printer? Check this out

<table>
<tr><td colspan="2" align="center">**Review**</td></tr>
<tr>
<td>**Report Card**

Performance . . .   A
Ease of Use . . . .   A
Documentation   B+
Value . . . .   B
Final Grade . . . .   B+</td>
<td>**Cost:** $24.95 (cartridge, diskette)

Manufacturer: TXMasters, 12306 Rustic Manor Court, Austin, TX 78750

Requirements: console, monitor or television, cassette recorder or disk drive and controller, Extended BASIC cartridge.</td>
</tr>
</table>

Budget Master is designed for TI users who want to maintain a budget but do not have a printer for printouts. It is very well done and extremely easy to use. Included with the software is a file box containing preprinted index cards that the purchaser may use to record the data from the screen. The program was designed by Don W. Strickland.

This review is based on the cassette version.

Performance: I was impressed with this program from the moment the title screen came into view. Unlike most such programs, Budget Master does not have a "step through" menu. In other words, the user is not faced with a menu screen that, after a function is chosen, results in the appearance of another menu screen. The 11 one-word commands are listed in four rows at the bottom of the screen. The user chooses the command by moving an arrow-shaped cursor using the arrow keys. After positioning it in front of the desired command, the enter key is pressed and the function is initiated.

All functions are executed via the following commands, which remain on the screen most of the time:

Actual: for inputting data
Budget: for inputting budgeted amounts
Category: used to name categories (using up to 8 letters)
Month: used to select the month you want displayed
Page: allows the user to "page" through a month's data
Annual: displays annual totals for each category
Average: displays averages of expenses or incomes for a selected range of months
Duplicate: allows the user to copy the budget items and data into all months (a real time saver)
CALC: acts as an adding machine
READCS: reads from cassette
SAVECS: writes to cassette.

Budget Master allows the user to create up to 30 budget categories and up to 10 income categories. Each month is divided into four pages. Page 1 is for income items while the remaining pages are for budget input.

Once the budget is set up, input and updating are very easy. In fact, the most time-consuming parts of this program are the save-read functions. It takes 8-9 minutes to save or read regardless of how much data you've inputted. Although the manual that comes with this program suggests that you save data frequently as a matter of routine, this seems to be impractical in view of the length of time it takes to do so. After entering the save or read modes, the program will ask you to verify that you want to execute the function before activating the read-save routines. When a read or save routine is completed, the program lets you know via a sounding of distinctive tones.

Other things I like about this program include the ease with which one can correct errors, the easy to read screen and, in general, the attention to detail that is evident in such small things as a red warning indicator, actually a colored square, that appears next to any expense item that exceeds the amount budgeted for it. The program designer deserves a pat on the back for including the Duplicate command, which can save users a lot of time when setting up a budget.

The user can make corrections or update amounts simply by typing over the figure already entered.

Ease of Use: This is one of the easiest to use home budgeting programs that I've seen. The command structure is similar to the structure used in Microsoft Multiplan, with all the key-words on the screen practically all the time. This means that the user does not have to step through menu after menu in search of a function or command structure. Also, correcting errors is extremely easy.

Documentation: Budget Master comes with a thoughtfully designed, 26-page manual. The table of contents adequately gets the user to the information he needs. Designed by John Treble, the booklet includes a step-by-step introduction to the program. Several pages of budgeting suggestions are included.

Value: Although this is the most expensive cassette-based home budgeting program I've seen, it's also among the most elegant in design. Unlike many such programs, which are so complex that it takes days to learn how to use them, Budget Master is simple to use. Also, it is the only such program that I know of that is truly designed to be used without a printer. Factor in the file box and monthly budget file cards and it may well be worth $24.95.

— JK

1:3:15. Review: Home Budget

This will exercise your printer

Review	
Report Card Performance ...　A Ease of Use ....　B Documentation　　B Value ....　A Final Grade ....　B+	**Cost:** $19.95 (diskette)
	Manufacturer: DCH Software, 7010 Catlett St., Springfield, VA 22151
	Requirements: console, monitor or television, 32K memory expansion, RS232 interface, disk drive and controller, printer.

Home Budget by DCH Software is a sophisticated, home finance program that can provide the user with more detail about the state of his financial affairs than he may be prepared to accept. This menu-driven program provides a variety of printouts that allow the user to analyze his financial situation from many angles.

Performance: Home Budget is entirely menu driven. There are several menus to work through, depending on what functions you want to perform. Trying to describe in detail how each works would take more space than is available, since some of the menus have as many as 11 options to choose from. Instead, I will capsulize the function of each to give you an idea of how the program is organized.

Income Journal: This program allows the user to enter income data. It requires not only how much money is deposited in the user's checking account but how much he took back in cash. It totals the amounts and, based on expense entries elsewhere in the program, keeps track of the balance in the user's checking account as well as how much more income the user is expected to receive before the month is out.

Budget Program: This program, using the user's checkbook register as the primary source of data, calls for entering each check. The user gives each category an account number, enters the date and amount of the transaction and the payee. It allows the user to change any data item and to print a check register. The user may reorder the data file on the basis of check numbers or account numbers. Entries may be listed to the screen. A submenu allows the user to print several reports, including an income table and year-to-date data.

Budget Set-up Program: This program is used to create the budget. The user may create as many categories as he likes. Files for year-to-date totals and amounts spent to date are also created during the budget set-up phase. Accounts may be listed to the screen.

Home Budget will provide seven printouts for the user, including a chart of accounts, monthly budget, check list by check number, check list by account number, budget table with monthly, year-to-date and over/short information, a table of average amounts spent and an annualized projection of those amounts. It also prints an income journal, which provides the user with the balance in his checking account as well as how much the month's income is over or under budget.

All calculations for totals, averages and other data are done automatically by the program.

This program uses several screen colors to differentiate between menus and input screens. I wish it would have had a few more screen prompts to remind the user of the type of information he is entering. After becoming thoroughly familiar with the program the user would probably not need it, but the neophyte has to guess on occasion whether to enter dollar amounts or category numbers. Because the program comes unprotected, this can be corrected by the user. Although the program is designed to operate out of one disk drive, the user can modify it to operate with two drives.

The program is well-organized despite its complexity. Because the menus feature many options, the first-time user may well be nonplused by it. However, after an hour or so, one can move quickly from one function to the next. The manual is written in a tutorial style, and I recommend that the user read it thoroughly as it takes him step-by-step through the program. It also has some excellent advice about budgeting in general which could benefit anyone. The program itself seems to be foolproof and bug-proof. It's possible to overwrite a file by accident but only if you ignore the warnings about saving data before moving on to another program segment.

Ease of Use: This is not a simple program to use. You must come to grips with a number of issues before seriously getting down to the business of budgeting. You must decide how to organize budget categories so that they make sense to you, and then you must be scrupulous in entering all your income and expenses (at least those having to do with your checking account) so that an accurate picture of your financial condition can emerge.

In short, you must be thoughtful in using this program.

Documentation: Home Budget comes with a lengthy manual printed on a dot matrix printer on 8½ × 11-inch paper. It is single-spaced. There is neither an index nor a table of contents. However, it is not organized to be a reference document. It is designed as a tutorial to take the new user through the program, from beginning to end. While I would fault the format, it is apparent from reading it that the writer has a genuine interest in conveying his thoughts about how to use Home Budget to the reader. It does the job, too.

Value: This program is for those who are serious about developing a home budget and record of expenses. It generates an array of printouts that the conscientious user can study to his heart's content in an effort to gain control over his finances.

— JK

1:3:17. Review: Thief

Who says crime doesn't pay?

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation C Value . . . . B Final Grade . . . . B	**Cost:** $14.99 (cassette)
	Manufacturer: Tomputer Software, 1550 Montgomery Dr., Deerfield, IL 60015. (312) 945-9677
	Requirements: console, monitor or television, cassette recorder, joystick, Extended BASIC cartridge
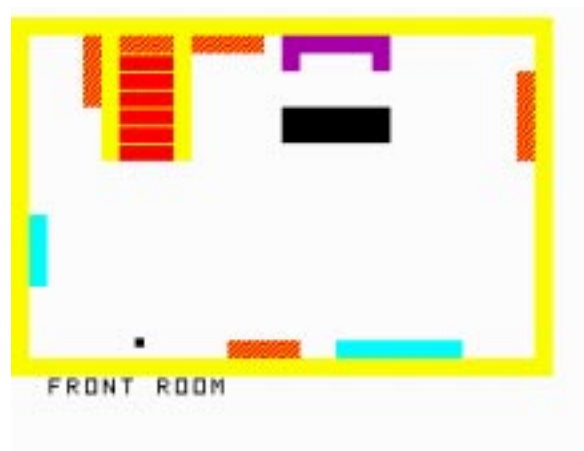
Thief is a graphic adventure with a two-dimensional perspective. The object of the game is to break into a house and steal a million dollars that is hidden in a safe. You must do this without setting off any alarms.

Performance: The game starts with Stelthful [sic] Smith already in the front room of a two-storey summer home. Stelthful Smith, the thief, your alter ego, is represented by a black cursor that the player moves about the screen with the joystick.

Other rooms include a kitchen, dining room, bedroom, closet, living room, maze and walk-in safe. There are eleven rooms in all. Each room includes appropriate furniture, doorways, windows and walls. Running into a wall automatically sets off an alarm which brings the police, ending the game. Your score is indicated by the number of "years" you must serve in prison.

The cursor serves several purposes. For one, it allows you to move from room to room. When you position the cursor over an object and press the joystick fire button, the name of the object will be displayed at the bottom of the screen. Pressing the fire button while moving the cursor reduces its velocity, which is critical when moving about in tight quarters such as the maze.

By moving from room to room yo can figure out the floor plan of the house, which is always the same. However, locating the safe is more than a matter of moving from room to room. Since you are told you will encounter a locked door somewhere in the house, you may assume that you will need to have a key to unlock it. Finding the key can be difficult. Then, too, to open the safe you will need a combination to the lock. This you will find somewhere in the house. The key and combination are hidden in different places each time you play the game.

The block graphics used in Thief are simple and, for the most part, representational. You can tell a chair from a couch and a dinner table from a coffee table. Color, too, is used to good effect.

Each room appears as a single screen so that Thief is actually an eleven-screen adventure.

Joysticks are used as the principal source of input. Input from the keyboard is required to enter the combination to unlock the safe. I found the program to be crash-proof except when I was required to enter the combination. I managed to get an error message on my second try, which resulted in half the room I was in at the time scrolling off the top of the screen. I exited the room and then reentered and everything was as it was supposed to be.

Ease of Use: What difficulty there is in playing this game lies principally in maneuvering the cursor around the screen, which is not difficult at all. The object of the game is straightforward.

Documentation: I was disappointed in the manual that comes with Thief. For example, under the category Alarmed Doors, it reads: "One door is wired and must be disarmed before you can pass through it." There are no hints as to how to disarm the alarm. I managed to figure it out myself but it didn't seem to make much difference because the alarm can be set off at this point without any apparent consequences.

Value: Young teens and children seemed most amused by Thief. During the testing stage, I found several roughly drawn floor plans fashioned by young hands littering the computer station. I take this to be a good sign.

— JK

1:3:18. Review: Khe Sanh

It's hard to beat the Viet Cong

Review	
Report Card Performance . . . A Ease of Use . . . . B Documentation B+ Value . . . . B Final Grade . . . . B	**Cost:** $18.00 (cassette)
	Manufacturer: Not-Polyoptics, 13721 Lynn St., Suite 15, Woodbridge, VA 22191
	Requirements: console, monitor or television, tape recorder

Khe Sanh has been around for several years. Programmed in BASIC, the game concerns guerilla warfare during the 1968 Tet offensive in South Vietnam. Although it is an easy game to play, it is difficult to win. And, as with the Vietnam War itself, the longer the battle the less likely you will win.

Performance: All entry is through the keyboard in this strategy game. Before the game gets under way, you are asked how many "weeks" you'd like to play. The game starts by drawing the battlefield, which consists of several roads leading out from a base camp to the edges of the screen. There is also a village near the camp and an airstrip where a squadron of four helicopter gunships is based. You are in command of five platoons of troops.

Your mission is to search out two companies of North Vietnamese Regulars. You do this by sending your platoons out in hopes of encountering the enemy in the "jungle" and by using your helicopters to find and attack them. Whenever your troops have encountered the enemy, you will hear the sound of machine-gun fire. When the enemy hits, principally by blowing up the road, you will hear explosions.

The platoons are represented by five letters: A-B-C-D-E. Though this is not visible, the screen is divided into 28 rows of 25 columns, or 700 squares. Each platoon moves one square at a time in any of eight directions using the arrow and other keys. Helicopters are used by using column × row coordinates. You input the row and column you want a chopper to fly to and it heads in that direction. If it happens to fly over the enemy it will automatically fire upon them.

The frustration of fighting against guerillas becomes apparent as the battle goes on. First, you must keep the roads in good repair lest convoys carrying supplies are destroyed trying to reach your base. Eventually, protecting the roads becomes a full-time job. The business of defeating the enemy then becomes a secondary goal, achieved only as you happen upon him in the course of defending your lifelines, the roads.

Points are scored based on how many convoys are able to reach your base as well as the number of NVA companies you destroy. Enemy troop movement is essentially random with some non-random movement occurring after attacks.

The graphics used in this game are simple but adequate. The most interesting visual effect lies in the movement of the helicopters as they fly across the battlefield. A small truck occasionally drives down the roads with supplies, but that's about as realistic as it gets. The base camp, village, airstrip and roads are represented by squares with varying symbols so that you won't confuse one with another.

Ease of Use: The program loads easily and the directions are easy to follow.

Documentation: Khe Sanh comes with a six-page manual that adequately explains how to play the game.

Value: Because it is programmed in BASIC, the game is somewhat slow, though this is not a problem. Once you get into it, trying to develop a winning strategy takes up most of your time anyway. Playing Khe Sanh gets to be frustrating after awhile, just as the actual fighting of the Vietnam War was a frustrating experience for individuals and the country as a whole. Eventually you learn that as long as you try to protect something, in this case the roads and airstrip, your hopes of winning the war will be realized only if the battles are short and few. I've won several "five-week" wars, but none that were longer.

If you are a patient sort who enjoys the challenge of plugging away at an impossible goal, you may enjoy this game. I do. Joystick jockeys may want to think twice about it. A shoot-em-up this is not.

— JK

1:3:19. Review: Donkey Kong

Who needs quarters anymore?

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation B Value . . . . B Final Grade . . . . B+	**Cost: $39.95 (cartridge)**
	Manufacturer: Atari Inc., P.O. Box 61657, Sunnyvale, CA 94086
	Requirements: console, monitor or television, joystick

The popular Donkey Kong arcade game has been translated remarkably well for the TI-99/4A computer by Atari. Sold in a colorful yellow box under the Atarisoft trademark, this version of the Nintendo Co. Ltd. arcade game is faithful to the original. It is one of more than a dozen popular games that are now or will be available from Atari this year.

Performance: Donkey Kong is a climbing game. The user maneuvers a man-like figure named Mario from the bottom of structure made of girders to the top where he rescues a maiden named Pauline from Donkey Kong. The game may be played by one or two persons.

The joystick is used to move Mario. Pressing the fire button allows him to jump over barrels that roll down the girders in the first and third screens. In the second screen Mario is pursued by flaming barrels and in the fourth screen he must avoid a couple of flaming barrels while jumping onto a series of fast-moving elevators.

The fifth screen consists of a series of conveyor belts that Mario must negotiate while avoiding moving piles of sand and flaming barrels.

Since this game can be seen just about anywhere, I will waste no more words on describing it. The graphics are very good and sound is used in much the same manner it is used in the arcade version.

This game will not work with all joysticks I tried out. It worked fine with TI joysticks but did not work with those by other manufacturers that required an adapter to be plugged into the joystick port on the console. Mario would not move backward with these joysticks.

Also, this game will not work with all beige consoles. Those that have a 1983 copyright on the title screen will not operate this or other Atari games. You can thank TI for this.

Ease of Use: This is a simple game to play. What difficulty there is is a matter of hand-eye coordination and strategy.

Documentation: Donkey Kong comes with a four-page pamphlet. It is colorful and adequately describes how to play the game.

Value: I found Donkey Kong to be far more enjoyable than Alpiner. I've seen this game selling for as little as $21.50. The list price is far too much to pay for a game that is several years old. For $21.50, or thereabouts, it's a very good value.

— JK

1:3:19. Fate of Mini-Writer

A reader recently wrote to ask about the fate of TI Mini-Writer, the cassette based word processing program. According to a TI spokesman in Dallas, Mini-Writer is currently available from TI. However, he said, he does not know how long it will continue to be available. Contact a TI exchange center or, if you've got the patience, call the TI toll free line for more information.

1:3:20. Newsbytes

Software demos

Software Carousel, of Valencia, California, is adding a new twist to software marketing with a demonstration cassette that it will send to the curious for $4. The firm markets a program called the Graphics Code Generator. TI users who order the demonstration tape load the demonstration program into memory and then disconnect the tape recorder from the computer. The tape recorder is then turned on and the user listens as an announcer talks him through a demonstration of the Graphics Code Generator. Users may return the tape for a $2 refund or $3 credit on purchase of the graphics generator program.

According to William S. Schwartz, who developed the program, the demonstration tape is a way in which potential buyers can preview a program with minimum risk. "Our demo allows your readers to see the program in use while listening to a fully synchronized sound track that explains exactly how it works and what it will do for them."

The program and demonstration tape require Extended BASIC. For more information, contact the company at 23757 Via Kannela, Valencia, CA 91355. Phone: (805) 254-4141.

Compiled BASIC

A St. Louis company is planning on introducing a BASIC compiler this year as well as several games written in assembly language.

Challenger Software, 4127 Quincy, St. Louis, MO 63116, says all of its new programs will require a disk drive, expansion memory and the Extended BASIC cartridge.

According to company spokesman Mark Sumner, titles include Gravity Master, Maze Master and what is tentatively being called Pizza Parlor. The games are expected to sell for about $20 each.

The compiled BASIC program is expected to sell for about $50.

"I always had a problem with assembly language," Sumner said by way of explaining the usefulness of a BASIC compiler. "With this compiled BASIC I managed to accelerate development time for programs by 10 to 100 times."

Sumner says the program includes commands not found in Extended BASIC, including sprite coincidence checking that is much faster than what can be done with Extended BASIC.

Cutting back

A company that had been producing a parallel printer interface and 32K memory expansion for the TI-99/4A has eliminated the interface from its inventory. Doryt Systems Inc., 14 Glen St., Glen Cove, NY 11542 (516) 676-7950, has dropped its Paraprint 18A interface. The 18A was designed to be an interface between the TI home computer and any parallel printer, eliminating the need for an RS232 card. A spokesperson said the company will continue to market the 32K memory expansion.

Nothing from Thorn

Despite reports published recently in a leading home computer magazine that indicated that Thorn E.M.I. is marketing Computer War for the TI home computer, the company is doing no such thing. According to spokeswoman Val Demeo in the company's New York office, Thorn E.M.I. has no plans to market any of its games for the TI. The company had planned to produce several games for the TI computer but everything was canceled last December after TI pulled out of the home computer market. Demeo says the company has "nothing planned" for the TI.

Foundation update

Software routines from Foundation which will let users save their BASIC programs into files with the company's 128K memory card and EPROM chip will be available "in a few weeks," Foundation officials said near the end of February.

The routines will also allow the memory to be used as a sequential file.

The routines can be used in BASIC, Extended BASIC and assembly language.

Bill Hunter, vice president of operations, said the wait for the software routines is because they are being enhanced. The software to access the extra 96K memory in the card is already in the EPROM chip, he says. 32K of the card is directly accessible by the computer.

He said that the 128K card itself is basically a memory assembly language. The 128K card is four memory banks which can be switched back and forth at an assembly language level.

He noted that it is not accessible with such cartridges as Microsoft Multiplan and TI-Writer.

Kathy Hunter, vice president for marketing for Foundation, said that the wait for the routines is "frustrating" but was "to the customer's benefit" because the routines will do "everything we said in our brochure and more."

She said that the TI market "short-term looks very healthy. As for the long-term, we want to enhance it."

She commented that she feels the TI home computer will be around for a long time as "the Volkswagen Beetle of the computer set."

More TIs

Texas Instruments didn't actually end production of its home computer last year. As late as last month the company was still producing a limited number of the machines to be used by the company's 46 exchange centers.

Newsbytes is a column of general information for TI-99/4A users. It will include product announcements and other items of interest. 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. Items may be mailed to the *Compendium*, P.O. Box 1343, Round Rock, TX 78680.

1:3:21. User Notes

Keeping track

Extended BASIC programmers can use the exclamation point at the end of a program line to enter remarks. In BASIC, however, TI says the remark statement, REM, is supposed to come at the beginning of a line. For programming purposes, the computer ignores anything that follows a REM statement until it reaches the next programming line. However, the Hoosiers Users Group of Indianapolis says the REM statement can be written on the same line as a program statement, with a few limitations. First, the program line, including the REM statement, cannot be longer than one screen line. This may limit this technique to remarks following GOSUBs, GOTOs and other short commands. Here's an example:

```
100 GOSUB 200 REM DRAW LINE
```

The Hoosiers caution that the line must end with a blank space.

Bucks for tips

You won't be able to retire on this, but the *Compendium* will pay $10 for tips sent in by readers that appear in the User Notes column. In case of duplicate tips, the earliest received will be used. We are most interested in publishing information that will be of interest to BASIC and Extended BASIC programmers. Ideas that help users overcome hardware problems or limitations are also welcome. Please send items to the *Compendium*, P.O. Box 1343, Round Rock, TX 78680. Include your name, phone number and address with each submission. Unused submissions cannot be acknowledged or returned.

Nonstop running

Protecting software from being copied is an increasing problem for TI home computer programmers. While this tip isn't going to stop everyone from copying an Extended BASIC program, it will stymie most. The Central Iowa 99/4A Users Group suggests that in addition to using the Extended BASIC protection feature, programmers included an ON BREAK NEXT command to prevent their programs from being cleared. This command disables the **CLEAR (FCTN 4)** key so that the program can't be stopped after the RUN command is issued.

Test screens

Just about anybody can get a high score in Munch Man, Alpiner and Star Trek using a simple code that provides the user with the keys to the kingdom, so to speak.

This code opens the cartridge-based games to a test mode that lets the user get: additional men in Alpiner and Munch Man and provides virtually unlimited photon and torpedo supplies in Star Trek.

The code that brings up the test mode for all three cartridges is **SHIFT 8**, **SHIFT 3**, **SHIFT 8**, or ***#***.

Following is how to input the code for the three cartridges:

Munch Man: Input ***#*** immediately after the title screen comes on. If you've done it properly you should see the following line: RND(0-2). This stands for the round number. The higher the round number, the faster the Hoonos move. Select the round number and then press the **ENTER** key. This will produce a second line: SCN(0-19). This refers to the screen number. After entering the screen number, a third line appears: MM (19). This lets you choose the number of munch men you want to start with, up to nine. After entering the number the game will start at the round number and screen number your chose. The screen will indicate that you have only four munch men in reserve if you chose four or more. However, they will be replenished until you've used the number you selected.

Alpiner: The test mode in this climbing game lets you start play with as many as nine alpiners. You also get to choose the level of difficulty, ranging from 1 to 18.

After the title screen comes on, input the ***#*** code. The screen will ask for the number of players. Then you will be asked to select the number of alpiners you wish to start with. Then you will be asked to input player names followed by the level of difficulty. The game will then start. The screen will display up to six shoes, each shoe equaling one alpiner.

Star Trek: Inputting the ***#*** code after the title screen comes on results in an unspecified supply of shields and photon torpedoes. A reasonably good player should be able to parlay these resources into a million points. However, the Klingons seem to be more aggressive in this mode and the first screen that you face has many of them, most of which turn white very quickly. Warp power also seems to be replenished rapidly so you can outmaneuver the Klingons for awhile. Be warned, however, that once you've entered the test mode in this game, the only way to get out of it is to hit **FCTN QUIT**.

Also. if you've got a speech synthesizer attached, you can turn the voice off by simply entering ***** at the title screen. I don't know why anyone would want to do this, but ours is not to reason why.

More on scrolling

There's more than one way to get your TI to scroll. Last month's User Notes column carried an item about using the **FCTN REDO** key to scroll forward and backward in Extended BASIC. According to Jeff Schultz of Sprite-O-Lite, scrolling is easy to do in BASIC, too. All you need to do is to enter the line number you wish to start scrolling and then hold the **FCTN X** (down arrow) key down. Depress the up arrow key (**FCTN E**) to scroll up.

Another benchmark

Benchmark programs are often used to compare one computer with another. While no single such program will provide any definitive conclusions about what computer is best, running a number of them provide insight into a machine's strengths and weaknesses.

This program, written in BASIC, will run on most microcomputers. What it does is calculate 292 change combinations for a dollar. Some machines will run it in less than a second while others take nearly an hour. The program had to be aborted on a mainframe it was running on after 25 minutes because the main processor was so occupied with it that it had almost stopped processing all other tasks.

By the way, it runs perfectly well in Extended BASIC, too.

```
10 FOR H=0 TO 100 STEP 50
20 FOR Q=0 TO 100 STEP 25
30 FOR D=0 TO 100 STEP 10
40 FOR N=0 TO 100 STEP 5
50 FOR P=0 TO 100 STEP 5
60 IF (P+N+D+Q+H)<>100 THEN 90
70 C=C+1
80 PRINT C;P;N/5;D/10;Q/25:H/50
90 NEXT P
100 NEXT N
110 NEXT D
120 NEXT Q
130 NEXT H
140 PRINT "TOTAL": C
```

Cursor under control

This routine takes up 416 bytes and permits the user to move the cursor around the screen. It comes from the Sydney Australia Users Group via the Tri-State Users Group in Lincoln, Rhode Island.

```
100 CALL CLEAR
110 CALL CHAR(44,"FFFF")
120 R=1
130 C=3
140 CALL HCHAR(R,C,44)
150 CALL KEY(0,K,S)
160 IF S=0 THEN 150
170 IF K=68 THEN 210
180 IF K=69 THEN 230
190 IF K=83 THEN 250
200 IF K=88 THEN 270
210 C= C+ABS(C<>30)
220 GOTO 280
230 R=R-ABS(R<>3)
240 GOTO 280
250 C=C-ABS(C<>3)
260 GOTO 280
270 R=R+ABS(R<>24)
280 CALL HCHAR(R,C,44)
290 GOTO 150
```

Adventurous words

Members of the Cedar Valley 99er Users Group of Grand Rapids, Iowa, know that a good vocabulary can lead to success in adventure gaming. Here's some words to remember from Grand Rapids: east, west, north, south, go, climb, drop, enter, exam (examine). help, leave, light, look, move, pull, push, quit, read, save game, say, take, wear, lift, score, open, unlock, lock, unlight, close, dig, jump, crawl, feel, touch, poke, get, drink, chew, eat, give, put, ride, fix, up, down, left and right.

Looking better

Those who use a black-and-white television with their computers can do something to make a clearer display. The Arizona 99 Users Group recommends that you add this line to the beginning of your programs:

```
CALL SCREEN (15)
```

This will disable the color-generating circuit in the computer and remove the vertical lines often seen on black-and-white televisions. They say it also increases the sharpness of the characters.

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. We encourage everyone to contribute items for publication in this column.

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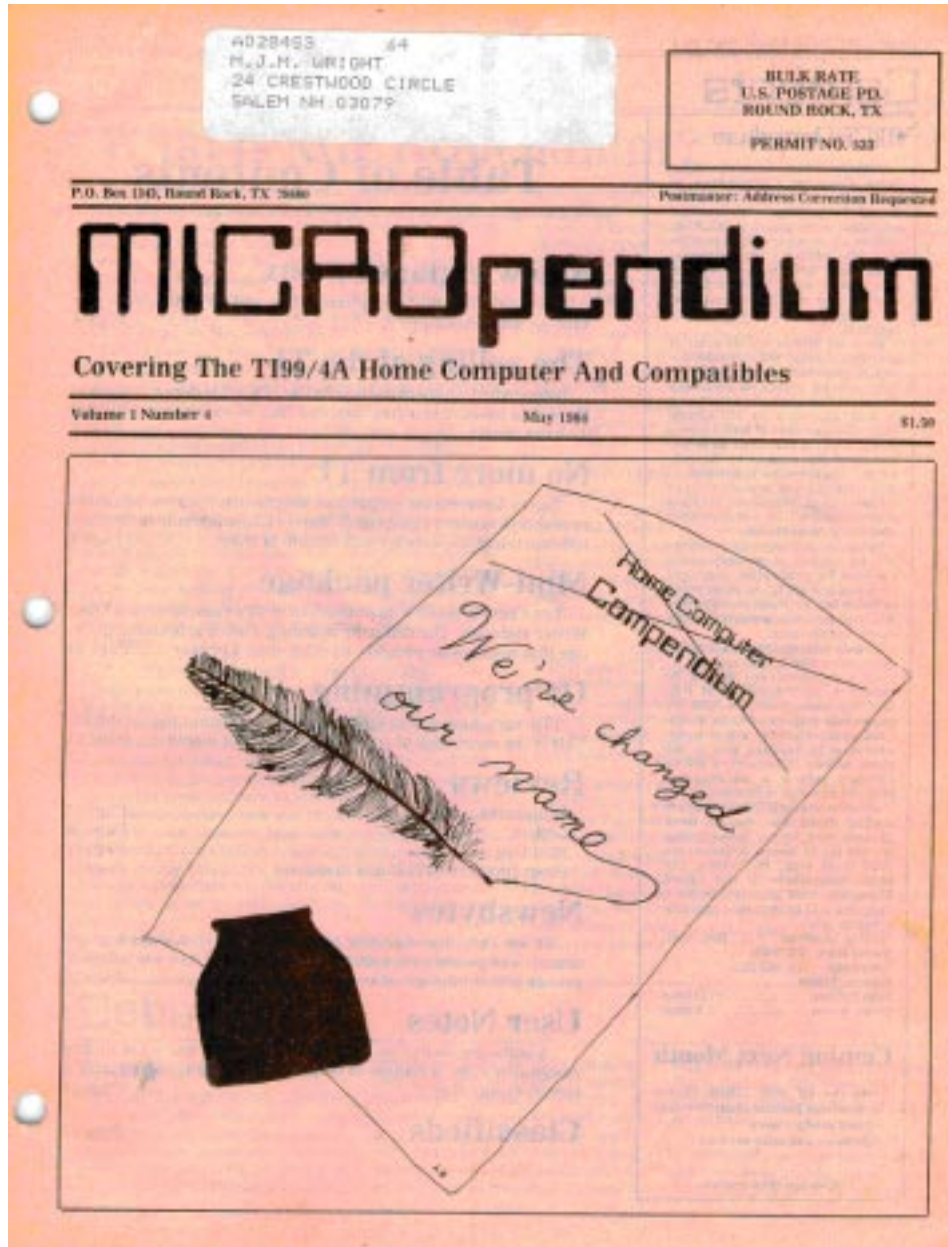
1:4:3. Comments

What is *MICROpendium*?

I hope not to meander with this month's commentary, but you must understand that we've had a difficult time getting this edition of the magazine out. Producing even a small publication is fraught with peril.

For one thing, we've been threatened with a lawsuit by another company because of our use of the name *Home Computer Compendium*. You will probably have noticed that we're using a different name on our mast. We're now calling ourselves *MICROpendium*.

I could care less what we call the magazine, since our focus will remain on the TI-99/4A Home Computer and we will do everything just as we have done since we started this venture.

But things are tough all over. Elsewhere in this issue you'll find a brief article about the end of software distribution by TI. There'll be no more cartridges or anything else going to vendors from Texas Instruments, which may leave some home computer users in a quandary. Check out our lengthy piece on retailers. Some vendors have stocked up on TI products and expect to have quite a bit on hand, enough to last for months. However, if you plan to stay with the TI, my advice is to buy whatever TI software that you've been wanting because days of scarcity may lie ahead, particularly for some of the applications programs. From now on, there is no tomorrow as far as TI is concerned.

FIRST-CLASS VERSUS THIRD-CLASS

Some readers have found that delivery of this publication is a bit on the tardy side. We sympathize with them but there's not much we can do about it because the U.S. Postal Service will not provide timely delivery of third- or second-class material mailed nationally on a monthly basis. Those who want to be assured of receiving their copies within five days of the press run have no alternative but to pay first-class delivery rates. This will amount to about 30 cents more per issue than the base subscription price, which includes third-class delivery. Although it means more work for us, we encourage our readers to pay the first-class postage rate because it is the only means we have of insuring timely delivery, particularly on the east and west coasts.

To determine how much this Will cost, based on the number of issues remaining on your subscription, simply examine the mailing label on the front page of this edition. You will see a series of numbers and letters at the left-hand corner. It should begin with the letter "A" followed by four digits, the letter "S" and another number. This last number represents the month of the year your subscription started. The number 2 stands for February, 3 for March, etc. Since each subscription is for 12 months, simply count the number of months remaining on your subscription and multiply this number by 30 cents. The total is the amount needed to pay for first-class delivery for the remaining issues on your subscription. Send a check or money order for the amount and we will start your first class delivery with the next edition.

I wish there was a better way of doing this, but there isn't.

SOMETIMES WE'LL WAIT FOR THE NEWS

Just so you know, our policy is to hold the magazine for a week if need be in order to get late-breaking stories in. I warn you of this so as to forestall some of the disappointment that may come when your edition hasn't arrived by the usual date. However, we think that most readers would rather have the news as soon as possible, rather than having to wait a month because of inflexible deadlines. Again, if this is not to your liking, let us know.

RUMORS AND RUMBLINGS

Here are a few rumors picked up over the past several weeks that seem worth repeating:

- There's supposed to be a third-party spelling checker coming out for the TI-Writer cartridge. The rumor has it that it will include 20,000 words and operate out of the Utility section of the program. We're looking into it.

- Programmers who work in console BASIC may be able to protect their programs from being listed or edited. A new program may become available soon that is designed to prevent BASIC programs from being copied by users. It is said to require the Mini Memory cartridge for programs less than 4K in length and the Mini Memory and 32K memory expansion for longer programs. It is said that the programs that are protected will run in console BASIC only. However, orders are not being taken at this time.

That's it for now.

— JK

1:4:3. Debugged

Tunnel problem

A reader has reported that a tip published in the March issue about using the Tunnels of Doom cartridge to transfer Scott Adams adventure games from cassette to diskette doesn't work for all of the games. We tested it on the Pirate Adventure game and it worked. However, he encountered some difficulty in trying to transfer other games, noting that they didn't play properly after the transfer.

Tips such as these cannot be tested thoroughly under all conditions. We publish them to help other TI users or to give them ideas of ways to better use their systems. We hope this is an acceptable policy to you. If not, please let us know.

Meanwhile, anyone have any suggestions about why the transfer works with some games but not others?

1:4:4. Feedback

More solutions

The solution offered by Chuck Moats (March 1984) to the GROM problems was very helpful.

Another common problem is a key which prints two or more letters instead of one. The solution to this came off of The Source. Lift off the plastic key with a pair of pliers, shoot in some contact (TV tuner) cleaner onto the switch and press the key back into place. Sometimes part of the switch comes up with the key, but this is no problem if you are gentle. You need small slip-joint pliers to get a grip on the keys.

Bob Stephenson Albuquerque, New Mexico

Faster entry

Your comment in your new magazine about slow entry into IUG (International 99/4 Users-Group) Database 300/500 was true. If you inquire of IUG they will advise you of a minor correction that corrects the very slow data entry.

Also — I have provided them with a single disk (single-sided) version called Database 250 which does not require swapping disks, etc. Full featured — but only uses one disk for a 250-entry database. The database uses two disks for 300 entries.

Now, how about an article on how to use TEII and modem with CompuServe. I can't get it all together: best way to save to disk, etc.

Help!

John Topham Prospect Heights, Illinois

Ed: Any readers have advice on using CompuServe? We'd like to hear from you.

In agreement

I saw the first issue of *Compendium* at the Northern New Jersey 99er Users meeting. It is certainly the most informative magazine I've seen published for the 99 computer.

Your review of Database 500 was a copy of my impressions. After spending several frustrating evenings I came to the conclusion that it was a good program, but needed editing to a one line entry. After another week of decoding and learning much about files, I now have a much faster entry and search with four times the storage capacity. If you have a need, I will send you a copy, though I have personalized it for two disk drives and default prompts.

If you have an opportunity to review the Companion word processor, I believe you will also find it to be one of the best utility programs for this computer.

Robert Wolf Bound Brook, New Jersey

Ed: We'd appreciate your suggestions on improving Database 500, and so would our readers. Also, elsewhere in this issue you will find a review of Companion.

For members only

The article in your magazine (February 1984) indicated the program (Database 500) is available as a non-exchange item. Evidently the person wishing to order the program must be a member of the International 99/4 Users-Group, otherwise the order is turned down (a fact which is not mentioned in your article). This is aggravating to say the least (how would you feel after waiting two weeks to find that you did not rate the program due to being a "Non-Member") ?

It was not indicated in the article that one had to be a member of any group to be entitled to buy the software. Perhaps the reviewer did not think to ask if this was the case, or the users group left the impression that the software would be available to anyone willing to purchase it.

Whatever the case, it is a pain to order something only to find later that it is unavailable to "Non-Members."

Please state in future articles and or reviews if this is the case!

M.D. Gorman Gardena, California

Ed: We did not know that International 99/4 User Group software is available only to members. We did provide them with a pre-publication copy of the review but received no comment from the IUG. We regret the inconvenience this has caused you and possibly other readers.

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. Mail Feedback to: MICROpendium, P.O. Box 1343. Round Rock, TX 78680.

1:4:6. CorComp introduces double-density card, 2 expansion systems

CorComp's new peripheral expansion system, the 9900 Micro-Expansion System for the TI home computer, has arrived.

And so has the company's first component of its 99000 Expansion System.

The hardware available with the 9900 Micro-Expansion System includes an RS232 card, 32K memory card and disk controller card. This unit is about the size of two TI speech synthesizers placed side by side. The cards may be purchased separately or as a package. The RS232 card offers serial and parallel ports. The 32K card is compatible with all TI cartridges. The company says all hardware will include extensive documentation.

Prices on the 9900 Micro-Expansion System are: RS232 stand-alone unit (1 serial and I parallel port), $149.95; RS232 stand-alone unit with 32K RAM and disk controller card, $399.95; upgrade kit for second RS232 port, $14.95; and upgrade kit for 32K RAM and disk controller, $289.45.

Prices on the 9900 expansion cards for use with the TI Peripheral Expansion Box are: 32K RAM card, $135.95; RS232 card (2 serial and I parallel port), $117.95; disk controller card with disk manager software, $199.95; and cable assembly for internal drive, $18.85.

The disk controller card promises to be the greatest asset for those who already have a TI Peripheral Expansion Box. The card is capable of handling up to four double-sided, double-density 5.25-inch floppy disk drives. The TI card was designed for use with up to three drives.

Included with the CorComp card is a disk-based formatter that will do what TI's Disk Manager cartridge does and more, according to CorComp. The formatter will let TI users utilize double-density disks for the first time (provided they have double-density drives), essentially doubling the amount of storage they have had available to them using TI's disk controller card, which is designed for single-density use. A CorComp spokeswoman said the card will fit in any TI Peripheral Expansion Box.

The CorComp disk manager program will permit users to load and run assembly language programs, such as TI Forth, without using the TI Editor/Assembler cartridge, the company says.

The disk controller card also provides several new commands not available previously on the TI card. CorComp says the card will allow users to peek and poke into CPU and VDP RAM, among other things.

The disk controller card also allows the user to set the head seek times for all four drives, permitting use of newer, faster drives with the system.

The company says the disk controller loads files 2-4 times faster than the TI disk controller.

The 99000 Expansion System is designed to be compatible with the TI-99/4A and CorComp's own new computer when it is ready for the market. It is priced at $549.95. It is about one-half the size of TI's Peripheral Expansion Box and utilizes a system motherboard. Two half-height drives can be installed in it or one full-height drive. It features a flexible cable to link the expansion system to the TI-99/4A, eliminating the bulky TI cable that links the TI PEB with the console.

Included with the CorComp 99000 Expansion System are an RS232 card with two TI-compatible serial ports and one Centronics parallel port, 32K memory card and a double-sided, double-density disk controller card. The controller has the same features as the card already described,

The motherboard provides locations for future auxiliary cards, the company says.

The new hardware products are being shipped to dealers during April [1984], CorComp says.

The company is offering TI user groups a special price on a single Cor-Comp product through its User Group Product Review Program. User groups are asked to provide a review of the product to CorComp in exchange for the price break.

For more information, write: CorComp Inc., 23461 Ridge Route Dr., Suite H, Laguna Hills, CA 92653.

1:4:7. The selling of TI

Marketing in times of change

Retailers are the primary link between computer users, manufacturers and programmers.

We talked to retailers in different parts of the country who sell products for the Texas Instruments 99/4A computer. Here are their thoughts on selling the TI.

REACTIONS TO PULLOUT

Selling products for a computer which is no longer manufactured is, of course, quite a special problem.

When TI initially pulled out of the market, Steve Ficklin, general manager of Computer Shows in Austin, Texas, says, "It was probably not that much of a surprise, based on their marketing. I didn't know how long they could stay in there losing money.

It probably was a little bit of a relief that we knew what was happening."

Ficklin says he is "surprised that more people have not made software available — that TI hasn't made more popular software available, such as the TI-Writer. A lot of TIs are being unused because the software and hardware are not available."

Don McCutcheon, owner of the Home Computer Center in St. Petersburg, Florida, says his reaction was "utter astonishment."

He adds, "We were expecting it. Being a dealer I knew what was going on. But I still was astonished because they have one of the best computers in the market in the price range and they couldn't make a go of it due to poor management.

"I hate to see it go because it's such a good little computer. But it (the pullout) helped my business tremendously."

Mary Jane Burger, an owner of RAM Enterprises (in this case, RAM stands for Richard And Mary) in Vermilion, Ohio, says that initially "we definitely felt concerned, but we took a wait-and-see attitude and were hopeful someone would pick up and continue the TI or at least the accessories and so forth."

Now, she says, "I know that we're definitely encouraged."

She says that "CorComp and others are coming out with peripherals. This is a very hopeful sign. We felt a responsibility to our own customers and a concern that we couldn't get software. That seems a little better now."

Craig Reitan, president of Unisource Electronics, headquartered in Lubbock, Texas, says, "We had mixed reactions. Almost all our business is TI. We have several phases: a couple of stores and mail order."

He says that "after the initial panic" they realized that two-million TI computers were out there. "It's an opportunity for a mail-order business like us."

He says Unisource is in the process of doing "a brand-new catalog with the things available, things being phased out and things available in the future."

Unisource markets more than 1,000 products for the TI, he notes.

The pullout means that "we have to work harder," he notes.

"We're having third-party authors work on software alternatives," he says. "Important pieces of software we'll manufacture ourselves, if we have to, although that's a business we'd rather not he in."

Noting that TI stopped shipping software at the end of March, Reitan notes, Unisource purchased "about $1 million worth of software." (Interviews for this article were conducted in mid-March.)

Of this, "some titles will be gone in 45 days and some will last a year and a half," he predicts tentatively.

Susan Smith, owner of Tree of Knowledge in Reading, Pennsylvania, says her reaction was "just terror. It was awful. I figured that was the end. I'd never sell another TI computer."

Now, she says, "I think they knew what there were doing. I didn't give them enough credit. They did it at the right time. I had the best Christmas market ever and I'm getting the aftermarket now with the software and the peripherals."

Bob DeMars of Specialist In in Minnetonka, Minnesota, says he was "very surprised that they pulled out.

"It doesn't bother us," he adds. "Business is good. It's never been better."

THIRD PARTIES

"I think a lot of third parties are creating software," DeMars says. "We're creating software."

He describes a program for learning BASIC they have that is "interactive — not just turning the pages of a manual."

With this program, the user is given a problem and two chances to respond. If he gives the wrong response twice in a row, the program tells him the answer and takes him back to the material the problem covers for a review. Then he is given a similar problem on the same material.

Specialist In is also providing classes in BASIC, Extended BASIC, assembly language, Microsoft Multiplan, TI-Writer, Forth and printers.

Printers are "very difficult" with commands for such items as boldfacing, for instance, DeMars says. He says Specialist In markets 50 different models of printers and has had a program written for each.

He says they evaluate the software they sell "to be sure it is quality software."

Specialist In sells to customers all over the world, he says.

"We don't advertise a lot," he says. "People find out by word of mouth."

Ficklin says he hasn't seen much third-party software so far.

"I hear a lot but haven't seen much so far," he says. "Frisco (Frisco Electronics, a high-volume electronics chain) has Atarisoft. That's games. Games get old real fast."

He notes that Computer Shows is a dealer for Scott Foresman, which has discontinued its TI line.

"Initially, I though a lot of people would write stuff," he says. "I'm beginning to have my doubts now, which is too bad."

"As far as what's available for people who already have TI's, there's a lot of new stuff coming out," McCutcheon says. "The limit on computers is going to limit what's available, because there are no new computers coming out."

He notes that "TI tried their best to restrict stuff" so that they would be the software source.

"We're finding a lot of new stuff out there," he says.

"We've always had problems getting what people want at the time," Burger says. "It's still a problem."

She notes that it is harder to obtain peripherals than software.

"It always seemed Texas Instruments put out a carrot a long time before it was ready and that's what we're facing now, too," she says.

"I'm not sure what they're going to do with their chips and their module," she says. "The best quality software has always been in the module."

In regard to third-party manufacturers, she says, "they're more encouraged. There's more benefit for them to be in the market."

Reitan says, "We're starting to get things that have been needed for a long time, but weren't made because people expected TI to manufacture them."

He notes, "There are obviously those who got disenchanted and dropped out, but there are those who are building up their system. Business is better than it's ever been."

He notes that Unisource "couldn't support" the initial period of "panic buying" because of a lack of enough WATS lines.

Smith says, "I'm hoping TI will encourage third parties to do even more than they did before. One of the problems with TI was they wouldn't let anybody else make software."

Smith says she specializes in TI products.

"Some people, as soon as they sell out what they have for TI, are pulling out," she says. "I'm getting more and more third-party business. We're the center for TI in Reading, and even the big department stores are sending customers to me."

MARKETING CHANGES?

"I never had a whole lot of money to advertise in the first place," Smith says. "Had I been in the thick of advertising I probably would have made some changes."

"We rent a lot of their software now," Ficklin says of his TI inventory. "We kept enough in stock so we could rent it. We're selling some that we have enough of."

He notes that if CorComp comes out with its planned Phoenix, Computer Shows will sell software, but if not, "we'll stay with rented."

"I advertise less locally and do more advertising through my list of names," McCutcheon says. "I have a good-sized list of names of people who own a TI. Every time a new product comes out, I want to deal with people who already have computers."

"At this point we haven't changed it too much," Burger says of her business.

"We're waiting to see what happens with CorComp and the Phoenix. The TI market is still strong. We probably will diversify," she says.

"I don't know that we've changed our marketing as much as we've beefed up our warehousing and investment in inventory," Reitan says. "Our catalog has to be republished more frequently because the market is changing more."

He says Unisource now plans to issue a hardbound catalog every quarter at a cost of about $75,000.

FUTURE PROSPECTS

"We're all hopeful for the Phoenix," Reitan comments. "We are CorComp distributors and looking forward to that product as well as our other products."

He also refers to "rumors that surrogate TIs" will be manufactured.

"We'll serve the TI market as long as there is a TI market, whether that's two years or 20 years," he says. "Until the last customer rings our bell and says 'We don't want to buy anything, we'll be here."

"I'm going to hang in as long as people want to buy things," echoes Smith. "When it dwindles down, I'll stop carrying TI."

DeMars predicts. "I expect that the TI will be back on the market under a new name — that somebody else will make it."

Ficklin says simply, "I don't know right now."

He says that Computer Shows, whose "main thrust is educational" has expanded into some other lines of computers.

"I expect some of the titles people are looking for are going to disappear," McCutcheon says of future software sales. "There'll be some third-party replacements but not exactly the same. We'll lose some that are popular but not popular enough for a third party to pick up the rights to."

"I definitely feel there is a future for home computers and it is a strong future," Burger says, "and though I'm not sure which direction we want to take I'm sure there will be a successful future out there."

THE TI MARKET

"As long as we have good products, good prices and good availability, we'll get our reward, which is orders," Reitan says.

He notes that Unisource has diversified in its retail stores, but not in its mail-order business.

"It is an awfully difficult business," he says. "There is not a good product in the home market compared to TI. We do carry Commodore and we do carry software for other computers."

"Saturday I could hardly have time to breathe, there were so many in here," Smith says. "I have a very small store. TI's paying my rent. A lot of people are coming in asking for disk drives. Them I'm having trouble getting. A lot of my distributors are pulling out."

She notes, "It costs a lot of money to diversify. I tell people I can get them Commodore stuff if they want it. I can get them Atari stuff if they want it. But I'm not stocking it. Eventually, I'll have to."

DeMars says that Specialist In is "constantly getting new customers." They are diversifying, "but we'd planned to do that anyway."

He adds, "TI is our favorite company. You can't find a better company to deal with."

McCutcheon says that "one thing that's a little rough right now" is that items from third parties are "not completely on the market" and the expansion market has slowed down.

"As fast as I can get software in, I sell it," he says, noting that he has got in "about 25 new titles in the last 60 days from TI" through wholesalers.

YOU ARE WHAT YOU COMPUTE

"Most of the people we get calls on for Atari want games," McCutcheon comments. "The same for the Commodore. Most of the calls for the TI are for education and small business. There's still a difference in the way the market reacts."

He says it's hard to say whether TI owners spend more or less on their computers than owners of other brands.

"If we had the peripheral equipment I'd say more," he says. "A lot of people are not even thinking of switching over."

"From our experience, our research shows that the average buyer will spend 20 percent more on software and peripherals than on the computer," says Reitan.

However, the TI user spends a higher percentage on these items because of the low base price of the computer.

In Lubbock — the site of a Texas Instruments plant — "95 percent of our customers are fierce and loyal to the TI," he says.

He notes that with the TI "adding 100 percent of the peripherals it's still a heck of a value" compared, for example, to the IBM PC-Junior.

Smith thinks that TI users spend as much on their systems as users of other computers "in the long run. Maybe they're not as fast to do it."

She speculates that TI may have got out because of not having the "patience to wait for the aftermarket."

She notes that Tree of Knowledge is located in the center of the downtown business district.

"We're not seeing the people who go out to K-Mart," she says.

DeMars says customers are "all in about the same market. Some customers buy the computer because it's inexpensive and don't plan to expand. Others spend $1,000. They still get a good deal. Some expand very slowly."

He notes that "the typical Atari consumer is out for a game machine. The Commodore is more difficult to use for a beginner than a TI. Most people are impressed with the quality of software, educational and home stuff, for the TI. We sell it to a lot of business people, too."

"The majority of the TI market are probably computer illiterates now," Ficklin says. "Six months again that wasn't the case. The recent buyers after the price cuts expected to get a fully functional computer without having to program it or buy anything for data storage when they plugged it in after Christmas. This isn't anyone's fault, just the general state of knowledge about computers. Now probably most of them are in the closet."

HOW LONG TI?

The length for viability of the TI market, Ficklin says, "depends on what happens in the next two months. If CorComp comes out with their stuff and if someone comes out with some viable software, it's 1½ to 2 years. If not — you're probably looking at it now. As far as most people are concerned, TI is a dead subject. Which is really too bad, because the computer is such a good machine."

"People who've got them won't sell them," McCutcheon notes. He feels that the viability of the TI market depends on "if someone comes out with a comparable computer — not a Commodore or Atari."

"Two years, maybe," speculates Burger. "I think a lot depends on other companies. Most of the people who own TIs are really pleased with the computer and the features. If a computer such as the Phoenix came out that was compatible there is a market which is loyal and would upgrade. For the TI-99/4A itself, I don't know."

"I don't know how to call that one," says Reitan. "Opinions range from six months on out."

He says it may be another several years "assuming a namesake never comes out."

He continues, "I think we know enough to invest a lot. Past the near term, which I look at as a year, I don't know."

"I know there are a lot of machines out there," smith says. "At least another year, maybe more."

"If it comes back with another supplier, a long time," DeMars says. "If somebody doesn't take it over, I think another five to seven years."

RETAILERS' PROBLEMS

Ficklin sees his biggest problem as a retailer as answering his customers' questions. Though he knows that the TI is a good computer, he says, he doesn't know whether any individual should buy a computer or not, or whether they should get more software or hardware.

McCutcheon says the biggest problem is that "suddenly there'll be a rush on something. Extended BASIC — you'll get 10 in a day and they'll be gone. Peripherals — people want entire expansion systems and you can't get them."

He also cites frustration with not knowing what prices will be.

Reitan says the biggest problems "continue to be TI. They are difficult to do business with, though their withdrawal from the market has been honorable to dealers — amazingly so in that they haven't dumped a huge quantity of software on the market at nothing, leaving dealers with huge inventories of worthless software."

Reitan also cited the difficulties of predicting what customers' needs will be and thereby running short of inventory.

CHAIN STORE COMPETITION

DeMars says the biggest problem is "probably competing with the chain stores" who buy software in large volumes and sell it as loss leaders.

However, since large stores such as Montgomery Ward and J.C. Penney have been phasing out TI products, the smaller operators have benefitted.

"In today's market much of our business comes from the big stores sending people to us," he says, citing Sears, Penney's, Target and Dayton's (a large chain in the Midwest). "I'm glad from that aspect. Our business has quadrupled."

Smith also says she was unable to compete with the chains.

"They were selling stuff below cost just to clear it out. I couldn't compete with that," she says.

Ficklin says that "small retailers couldn't get them (TI consoles) when they phased out."

Reitan is philosophical at the "dumping" of some TI products.

"Those things last a day or two. We urge our customers to take advantage of it, and we're not too proud to do it ourselves," he says.

He notes that a customer who saves money on a particular product by buying it at a department store may buy other products from Unisource, which has a larger selection of TI products than the chains.

— LB

1:4:9. TI discontinues software

Texas Instruments is no longer in the business of selling home computer products.

As of March 30 [1984], the company stopped shipping its remaining home computer products to vendors and none will be available from the company in the future.

A company spokesman said that the company will continue to honor warranties on its products, including software and hardware. Users may continue to bring defective equipment to TI's exchange centers for replacement but the exchange centers will no longer sell or distribute the products.

The spokeswoman noted that TI will continue to maintain its toll-free telephone number to help home computer users.

The spokeswoman said she knows of no companies that have worked out licensing agreements to continue production of TI home computer software or hardware that have not already been announced.

Of course, scores of companies large and small are independently producing software and hardware for the TI-99/4A. At this point, however, production of such cartridge-based programs as Extended BASIC, Microsoft Multiplan, TI-Writer and Terminal Emulator II has ended.

The spokeswoman did not rule out the possibility that other companies might eventually pick up production of such TI-licensed products.

1:4:10. Tex-Comp to sell Mini-Writer

Exclusive purchase of all remaining Texas Instruments Editor/Assembler, Mini Memory and Extended BASIC cartridges was made by Tex-Comp of California when TI discontinued selling its home computer products at the end of March.

In addition, according to Jerry Price of Tex-Comp, the company has acquired millions of dollars worth of TI products, enough to support the market "for years to come."

He said there were "not that many" left of the Extended BASIC cartridges.

Tex-Comp has a large supply of Editor/Assembler and Mini Memory cartridges, he said.

In addition, Price says, warehouse shelves at Tex-Comp are stacked with TI products "as far as the eye can see."

Tex-Comp also has rights to the Mini-Writer program which, he said, was never marketed by TI. Mini-Writer is a cassette-based word processing program that does not require expansion memory. Price said that Tex-Comp will be making this available soon in a package with the Mini Memory cartridge. Mini-Writer requires the Mini Memory to operate.

He says Tex-Comp also carries a printer which does not require an RS232 interface.

Thus, he says, "for $349.95 a person can get into word processing with a printer, a Mini Memory and everything."

For more information, contact Tex-Comp/Calvert, 7051 Hayvenhurst, Van Nuys, CA 91406.

1:4:11. Programmers, Part II

This article, continued from the April issue, consists of interviews with programmers from different geographic locations, all of whom write programs for the TI Home Computer.

Of significant problems with the TI, "one has less to do with the machine than with the company," says Dr. Allan Swett of Intelpro in Brossard, Quebec. "TI is not noted for dispensing information."

As far as the machine itself is concerned, Swett says, there is a limited audience which has disk and memory expansion, and even so the memory is limited.

He says TI's BASIC and Extended BASIC are "adequate insofar as they were intended to be" and that TI's assembly language is "spectacular," better than IBM.

However, he says, the machine's limitations don't keep him from writing any programs he wants.

"I'm pretty confident in my ability to scrunch things down," he says. "By and large, I'm a believer in small computers. You can do pretty much anything you want on them, as long as you have a disk drive."

Vincent Lannie of Texas Software Design in Bayton, Texas, says he finds BASIC difficult to work with in the TI.

"I have more useful memory in Extended BASIC," he notes.

Scott Emory, a partner in EB Software of Santa Ana, California, sees a problem in that "when you're programming, every time you want to make it better — like going from BASIC to Extended BASIC or adding memory — you're excluding people from your market because fewer people have those peripherals."

He adds, "We're pushing it to a limit. We're making programs on our full-blown system and seeing if it can run in Extended BASIC."

BASIC is limited in speed and graphics compared to Extended BASIC and assembly language, Walt Dollard notes. Dollard is a 19-year-old programmer from Pittsburgh, Pennsylvania.

"The only real advantage TI does have with graphics is TI is permanently in high resolution," he says. He also cites TI's 16 colors and sprites in Extended BASIC and assembly language as advantages.

"Memory limitations are the main thing, although I do have the 32K memory expansion," he says. "In 32K you should be able to write pretty much any program you want. The TI is really quite powerful compared to other computers in the under-$1,000 price range."

Gene Harter, a partner in Not-Polyoptics of Woodbridge, Virginia, says there are problems with memory, Extended BASIC and BASIC.

"A lot of our more popular programs, if we did them in machine language with 32K expansion would rival any game — any computer," Harter says. "When the serious people have gotten their expansions, we'll start making disk-based software."

K.E. Vaughn of Vaughn Software in Arvadus, Colorado, says one of the big limitations of the TI is the line length, so that "any time you approach text — especially in word processing — you have to cram as much as possible on one screen or go to two."

Regarding the line length, he says he's "cussed it many a time."

He says that in the drawing, redrawing and erasing in BASIC animation a programmer has "to be careful it moves quickly. You use a lot of call (statements) to move and animate the character."

However, in programming, he says, "we would attempt just about anything, unless it was too farfetched."

He would not try, for instance, to emulate a program like the windowing done in the Apple Lisa, he says.

To talk about problems or limitations with the TI or other computers is "not fair," says Larry Hughes of Quality 99 Software in Washington, D.C. "You do the best you can with the tools at hand. Some things are harder than others. Even Atari — according to Consumer Reports, Atari has the worst BASIC language, but you can still do things with Atari. It's harder, but you can still write beautiful programs."

About the 99/4A, Hughes comments, "This is a very, very shocking thing to me — TI won't tell me how to use it. You can get a Commodore book for $6.95 which has every memory location and what the value is."

With the TI, he says, "every memory location is a big secret. We're working blindfolded in a dark cave."

He cited his company's Quick-Copyer, which reads a sector from a diskette and writes a sector to another diskette.

"TI won't tell you how to do it," he says. "Nobody outside of TI and my associate knows how to do it. It took him six months of hard work, and it should be common knowledge. The hardest part of working with TI is finding out what is common knowledge with other computers."

He continues, "The irony is, even with the Commodore you know all these things but you can't do anything because it's not a very powerful computer."

ADVICE TO PROGRAMMERS

If he were to advise someone who wanted to program for the TI, Vaughn says, "I would have to tell them the best resource they have for anything is the manual they have from TI. I'd tell them to read it from cover to cover about 10 times."

He also feels that "just experimenting" is important.

For those interested in programming commercially, he says, "they should start with BASIC and move very quickly into machine language programs."

"Read the manual," Hughes agrees. "Put that in all capital letters — READ THE MANUAL. I'm in a user group and I get 10 calls a night.

"People will call and ask, 'What's that funny curlicue-looking thing do?'"

"'You mean the ampersand?'" "'I guess so. What's it do?'"

"'It's on page five of your manual.'"

He continues, "You need to read the manual not once, not twice, not five times, but 10 times. Then when you start programming and you have a question, you'll know where to look."

"I heard someone once say that programming is the best computer game of all," he says. "It's challenging, it's exciting, it's thrilling and you can win, and you can make it as hard as you want or as easy as you want, and you get immediate results, and you have something other people can use and enjoy."

Dollard also stresses the importance of the manual.

"I started out knowing absolutely nothing about computers," he says. "At that time, there was no beginners' BASIC book."

He learned, he says, from the BASIC manual.

"You have to sit down and grind your way through the book. Patience is important," he says.

"As far as the TI itself, there's nothing special about it," Hatter says. "The BASIC is slow."

As a result, he says, when using graphics the programmer should pay attention to timing in trying to get them to move realistically or look good.

"There are some hidden things that will slow computers down that you have to find out about," he says. "You have to experiment with it."

Lannie's advice is pessimistic. "I would probably say not start your own business. The way it is now, I wouldn't recommend anyone to program for TI. I think it's going to be hard for them to market their products to a big firm."

Emory feel sit is important for a programmer to come up with an original idea, not an adaption of something that is already out.

"If you know assembly language, it really helps," he adds.

"Professionally, my advice is to establish marketing and distribution before you write the program," Swett says, adding that this is "hypothetical advice" that he did not follow himself. He notes that the marketing and distribution arrangements may have to be based on the quality of the product.

"Don't be surprised if you can't get marketing and distribution because you haven't got credibility" if you try to set them up first, he adds. "After you've established credibility, be sure to set up marketing and distribution."

For the non-commercial programmer, Swett says, "My advice to that person would be to have fun. Enjoy the internal challenge you set for yourself, like to make it faster. But above all, have fun."

— LB

1:4:13. Review: Companion

A better word processor

Review	
Report Card Performance ... A Ease of Use .... B+ Documentation A Value .... A Final Grade .... A	**Cost:** $79.95 (diskette)
	Manufacturer: Intelpro, 5825 Baillargeon St., Brossard, Quebec, Canada J4Z 1T1
	Requirements: console, monitor or television, disk drive and controller card, 32K memory expansion, Extended BASIC cartridge, printer and printer interface.

Companion is a well-designed and executed word processing program for the TI Home Computer. In many cases it is faster and easier to use than TI-Writer. It offers most of the features found in TI-Writer and is far superior in the way it can incorporate graphics into text. Although it seems to be written with the Epson MX80 dot matrix printer in mind, I had no trouble operating it out of a C. Itoh Prowriter.

The author of Companion, Dr. Allan Swett, believes his program is superior to TI-Writer, Texas Instruments' cartridge-based word-processing program. He suggested that I use TI-Writer as the basis for reviewing Companion, a suggestion that I initially greeted with skepticism. I am familiar with numerous word-processing programs priced from $40 to $600. I include here Word Star, Word Pro and Superscript II, among others. Also, I am familiar with full-scale typesetting and pagination systems priced in the $25,000 range that provide the user with more formatting capability than he will probably ever learn to use. I am saying this because I regard TI-Writer to be a very fine word-processing program in the under $100 range. In fact, it offers the user features that programs written for other computers don't offer at twice the price.

There are, however, several things I don't like about TI-Writer, including the absence of a "look-ahead" buffer, the fact that it is organized so that the user cannot test printing formats without leaving the editing mode and the sometimes complex manner in which formatting commands are employed, particularly the Transliteration command, which is used to create software commands for execution by the printer. While this is a powerful tool, it is sometimes so confusing to implement that you don't bother to use it.

Companion is superior to TI-Writer in all three of these areas. For one thing, it operates out of a single program that is loaded only once into memory. From here the user can write, edit and print directly out of the main menu. This is desirable because the user can edit his copy and then print it out and make changes or format adjustments immediately. (Neither program has a screen formatting function that previews what the document will look like before sending it to the printer. However, in defense of both programs, this feature is generally found only in much higher priced software.) This is not possible with TI-Writer since the formatting commands cannot be read in the editing mode. TI-Writer is also infamous

for dropping letters at the beginning of each line in the editing mode. This is because the program does not store characters that are typed at the end of a screen line as it wraps around to the beginning of the next line. You may examine the sample copy created by Companion elsewhere on this page to see how graphics can be incorporated into text. A simple one key command followed by the ASCII code of the graphics symbol is all that it takes.

One feature offered by Ti-Writer not provided by Companion is the ability to incorporate name and address files and other custom data to be inserted in form letters. It is more flexible in how it formats the copy on the screen as the user types it. Using a windowing technique, it's possible to type 80 characters on a single line, though users are more likely to set the screen parameters to display a 40-character line. Companion shows a 40-character line with no option to change it. TI-Writer also prints user-created headers and footers. Companion will print page numbers centered at the top of the page only. TI-Writer also allows the user to right-justify text, which Companion does not. TI-Writer also has a line delete function which Companion does not. However, Companion has a very fast block delete, move and insert command. How much faster is it than the TI-Writer insert and delete commands? Well, such commands are executed virtually instantaneously in Companion and can take 30 seconds or more for lengthier blocks of text in TI-Writer.

Although both programs offer software control of such printer functions as boldfacing and underlining, Companion is easier to use in this regard. TI-Writer does not offer true underlining, which Companion does via simple ASCII code commands.

But the difference between the two programs is more fundamental than a feature-by-feature comparison might suggest. Essentially, Companion operates like a computerized typewriter while TI-Writer operates with a greater emphasis on formatting of finished text. In my view, TI-Writer is most useful for form letters, while Companion is designed for writing per se. It is this difference that makes Companion unique and it is on this basis that we shall proceed with the review.

Performance: Companion is written in assembly language, which is why it operates so quickly. The execution of all commands is virtually immediate. Just like a typewriter, when you press a key something happens.

The main menu consists of seven options:

Load
Edit
Save
Print
Purge
Directory
Other

All text is created in the edit mode. This mode offers the standard editing functions, including insert, delete and search and replace. The user may also move and copy text. A feature not found on TI-Writer is the count function, which will report the number of times a word or phrase is used in the text. Editing commands are displayed in two rows at the top of the screen by pressing the **FCTN BACK** key. Also displayed at this time is the number of characters in the text. The text buffer can accommodate 18,000 characters, compared to about 23,000 characters for TI-Writer.

Such formatting commands as paragraphing, line spacing, horizontal tabs, underlining and graphics are executed via the use of Control keys. Control G followed by the ASCII number, for example, is used to print a graphics character. Control H will tab the text to a tab location that you set in the tab setup mode. Virtually all such commands are easy to use since they are based on the first letter of the function they represent. I found no problem in using the Control key to initiate these functions.

The purge command deletes the text that is in memory. The directory command will list only those files created by Companion.

There is a secondary menu in this program that appears by selecting "Other" on the main menu. This menu includes:

Save before cursor
Save from cursor
Purge before cursor
Purge from cursor
Set tabs
Print disk file
Batch processing
Other

The first four selections allow the user to save or purge data based on the location of the cursor. The print file command loads a file out of disk and immediately begins printing it. Batch processing is a feature not available on TI-Writer that emphasizes the essential difference between the two programs. Batch processing allows the user to enter the file names of numerous diskette files so that they will be printed out in sequence. As the Companion manual notes, this allows those involved in writing lengthy documents or books to print out chapter after chapter. The emphasis in TI-Writer is on the repetitious printing of form letters in which the names, addresses and other items are changed via mail-merge files.

The cursor plays an important role in any text processing program. The Companion cursor appears in several forms, depending on the function it is being used for. It appears as a simple underline when writing. Moving it back over a word or character transforms it into a solid white block. Entering the insert mode transforms it into a hollow block. The cursor can be moved to the beginning of the text by pressing the **FCTN BEGIN** key and to the end of the text by pressing the **FCTN REDO** key. The cursor will also move up and down 12 lines at a time by pressing the **FCTN PROC'D** or **CLEAR** keys. The cursor may also be moved by pressing the space bar. The longer you hold the space bar down, the faster the cursor moves.

Inserting printer commands is easy with Companion. Simply press Control A (for ASCII) and then enter the number or numbers corresponding to the task you want performed. Control A27 Control A80, for example, puts the printer into the proportional mode. Unlike TI-Writer, which will not print boldface using the proportional character set, Companion will.

Unlike TI-Writer, Companion operates fully in a wrap-around mode during the editing process. TI-Writer does not truncate words at the point at which one line ends and another begins. This is more a matter of taste than anything else. Although neither program offers the user the option of seeing what the document will look like on the screen, this option would be useless anyway since the screen width is limited to 40 characters in both programs.

Companion also allows the user the option to customize the default values, such as the printer description, tabs, printout parameters (there are 11 of them) and such system defaults as which disk drive to write files to (it is set up to use one drive) as well as the ASCII default (which can be of benefit to someone who uses a lot of underling and boldfacing and other special functions.)

Ease of Use: Considering its flexibility and power, Companion is relatively simple to use. Someone with only a passing interest in programming but an abiding interest in writing should be able to put this program to good use with a minimum of wasted effort. Those with an interest in both will appreciate the ease with which formatting can be done and the naturalness with which writing takes place. The first-time user can start writing with it from the start, even without reading the manual. Learning to use all of its capabilities will take considerably longer, but that's to be expected with any word processing software.

Documentation: Companion comes with an excellent 142-page manual. It includes a very good table of contents. The manual seems to be somewhat wordy, considering how simple the program it describes is to understand. I think it addresses virtually any question the user may have regarding the program.

Value: When I started to examine Companion I did not think it would be a serious contender against TI-Writer. The more I used it, however, the more it became apparent that I was mistaken. As a writer who also understands BASIC, I am more comfortable using this program and its ASCII commands than using TI-Writer and trying to "transliterate" the ASCII characters codes to suit my purpose. (Transliterate is TI's term to describe the function of redefining characters so that they will represent something else, such as ASCII code.)

If my intention in buying a word processing program is to handle form letters, I would choose TI-Writer. If I want to use it to write, whether term papers, short stories, books or correspondence, I'd choose Companion. I am impressed.

— JK

The author responds

Thank you for . . . the opportunity which you have given me to offer my criticisms of the review. I am really delighted with the overall report card which the program has received.

Before explaining the suggestions which I have to offer, let me first say that I hope that you will take my criticism constructively, since that is the way in which it is intended. I know that the *Compendium* is just as much your "baby" as Companion is mine, so I hope that you will bear with my critique.

Let me first deal with a few technicalities.

1. 1 believe that you mean a "type ahead" buffer, not "look ahead". In fact, Companion doesn't use such a buffer at all: the enormous speed of the screen display routine makes this unnecessary. As you have noticed, Companion will never miss a keystroke.

2. Companion also allows you to delete blocks of text. This seems to be important, since you earlier observed that no single command will delete a line.

3. The numerical comparison of text buffer sizes for programs which operate using different algorithms is sometimes misleading. In addition to the 18,000 character text buffer, Companion uses a separate 1200-byte line length buffer to keep track of line -lengths, and will (in the rare case that a text uses more than 1200 screen lines) logically synthesize additional line lengths. TI-Writer may put the line lengths (and maybe a flag with each one) into the text buffer. Also, Companion's left margin declaration allows the program to avoid storing spaces to represent the left margin of each line separately. For TI-Writer this may amount to at least 4,000 characters in a large (say, 500-line) text. Additionally, TI-Writer may place various extraneous flags in the text buffer: I don't know.

4. An option: I think that it is worth mentioning that "G" is easy to remember since it stands for "graphics", and that "H" stands for horizontal tab" (not "T", as one might reasonably expect),

5. The space bar should not really be considered a cursor motion key. Also, all of the cursor motion keys (in fact, all keystrokes period) repeat automatically, and the repetition gradually accelerates.

There are a few things in the review which I think are worthy of expansion.

I think that calling Companion a "computerized typewriter" is not doing the design much justice, particularly in this age of techno-jargon. I would argue that Companion is a true "text processor" or "concept processor," while TI-Writer is a line editor with a reformat command. To me, this is the crucial design difference. (Try deleting, moving, or copying a single word to see the difference.)

If I were in the word processing market, I think that based upon the review I would probably buy TI-Writer.

Allan Swett

Ed: Just to make things perfectly clear, I have been using Companion for all my correspondence and review writing since receiving it. I continue to use TI-Writer only for form letters. This is a personal choice on my part based essentially on the conclusions that are drawn in the review regarding its ease of use as a writing tool.

1:4:15. Review: Q*Bert

More arcade action for the TI

Review	
Report Card Performance ... A Ease of Use .... A Documentation B Value .... C Final Grade .... B	**Cost:** $49.95 (cartridge)
	Manufacturer: Parker Brothers, 50 Dunham Rd., Beverly, MA 01915.
	Requirements: console, monitor or television, joysticks
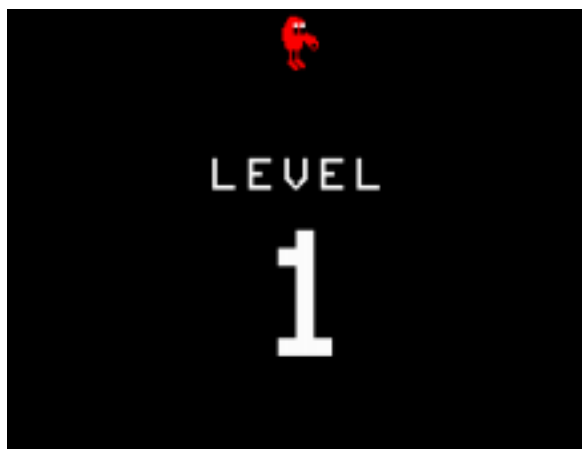
Q*Bert is another in a quickly growing list of popular arcade games that has been translated for use with the TI-99/4A. It plays essentially like the arcade game.

Performance: Q*Bert is a funny-looking character with a long nose who bounces about on a pyramid trying to change the color of the blocks that make up the pyramid while avoiding collisions with red and purple balls, spider-like creatures and snakes. There are several levels of play and each is harder than the one that precedes it.

The game may be played by one or two players. This decision is made prior to starting the game. Each player has three Q*Berts. As far as I could tell, there are no more Q*Berts to be had.

The game will not operate with all joysticks. Only those that plug directly into the joystick port seemed to work. Those that required adapters worked only with limited success.

I ran into a problem playing this game that I find distressing. The screen consists largely of a 28-cube pyramid, each cube consisting of three coordinated colors. Quite often while playing my brain stopped seeing a pyramid with its illusion of three dimensions. Instead, the plane changed so that I was seeing a one dimensional, triangular pattern of varied colors. Having lost the illusion of three dimensions, which occurred most often when the pyramid colors were not highly contrasted, I felt disoriented. Literally. When this occurred, it was rather too easy to jump little Q*Bert off the edge of the pyramid, which does not result in high scores.

The graphics are well done and sound is used well in this game. The movement of Q*Bert and his adversaries is very smooth,

Ease of Use: This game is easy to understand, with all input through the joystick.

Documentation: Q*Bert comes with an eight-page manual that could have easily fit into two pages. The manual does not show the care and attention to detail that TI users have come to expect. In this regard, we may have been spoiled by TI.

Value: In my opinion this game is not worth close to the $49.95 list price that it carries. It did not hold my interest for very long, as I reached my level of ability fairly quickly. Kids who played it seemed to enjoy it, but they too tired of it rather quickly. Unless you are a Q*Bert nut, I'd look around until I found it for about $30 before plunking down the cash.

— JK

1:4:17. Review: Mad-Dog

Bound to be some rabid fans

Review	
Report Card Performance ... A (A) Ease of Use .... A (A) Documentation A- (A-) Value .... B+ (A) Final Grade .... B+ (A)	**Cost:** Mad Dog I $13.95 (tape), $15.95 (disk); Mad Dog II $15.95 (tape), $17.95 (disk)
	Manufacturer: Data/Ware Development Inc., 4204 Sorrento Valley Dr., San Diego, CA 92121. (619) 453-7660
	Requirements: Mad Dog I — console, monitor or television, cassette recorder or disk drive and controller, Extended BASIC, joysticks are optional (disk version requires 32K memory expansion); Mad Dog II — same as above except Mini Memory is required instead of Extended BASIC.
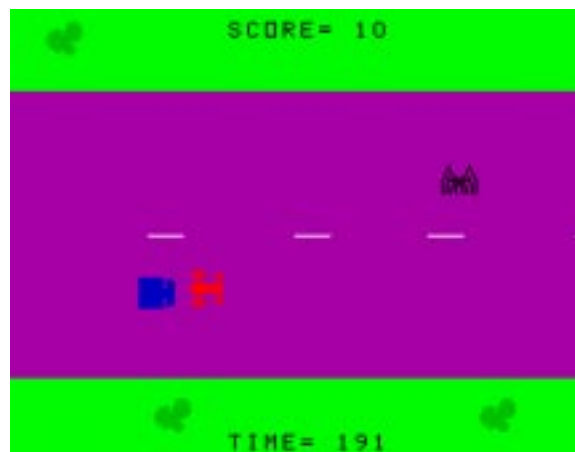
This is the kind of game that is easy to review. All you have to do is watch the kids play. You know it's not a dud just by counting the number of times they ask to load it into the computer. This game got used plenty the first day, and the next, and the next. You get the picture.

Actually, we're talking about two games here: Mad Dog I and Mad Dog II. The difference in the "grades" on the report card has to do more with the programming limitations of the Extended BASIC cartridge and the power of the Mini Memory cartridge than it does with the game itself. Both versions exploit the capabilities of the computer. To avoid confusion, this review will start with Mad Dog I.

Performance: Mad Dog I takes place on a scrolling highway. The player controls a car either by keyboard or joystick input. Appearing randomly on the highway are elusive mutant spiders which the driver must run over to score points. New ones appear almost as quickly as the old ones are mashed. To make things more interesting, a large truck cruises the highway. Hit the truck and the game is over. There are three levels of play and at each level the roadway becomes narrower. Also, there is a time limit on each level, which increases the challenge.

For an Extended BASIC game, Mad Dog I has excellent sprite coincidence detection. Control of the car is a bit loose, with the car tending to move a bit further laterally than you thought it would. But you can adjust to this rather quickly. Although keyboard input allows you to move the car in only four directions, the joystick option allows eight. However, I found great difficulty in getting this kind of flexible movement out of the TI joysticks. Using a Wico stick made it work as it's supposed to.

Getting to the second level was not particularly difficult. I wasn't able to reach the third level during the time I was evaluating this game. The second level, in addition to taking place on a narrower roadway, introduces green "bonus bugs." Hitting these produces extra points. Running off the road results in the deduction of points from your total. The third level includes a second truck and a "butterfly" which you may run over for points.

Mad Dog II

In a way, I wish I hadn't seen Mad Dog II before finishing my review of Mad Dog I. If you've got the Mini Memory cartridge, by all means spend the extra couple of bucks on Mad Dog II. This is a superior game in every way. Mad Dog II plays like an arcade game. Response to the joystick is instantaneous and flawless.

Mad Dog II is faster than Mad Dog I, has four levels of play and is designed to test the skills of better than average joystick jockeys. This one will give your hand cramps.

The object of Mad Dog II is the same as Mad Dog I. The screens look the same. Unlike Mad Dog I, in which the player has only one car, Mad Dog II provides a spare car upon reaching the third level, no mean feat in itself. This allows you to collide with the truck twice before being eliminated. Both versions end when time runs out on the final level, though that's a problem few will have to deal with. Although no big deal is made of sound effects, a tone sounds every time points are scored.

Ease of Use: Both Mad Dog I and Mad Dog II are simple to use. The object of the game is obvious. As far as I was able to tell, both versions are crash proof. Both games are protected.

Documentation: Both games come with a manual that leaves no question unanswered.

Value: If you enjoy arcade-type games, Mad Dog I represents a very good value. The price is excellent for what you get. Mad Dog II is a terrific value for the price. One can spend a lot more and not get a game as good as Mad Dog II. I know I have.

— JK

1:4:18. Review: Programs for the TI Home Computer

Type them in, watch them run

By **CHRISTOPHER BOBBITT**

Review	
Report Card	**Cost:** $14.95
Performance ... A Ease of Use .... A Documentation B+ Value .... B+ Final Grade .... A-	**Publisher:** Steve Davis Publishing, P.O. Box 190831, Dallas, TX 75219
	Requirements: most programs require only console and monitor or television. Some utilize Extended BASIC or Terminal Emulator II, modem, disk drive, expansion memory or tape recorder.

Just when you were getting used to the sight of bookstore shelves completely devoid of books for the TI-99/4A, the publishers pull a dirty trick and start publishing them as if they were Apple books.

Now you have the difficult, but enviable, task of choosing exactly which books are right for you. Most computer books published today fall into one of four categories: those that talk about hardware, those that talk about software, those that tell how to program and those that contain nothing but programs. Since the key to a computer's success is the software available for it, as TI found out too late, then the most important book you may purchase would be one that contains nothing but programs. One of the best of these books is *Programs for the TI Home Computer*.

Apparently when Steve Davis wrote this book, he decided to include programs for every level of computer owner. While a majority of the programs are in console BASIC, a good portion are in Extended BASIC, and some require such peripherals as the Speech Synthesizer, disk drive and a memory expansion device. Several of those in BASIC require the Terminal Emulator II cartridge, a speech synthesizer and even a modem. Most of the 47 programs in the book, surprisingly, are utility and educational, but 14 or so are games. The programs range in size from as small as nine lines to as large as 330 lines.

Quality: The quality of the programs in this book ranges from very good to poor. Most of the games are good, and tend to be more skill and less action oriented. One of the best programs in the book, called Adventure in Oz, is actually a giant graphic adventure that has three separate data files, and can only be used with a disk drive and the memory expansion. However, the book also contains its share of mediocre gambling and guessing games.

The utility programs also range from very good to poor. Several of them, such as the Personal Banking program and the assembly language Plot program, are fantastic. However, others are not very useful, such as the Video Tape Finder and the Airline Guide. The three or four educational programs in this book are good programs, but not very innovative in their approach to teaching concepts. Finally, the two music programs included, Sprite Dance and Rainbow, are exceptional.

The programs, while not free from errors, are, on the whole, well written. The programs that are poor in this book tend to be poor not from bad programming, but more from the bad ideas that they are based on. One program which illustrates this well is Ten-Up. The program itself is logically arranged and is a good example of structured programming techniques, but the actual game itself is not in the least interesting and can even be described as boring. Poor programming more often results from poor ideas: conversely, an excellent idea for a program will not make a program excellent unless the programming techniques used are excellent. Usually the programming concepts that are presented in even the poorest ones are alone worth the cost of the book.

Ease of Use: The book is written in a programmer-to-programmer style and is easy to read. Anyone who can type in a program with a moderate amount of success will find that the book is extremely easy to use.

Documentation: The writer is very conscious of who the book is written for. The book gives detailed instructions on how to type in a program in the introduction, thereby sparing the more advanced user from having to read it every time in the program explanation. The explanation given prior to each program listing usually does not describe the listing, but instead gives the program's function, possible uses, possible enhancements and sometimes descriptions of important programming concepts. All of the programs may be typed in directly out of the book, and in all the listings the length of the lines is less than the maximum allowable length. The book was well edited and typographical errors are very rare. The only problem I see lies in the area of program aesthetics, the graphics and screen output being usually rather bland and average.

Value: The book is a great value in the fact it is actually two products: a good collection of programs and a great resource of programming techniques. Since programs are included from six different authors, the book has a myriad of program styles, any of which is worthy of emulation. However, the book really is a value in the fact that there are more programs and less book. That is to say, a majority of the space in the book is occupied by program listings, and very little occupied by the author's thoughts on world politics and their relation to programming in BASIC.

The author responds

Thank you very much for sending the advance copy of the review of my book, *Programs for the TI Home Computer*. The few passages in the review that I question are outlined below.

1. " . . . the publishers pull a dirty trick. . ." — I agree, except that the book was published in February of 1983 when other publishers thought I was crazy for doing a book of programs specifically for the TI.

2. " . . . quality . . . ranges from very good to poor. . ." — I think the word "poor" is a bit subjective. The author admits that the programming is not "poor" so perhaps he means that the particular programs that did not appeal to him (i.e. Ten-Up, Video Tape Finder, Airline Guide) were uninteresting to him. I realized that the users of the 99/4A were a diverse bunch, so I tried to include a wide variety of programs. Never did I expect all programs to appeal to all tastes. As a matter of fact, some of the programs in the book that were my least favorites have turned out to be favored by many readers. It all depends on what the reader is looking for. For example, some may think that "Keyword Article Search" is a useless program, but I have received many letters from users who like it, and a review in *Popular Computing* devoted two paragraphs to it. The same review said that the educational programs in the book were "interesting and unusual," while Mr. Bobbitt seemed rather unimpressed by them. The point is, neither is "wrong"; the two reviewers merely have different tastes. So, instead of saying programs are poor" (unless they truly are), a more fair statement might be, "I did not find this game to be very interesting," or, "Some may not find programs such as Video Tape Finder and Airline Guide to be particularly useful to them."

3. " . . . while not free from errors" — All program listings in the book are printed directly from tested versions and will run as listed. Of course, a typing error on the part of the user could create a problem with any program. The only program that caused a problem after publication was Numerology, and this was due to circumstances beyond my control. The program was tested with both versions of Extended BASIC in existence at the time of publication. After the first edition of the book came out, TI made changes in Extended BASIC and did not tell anyone about it. Anyone with the latest version of Extended BASIC could possibly get a "recursive subprogram" message. The correction was made in the Second Edition.

Thanks for your consideration of my comments.

— Steve Davis

1:4:20. Newsbytes

Not-Polyoptics games

Not-Polyoptics Inc. has introduced several new game programs for the TI-99/4A. Included are Backgammon, Bankroll, Tower, and Cosmopoly in Extended BASIC and Ophyss in BASIC.

Backgammon lets the user play this classic board game against another opponent or the computer. The price is $15.

Bankroll is a sophisticated investment game for 14 players. While the goal is to accumulate wealth by making wise investments, players must all consider "real world" developments in their investment plans. News headlines serve to make the game a challenge. The price is $18.

Tower is a one player air-traffic control game with the computer monitor serving as a radar screen at a large East Coast airport. The player directs multiple flights through tight flight paths and bad weather. The game comes in two versions: civilian and military. The price is $18.

Cosmopoly is a space war game that takes place on a Monopoly-like game board on the monitor. The computer keeps track of all the scoring as 2-4 players buy planets and moons and fortify bases for war. The price is $15.

Ophyss is a game for 1-2 players, the object being to guide opposing snakes through a maze-like serpentarium to catch food. To be successful, a player must gain time so that his snake can grow longer. The price is $13.

All games come on cassette. For more information, write: Not-Polyoptics, 13721 Lynn St., Suite 15, Woodbridge, VA 22191.

Protected backup

Maple Leaf Micro Ware is offering a cassette-based program called Backup that allows users to create backup copies of file-protected Extended BASIC programs on tape. The copies remain protected, the company says. The program requires the Mini Memory cartridge. The price is $19.95.

Diskit is a new program that permits the user to write adventure game files from cassette to disk, the company says. It also allows users to write Mini Memory-targeted assembly language and file-protected Extended BASIC program tapes to disk. It requires a disk system and Mini Memory cartridge or Editor/Assembler cartridge with 32K memory expansion. The price is $29.95.

Maple Leaf also has introduced two new educational programs: Math Flash Astronaut and Spelling & Phonics Tutor.

Children are rewarded by having their rocket launched upon successfully answering math questions in Math Flash Astronaut. There are 12 levels of difficulty, It requires only a console and tape recorder. The price is $14.95.

Spelling & Phonics Tutor lets the user compose lessons with data statements, using words within phrases that illustrate their correct context. Children can review the phrases or practice spelling and reading the words. It requires a tape recorder, speech synthesizer and the Terminal Emulator II cartridge. The price is $14.95.

For more information, write: Maple Leaf Micro Ware, P.O. Box 13141, Kanata, Ontario, Canada K2K 1X3. All prices are in U.S. funds.

Top sellers

Texas Instruments, as we all know, sold a lot of home computers last year, but Commodore Business Machines sold more, according to Future Computing Inc. Here are the figures, rounded off, of course: Commodore, 2 million: Texas Instruments, 1.5 million; Atari Inc., 500,000: Timex, 500,000: Tandy Corp., 400,000: others, 100,000.

TI catalog?

TI said in January that a New York firm was going to publish a catalog of TI products to be mailed free of charge to all TI users included on TI's 1 million name mailing list. TI spokesmen said at the time that vendors of TI products could be included in the catalog by contacting the firm, March Direct Marketing, and working out arrangements.

An MDM spokesman says that the catalog will be coming out in April [1984] and indicated that two more editions would be published before the end of the year. However, he declined to note how many pages the catalog would include. He also declined to discuss how vendors could have their wares promoted in one of the upcoming catalogs. Apparently, the first edition will feature TI-licensed products. It was indicated in January by an MDM spokesman that the first catalog would include 16 pages.

Printer cable

A San Fernando, California, company is offering a parallel printer interface for the T199/4A that does not require an expansion box or RS232 interface.

Axiom Corporation's Parallax TI interface will operate with any parallel input printer, according to the company. The device, which is a small black box with a cable connected to it, plugs into the right side of the computer.

The company says the device is compatible with all TI software.

The company also markets a series of three Seikosha printers for the TI-99/4A and other computers. One of the printers, the GP-700 Series, offers full-color. A second printer, the GP-550 Series offers what the company calls "near letter quality" print while a third printer, the GP-100 Series, is described as an 80-column printer for the budget-minded.

All are dot-matrix printers. None requires an RS232 card as each is outfitted with a direct connect cable that plugs into the computer console, the company says.

For more information and prices write Axiom Corporation, 1014 Griswold Ave., San Fernando, CA 91340, or call (213) 365-9521.

Newsbytes is a column of general information for TI-99/4A 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.

1:4:21. User Notes

Speech helper

The Terminal Emulator II cartridge is a versatile piece of software. Not only does it open up the world of speech to TI users, it also permits users with modems to engage in telecommunications.

The following program is designed as an aid to those who use the TEII for creating speech. The manual that comes with TEII has several programs aimed at helping users to improve the characteristics of computer speech, but this one is more fully developed. It comes from the MSP 99 Newsletter in St. Paul, Minnesota. It's meant to be used while actually writing a program. Put it at the beginning of the program, enter words or phrases and use the pitch and slope results in program lines. Of course, this program will operate only out of BASIC with the TEII cartridge inserted into the computer.

```
100 OPEN #1:"SPEECH", OUTPUT
110 CALL CLEAR
120 INPUT "PITCH XX (0-63) ": XX$
130 INPUT "SLOPE YYY (0-255)
:YYY$
140 PRINT #1:"//";XX$;" ";YYY$
150 INPUT "PHRASE?": A$
160 IF A$="" THEN 180
170 B$=A$
180 PRINT #1: B$
190 CALL CLEAR
200 PRINT:"PITCH=";XX$;
SLOPE=";YYY$
210 PRINT "PHRASE= ":B$::
220 INPUT "CHANGE PITCH/
SLOPE?":YN$
230 IF YN$="Y" THEN 110 ELSE 150
```

More test modes

Do all TI game cartridges have test modes?

We don't know for sure, but some surely do, including Munch Man, Alpiner and Star Trek, which we listed in last month's edition. Apparently, there are test modes for Hopper and Moonmine, too, according to the Mid-Illinois Computer Resource Organization. Test modes for the three previously mentioned involved entering *#* before the game title screen comes on. Hopper and Moonmine use a single asterisk to do the trick. Of course, you wouldn't want to use this except as a last resort, right?

By the way, anyone know of a test mode for TI Invaders or Parsee?

Benchmark revisited

Last month we published a benchmark program that counts the ways that change for a dollar can be made. Here's some feedback on how various machines ran. Warning: the TI didn't do very well, but we can't verify most of the reported times.

TRS 80 Model II . . . . 11 minutes, 10 seconds.
Kaypro II using Microsoft BASIC-80 . . . . 12 minutes, 33 seconds.
Vector Graphics 2600 with Z80b CPU and Microsoft BASIC-80 . . . . 6 minutes, 30 seconds.
Atari 400 . . . . 20 minutes, 25 seconds.
TI-99/4A . . . . 1 hour, 30 minutes.

Turn it on

In our February issue we told you about a software switch that could be used to turn off a disk drive without having to turn the system off. We said that the only way to turn the drive back on was to turn the computer off and start it up again. Wrong, again! A reader, Mike Egberts, reports that there's a software switch that can be used to turn the drive back on, too. We should have known. Using PEEK and LOAD statements users can probably do anything with their TIs.

Here's the switch:

```
CALL LOAD(-31888,55)
```

We are told that any value that is not 55 will turn the drive off. Previously we wrote that

```
CALL LOAD(-31888,63,215)
```

will turn the drive off. Again, be warned: trying to access the drive after it has been turned off will result in a system lockup. So, if you turn it off with a CALL LOAD statement, turn it back on with a CALL LOAD and you'll have no problem. Oh yes, to do these things you need an Extended BASIC cartridge and 32K expansion memory.

Clear the screen

There's more than one way to clear a screen on the TI home computer. (That can probably be said of anything one does with the TI.) After you've got gotten tired of using the CALL CLEAR command, try this in place of the CALL CLEAR in the program:

```
10 CALL HCHAR(1,1,32,768)
```

It will clear the screen by sweeping from top to bottom. Then try this:

```
CALL VCHAR (1, 1,32,768)
```

Of course, this clears the screen by sweeping from left to right.

How many other ways can you clear a screen?

More ways

The inspiration for this item comes from the NET 99er users group in Hurst, Texas. One of their recent newsletters carried an article about some undocumented keyboard characteristics. The article listed the definitions of selected keys when depressed while holding the Control key down. We offer here a list of the Control key definitions as well as definitions of keys when the Function key is depressed. (Not all keys are redefined in this manner.) This is all possible in Extended BASIC only.

What happens is that during programming you can hit CTRL G, for example, and when you list the program GOSUB will appear on that line. It's doubtful this will reduce the size of any programs since the computer interprets these one key inputs as statements or commands.

KEY	DEFINITION	KEY	FUNCTION
1	TO	/	AND
2	STEP	A	ELSE
3	comma	S	DATA
4	semicolon	D	IF
5	colon	F	GOTO
6	right parenthesis	G	GOSUB
7	left parenthesis	H	RETURN
8	OPTION	J	DIM
9	OPEN	K	END
0	THEN	L	FOR
Q	UNTRACE	:	PRINT
W	READ	Z	REM
E	GO	X	STOP
R	INPUT	C	exclamation point
T	RESTORE	V	NEXT
Y	DELETE	B	double colon
U	RANDOMIZE	N	BREAK
I	DEF	M	LET
O	UNBREAK	period	ON
P	TRACE		

FUNCTION KEY DEFINITIONS

KEY	DEFINITION
0	XOR
Q	caret
/	OR
H	<
I	>
K	plus sign
L	hyphen
:	NOT
B	equal sign
N	slash
M	asterisk
comma	ampersand

Don't be concerned if when you use these Function and Control keys that nothing appears beside the line number as you program. Set the computer to automatically produce line numbers and you will notice that the numbers continue to come forth despite the fact that nothing appears on the line.

Will they last?

How long will a floppy diskette last? That's a question addressed in a recent newsletter published by the Arizona 99 Users Group in Phoenix. Diskettes that are used daily should be replaced every four months or so if the data is important, the group advises. They recommend that disk users purchase premium quality diskettes only and maintain backup copies of important data. The author of the suggestion noted that his time-frame is conservative, noting that most diskettes will last longer. However, there's no point in taking chances, unless you can afford to lose.

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. We encourage everyone to contribute items for publication in this column.

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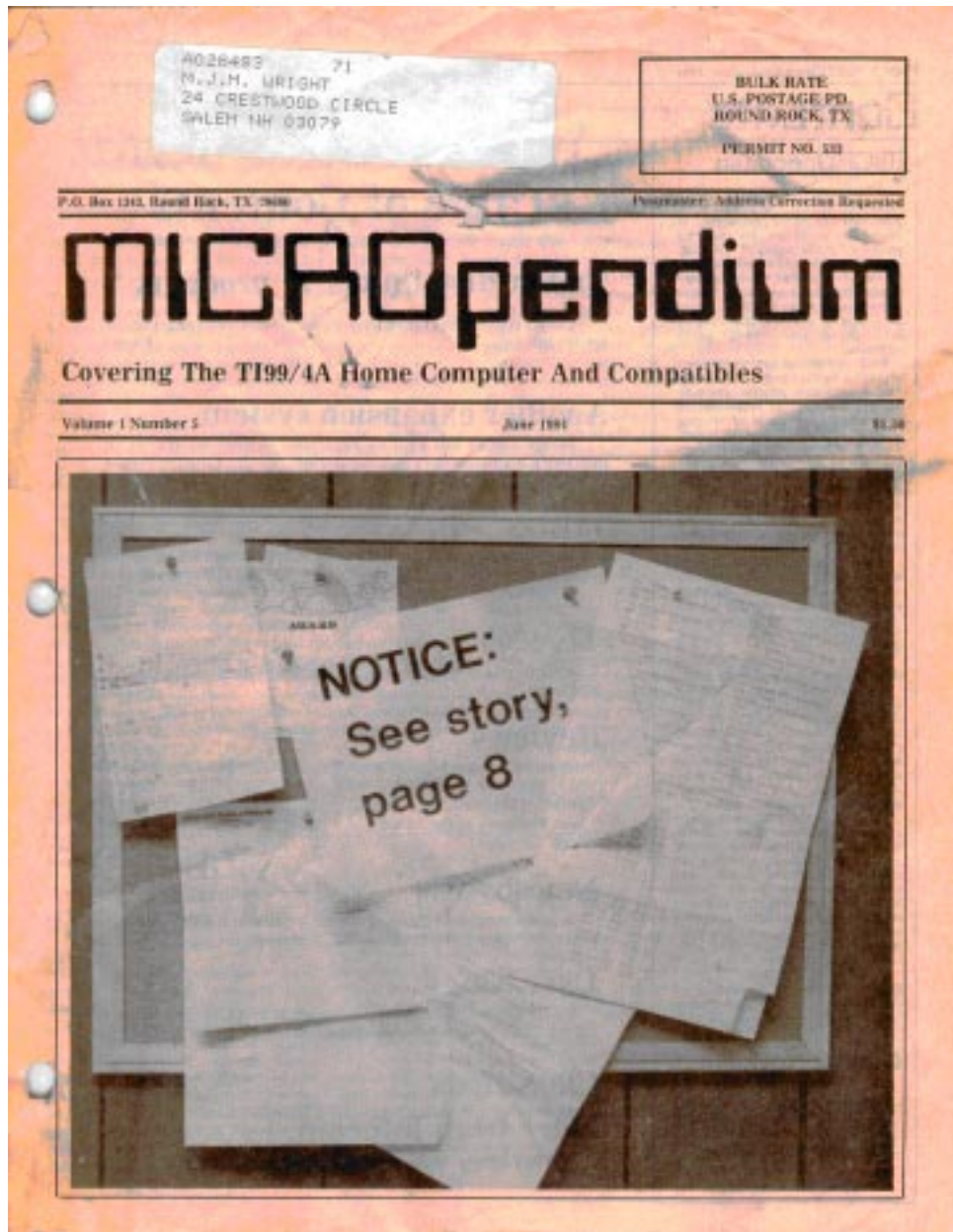
1:5:3. Comments

Who needs first-class?

Last month I suggested that readers who want quick delivery of the magazine pay extra for first-class postage. Well, what happens ? The postal service delivers the edition to points as far away as Washington, D.C. within five days of the third-class mailing. That's not bad. Speculation on our part is that the postal service put a few more people on the job to handle the volume for the April 15 income tax deadline (we mailed April 14). At any rate, it was nice to see the magazine get out that quickly, for once.

Yes, we screwed up once again. Well, it was the printer, but who are we to deny responsibility? Last month we published a full-page ad that consisted of a photo of Foundation's 128K memory card without any text to tell the reader what it was. This ad has appeared elsewhere, so it probably didn't take a lot of second-guessing on anyone's part to figure out that something was missing. The ad appears on Page 5 in this issue in its entirety, I hope.

Although we're addressing the phenomenon of telecommunications via an article about electronic bulletin board services in this issue, let me get a word in now about what it all seems to mean, at least personally. First, a BBS represents a synthesis of possibilities, taking the concept of mass communications realized in the telephone and imprinting it with the permanence of the printed image. Messages left on bulletin boards remain there as long as the system allows. More, it also carries the idea behind the conference telephone call to new heights by permitting participants to check in at different times while obtaining the very same information that all others were exposed to. There is a McLuhanesque aspect to electronic bulletin boards that make them a thing of the '80s. Watch them proliferate in the year(s) to come.

TI watchers will want to keep their eyes on the developing market in peripheral expansion systems. Several companies are moving into this area and only time will tell who survives.

WHO NEEDS PROTECTION, ANYWAY?

There have been a number of requests for us to print an article about the various ways in which protected programs can be de-protected (unprotected). We know of several ways to defeat the proprietary protection scheme that is implemented through Extended BASIC, some with CALL LOADs and some without, but I'm interested in learning what you think about publishing this information. Bear in mind that some of these de-protection routines have appeared on telecommunications networks and in user group newsletters. I've had a few letters from programmers asking us not to print such information, but what do you think? Let us know.

Which leads nicely into a question that I find disturbing. Does the TI market deserve the support of third-party software developers? To hear it from some, the answer is a resounding "NO." Why? Because the market isn't supporting them. This next part is not meant as an indictment of user groups in general (so, please, don't cancel your subscriptions, I'm just trying to stimulate dialogue) but some of these software developers suspect that the reason they're not selling much software is that a member of a group will buy a program and pass copies of it around to other members, thereby reducing the potential market for the software. (Of course, it may also be that the software isn't worth buying in the first place, which is point well taken.) I have no personal knowledge of this practice, but to whatever extent it occurs it is counter-productive in the long run. Copying programs for personal use is one thing, but giving the copies away to others is as sure a method of eliminating a programmer's livelihood as I can imagine. Take away the profit motive, and there's no incentive for anyone to spend days, weeks and months perfecting software for TI users.

That's all, for now.

— JK

1:5:3. Feedback

Benchmarks

I don't know who reported to you that the benchmark program for determining the number of ways to make change for a dollar takes 1 hour and 30 minutes to run on the TI, but they sure are mistaken. It must have been an Atari or Commodore owner. In TI BASIC it takes 29 minutes and 2 seconds. In TI Extended BASIC it takes 28 minutes and 17 seconds. I tried disabling control of sprites in Extended BASIC to see if it would run faster but it took exactly the same time of 28 minutes and 17 seconds. I wish I had an Atari to check the time as reported in *MICROpendium* as I have never found a benchmark program that will run faster on an Atari 400 or a Commodore. I gave TI-99/4A computers to three of my children for Christmas 1983. They have friends who own Commodore computers and they report that they always win on their 99 against the Commodores. I find it hard to believe the Atari 400 beat the TI. One of my sons-in-law owns an Apple computer and occasionally he wins when we test benchmark programs but it is less than 50 percent of the time.

As to your policy of holding the magazine for a week to get late-breaking stories: How can you or anyone else predict that a story will break in a week? If you can do this then you should be betting on the horses and not publishing a magazine. I, for one, am sick of not knowing when the old *99'er Magazine*, now the *Home Computer Magazine*, will be published. I doubt if I will extend my subscription when the time comes, and who can tell when that time will come. If they keep being late I may have a lifetime subscription. I say, THUMBS DOWN, on holding up publishing your magazine on time. In the long run, your reputation (and being on time is always considered when evaluating a person's reputation) will be far better if your publication comes out on time. Did you ever hear of *Time* or *Newsweek* or *National Geographic* being published a week late to get a "late-breaking story"?

Keep up the good work! Your magazine is still a highlight in my life. Don't spoil this by being late with it.

Charles E. Roberts Springfield, Missouri

Ed: We appreciate your comments, Charles. As a point of clarification, a breaking story is one in which the information is at the moment not available but will be made available within a very firmly defined time period.

On databases

Why hasn't anyone provided a good database management system for the TI? Three months from now, you won't have to ask that question. Oak Tree Systems will answer it with a product which should meet the need of nearly everyone with an interest in data storage and retrieval. Our system (nameless as yet) will feature the following:

●   Data dictionary to store the characteristics of user-defined data items for use by all other parts of the system. Characteristics stored include type, size, description and acceptable range of values.

- Storage of six different data types, including string, numeric, integer, binary, flag (a single byte indicator) and date (stored in compressed format). String, numeric, integer and binary fields can be defined in length by the user.

- A master-detail record structure. Master records are accessible by a user-defined key, either randomly or sequentially in key sequence. Detail records are associated with a master and each master can have a variable number of detail records connected to it. This is useful in many applications; for example, in a budget application where there could be a master record for each budget category and a variable number of detail records, one for each check written for items in that category.

- Record size is totally user-defined (up to 254 bytes) and the number of records per database is only a function of the disk space available, not artificial program limitations.

- Self-customizing update and query/reporting programs generate fill-in-the-blanks screens for data entry and retrieval. Edit checking based on user-provided specifications will be done automatically. The query program allows any combination of criteria to be used to retrieve records and will produce displays or printed reports. Up to three databases can be logically linked to produce the desired output.

- All screen displays are handled by a subset of our exclusive 40-column Display Enhancement Package. Because of memory limitations, the subset provides only those features required to support the database system. The purchaser may buy the complete, unabridged package for a small additional charge.

- Last, but certainly not least, a programmatic interface is provided so that custom programs can be written to access and update up to three databases simultaneously. This interface includes a pre-processor for Extended BASIC programs which converts easy-to-write "commands" into the required Extended BASIC program statements and inserts the statements, along with required subroutines, into the user-written programs.

An optional add-on to the program pre-processor will be available later in the year. This add-on will allow automatic generation of menus, data input/output screen displays and printed reports: with very little programming by the user. With this add-on customized data processing programs can be written with much less effort-only the program flow and arithmetic calculations need to be written by the user. All input/output and database updates will be handled by the generated program segments and subroutines.

So, why hasn't a good database been available before now? Because it's difficult. It demands that many portions be written in assembler language for performance reasons. It requires that a balance be struck between functionality and machine resources. And primarily, it requires someone who is willing to do it without expecting $20 million in sales as a result, because of the relatively limited number of people (those with fully expanded systems) who will be able to use it.

Charles L. Davis, Oak Tree Systems Whitmore Lake, MI.

About TI-Writer

In publisher John Koloen's review of the word processing program called Companion in the May issue, he states that neither it nor TI-Writer has the capability of allowing the user to see the formatted version of a document on the screen prior to printing.

To the contrary, TI-Writer does have this function. When using the Formatter, the user can specify DSK1.filename (user's choice of name) when it prompts for PRINT DEVICE NAME, and it will write a formatted file to disk that can then be examined with the Editor.

The lines of the formatted document are truncated at 80 bytes if the right margin is defined greater than 80, but this is not normally bothersome because most documents do not have a right margin greater than 80. And in most documents the concern is about the line and page spacings and the left margin and indentations, which can be seen easily using this feature.

In short, this is a screen formatting function that offers almost all that could be expected of such a function.

John R. Cope Austin, Texas

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. Mail Feedback to: *MICROpendium*, P.O. Box 1343, Round Rock, TX 78680.

1:5:6. Marketing firm gets TI inventory

Triton gets all that's left

Triton Products Inc. of San Francisco has launched an ambitious marketing campaign aimed at TI-99/4A home computer owners.

The company signed an agreement with Texas Instruments that gave Triton all of TI's remaining home computer inventory. The agreement became effective March 31 [,1984], according to TI spokesman Jon Campbell.

Triton spokesman Terry Miller says that hundreds of thousands of catalogs describing mostly TI-produced software and hardware were mailed in late April to all known users of the TI home computer. March Direct Marketing "did the creative work" on the catalog, Miller said. TI indicated in January that March Direct Marketing was going to use TI's mailing list of TI owners, numbering more than a million names, to produce a catalog detailing TI products.

Miller says the company plans to mail out three such catalogs this year, as well as flyers, apparently using TI's list of home computer owners. The list includes those who sent in warranty cards. Miller says that users who have not received a catalog by mid-May may send their name and address to the company to be added to the mailing list. The company's mailing address is P.O. Box 8123. San Francisco, CA 94128.

Miller says the company wants to include third-party products in subsequent catalogs and suggests that vendors write to the above address for more information.

Although neither Miller nor Campbell have figures on the volume of TI products Triton will have available, Miller said, "anything that TI had we have. There's still some question as to exactly what's in the inventory."

Miller says this is the first time Triton has attempted to market products for TI users. He said the company markets business products and software.

Campbell indicated that Triton received rights to all of TI's existing inventory and piece parts as of March 31. The actual value of the items, he said, would depend on how much of inventory is actually sold. Payment to TI, he said, would occur as the products are sold. Campbell noted that Texas Instruments kept some items for use in repairs and the company's exchange centers. Triton, he said, will handle all subsequent sales to retailers from now on.

1:5:6. Myarc offers expansion system

Myarc Inc. of Basking Ridge, New Jersey, is now producing an expansion system for the TI Home Computer that provides purchasers with the capability of utilizing the double-density feature of the TI Disk Manager II cartridge.

Myarc, which also produces a Winchester hard disk for the TI-99/4A, is the second company in recent weeks to announce an expansion system for the TI. CorComp began marketing its expansion system in April. Other companies have also indicated plans to produce expansion systems for the TI Home Computer.

Lou Phillips of Myarc says the system his company is marketing comes with 32 kilobytes of random access memory, an RS232 interface with one parallel and one serial ports, a disk drive controller capable of handling two double-density, double-sided disk drives and a single-sided, double-density disk drive.

The system is priced at $595. For an additional $50, the company will replace the single-sided drive with a double-sided, double-density drive.

Phillips says the system is completely compatible with all TI software. Each system is supplied with one of TI's Disk Manager II cartridges. The DMII includes a feature for formatting double-density disks that is activated with the controller that comes with the Myarc system.

Myarc calls its system the MPES-50 (Mini-Peripheral Expansion System). The unit plugs into the side of the TI-99/4A and is black and silver in color. The unit measures about 7½ inches high, 6½ inches wide and 12 inches deep. The system comes with a 90-day limited warranty against faulty workmanship and materials.

There is also a version of the system available without a disk drive. Included are an RS232 interface with serial and parallel ports and the 32K memory expansion. It is priced at $299. It can be upgraded with a disk controller and disk drive, the company says. The system also comes with an option for a date and time clock. The price was not available at press time.

Noting that the system is completely compatible with TI hardware and software, Myarc spokesman Lou Phillips says the manuals that come with the systems "are about 75 percent TI manuals."

Myarc also markets a Winchester hard disk drive for the TI in five, 10 and 15 Megabyte models.

Phillips says the company is planning to market several other products for the TI-99/4A "in the near future."

For more information, write: Myarc Inc., P.O. Box 140, Basking Ridge, NJ 07920 or call (201) 766-1700.

1:5:8. TIBBS

By LAURA BURNS

Every four seconds, from 3 p.m. to midnight, a call comes in to the first TIBBS in the country.

Ralph Fowler of Kennesaw, Georgia, the creator of Texas Instruments Bulletin Board Service, which is trademarked, says he imagines "people dialing all night" to (404) 425-5254 until they get through.

"AT&T probably loves me," says Fowler, who estimates that TIBBS will receive 25,000 calls per year and that from 60 to 70 percent of them are long distance.

'I've got a guy in Illinois that calls every day," he says. "It's amazing what people go through. But I guess in some small towns there's really no one to talk to about your computer."

WHEN TO CALL

Sunday mornings before noon and the wee hours — midnight to 8 a.m. — the rest of the week are the best times to get through, Fowler says. All a user needs to have is a modem and a terminal emulator. The user dials, switches the modem on when he hears the tone, presses **ENTER**, and he's in, no charge, except for long distance ones if he's outside the greater Atlanta area.

And maybe there is an opportunity nearer home, because TIBBSes and other bulletin boards are springing up all across the country. (One feature on the Atlanta TIBBS is a list of TIBBSes throughout the world — there is one in Sydney, Australia, now.) There are 37 public TIBBSes and "two or three private ones," Fowler says.

He says he was exposed to bulletin board systems "off and on" since the late 1970s and took no interest in them until he bought a TI in 1980 and got a modem. He began calling bulletin boards and found that there was none for TI.

He says he "started playing around" with the RS232 interface card in the peripheral expansion box. One sample program hooked up two TIs to each other and one program was similar to entering a password, so he thought, "with those couple of lines of code, why not go ahead and make one?"

Fowler says he asked Texas Instruments for help. but got none.

"Everything I asked, they said was proprietary information or they said you can't do on a 99/4A. That made me want to go on with it." he says.

After working on it the better part of a year he put a bulletin board online in Atlanta in August, 1983.

STARTING YOUR OWN

When people call and ask him for help in making bulletin board programs, he says, he advises them that the best thing to do is buy his TIBBS program and customize it.

"I sell the program unprotected for $129.95. Updates are available. I encourage people to make their own changes," he says.

On the other TIBBS bulletin boards he notes that "one guy is charging $10 for the password. Others ask that you send a stamped, self-addressed envelope or something. The rest are totally free. The most popular of them all is this one here. That's because I'm usually about two months ahead of the others. There are special sections on mine that other TIBBS operators can get into to get help."

He notes that a message base on his TIBBS automatically finds any messages for a user who logs in. Also, the program allows the user to adjust the screen color from the Terminal Emulator II's "yucky green and white." Once you, as a TIBBS caller, have done this, your machine will be automatically set to your preference in color each time you call, Fowler says.

TIBBS keeps a file on each user, recording the last message, how many times he has called and how many messages he has left.

He predicts that the small bulletin board services, such as TIBBS, will continue to be free, in contrast to such telecommunication services as The Source and CompuServe.

"More people can access them," he says. "They are of a more temporary nature as far as the subjects being discussed."

He sees the advantage of local bulletin boards as "more information, and available faster."

USER COSTS

He notes that some persons consider it a "hindrance" to telephone long distance, but says a night call from California to TIBBS in Atlanta is about $5 per hour while the connection fee to the Source during evening hours is $7.70 per hour. Besides, he says, "you have to wade through the Source to get to TI" while TIBBS concentrates on TI, though "we do allow the Commodores and Apples to call in and we treat them nicely."

Long distance telephone rates to a bulletin board are the same as for a voice call.

However, Fowler says, "they are working out ways where data calls will be cheaper. I've seen some proposals — it may have been from AT&T — to handle data communications so that charges per minute were less expensive than regular long distance."

FEATURES ON TIBBS

TIBBS users, he says, "like to read the messages. They like to find out what's going on in the TI world. They like to leave messages about problems or questions they have."

The files are popular also, he notes, and "I have what I call guest columnists" with messages entered under titles such as "Newsletter" or "Hardware," he says.

"Right now there's a tutorial on downloading text files and sending them to other bulletin board systems. Right now my 'Newsletter' section has the latest information on CorComp's latest products."

One section has hardware and software for sale. Fowler says that most persons setting up a TIBBS find a store and propose running an advertisement for the store in that section in exchange for the store paying for the telephone line.

He notes, however, that some TIBBS lines just run ads they pick up from magazines and some download advertising files from other boards. The Buffalo TIBBS, he says, downloads advertising from an Atlanta computer store, which is now getting orders from upstate New York and from Canada as a result.

He says the problems he encountered in developing the TIBBS were "the problems you encounter in treading ground that's been untrodden," such as the lack of technical information and the lack of cooperation from Texas Instruments. Fowler estimates that he is now on the 250th revision of the TIBBS program.

"Some of it involved actually taking the hardware apart and seeing how things were connected," he says.

"People who have the program tell me they learn more about their computer from looking at that program than they ever had before," he adds.

He notes that the menu-driven program is easy from the operator's standpoint. Many user groups are acquiring a TIBBS program as a method of information exchange, he says.

Leaving a message on a bulletin board, he says, is easier than a voice call, because "it's easier than to have somebody call 25 times a day. Some people are never home."

Private mail is also available on TIBBS, Fowler adds.

Equipment needed to set up a TIBBS, besides the $129.95 program, is a memory expansion (Fowler recommends Foundation's 128k card), two single-sided or one double-sided disk drive, disk controller, Extended BASIC cartridge and a "smart modem."

Referring to the 128K memory expansion, Fowler notes, "that version (of TIBBS) runs three times faster and the disk drives one-twentieth as much. In other words, that makes the disk drive last 20 times longer. People can't believe how much better it works."

The main limitation of TIBBS, he notes, is that it is a single-user system. That is, only one person can be on line at a time.

"You have to enforce a sort of time limit," he says.

The average systems operator — sysop —spends about two hours a week managing the TIBBS, he says, though he spends much more time on his.

"If the operator has a printer the work is done for him," he notes. "It's about two hours unless he's really into changing things.'"

The database is set up for 100 messages and when the newest message comes on, the oldest message is automatically deleted. Fowler says he decided to set TIBBS up that way after frustration with bulletin boards on which as many as 50 messages at a time were deleted manually all at once.

Occasionally, he says, some maintenance is required on the user files.

THE JERK TRAP

One feature of TIBBS is "an elaborate setup" that Fowler calls "The Jerk Trap."

"The Jerk Trap" scans for — and screens out — certain profanities and prevents users from logging on using the operator's name. Thus, it isn't possible to leave a message saying that TIBBS is closing down for good and signing it "Ralph Fowler."

"You'd be surprised how many John Does, Joe Blows and Ralph Fowlers I get," Fowler says. "You'd think half the people in the country were named Ralph Fowler. Also, if you write a profanity, you get thrown off the system immediately."

"The Jerk Trap" can also be used to filter out names of persons who "call up and give you trouble," he notes.

It can also take care of "hackers who want to break in — people who start at the upper left of the keyboard and hit every key trying to find secret commands in the system. After a certain amount of that, they won't be there," he says.

Reaction to TIBBS has been generally favorable, he says.

"Some swear it's not on TI — that a TI console couldn't handle this," he notes. "TI's a slow computer but with the 128K system it's just as fast as the faster systems."

One reaction he got, he says, was a person saying "that the bulletin board was important when TI was still with us but now that TI was gone it was like a lifeline."

He adds, "I always hate the word 'user-friendly' but that's what people say the system is."

For example, he says, a person calling TIBBS is first asked whether he wants help. There is a guide for composing messages and a line length guide, as well as an expert mode for persons who don't require help.

Authors of several types of bulletin boards live in the Atlanta area, Fowler notes, making an exchange of ideas possible. As to why Atlanta — other than that it is a high-tech area — he doesn't know.

An Atlanta television newscast recently featured TIBBS, he says, noting that the station was surprised that such a major nationwide service would operate for a computer which is no longer being manufactured.

However, he notes, "there's still two million of them out there." The 27-year-old Fowler, who is a school board energy coordinator, says he never had any formal computer training. He learned on the job with an energy management company.

"I learned about BASIC and started programming," he says. "I taught myself. I must have done a good job because I was exempted from all my computer courses at college."

He remembers looking at the TI-99 and thinking "no way am I going to pay $1,000," but that when the TI-99/4A came out at $499 "I snapped it up — that was a good deal."

He is a graduate of Embry-Riddle Aeronautical University in Daytona Beach, Florida, and is a commercial instrument and multi-engine rated pilot. He owns an airplane, but says he has little time to fly it, though lately he has been having somewhat more time for his family, which consists of his wife and a pet skunk.

Because of the time he spends on TIBBS, Fowler says, "I doubt I'll ever make any money on it." But, he adds, "I just love this computer. It's really fun to work with and very fulfilling."

1:5:9. A positive addiction: TIBBS

Robert Pinion, a TIBBS user in the greater Atlanta area, says he's "hooked."

He calls TIBBS every day.

"I use it as much as anything as an educational tool," he says, noting that service lines at TI are "very slow," and saying he has learned more from computer hobbyists.

If he leaves a message on TIBBS in the morning, he says, he gets an answer, or perhaps several answers, by the time he looks at it again in the evening.

"Ralph Fowler (the originator of TIBBS) overviews the questions," he comments. "He'll often give me an answer. Some days I just scan the messages. I usually log on twice as often as I leave a message."

Pinion's philosophy is, "For every question you ask, you should answer one, too."

Despite such nationwide telecommunication services as The Source and CompuServe, local bulletin boards fill a real need, he says.

"For one thing, it allows a more specialized group of people to get together," he says. "On The Source, there's no one real good group of TI users."

Although his calls to the original TIBBS are local and thus free, he occasionally makes long distance calls to TIBBS in other cities because of the particular specialties of the sysops there.

He says he notices a "hard core" of about 50 users on the local board and a "periphery" of between 25 and 50 users logging in regularly.

"When it was featured on the local news, calls doubled, then they dropped back," Pinion notes. "There could be a lot of that flash-in-the-pan stuff."

He notes that a local users' group publishes a newsletter through it and that it is a source of new product announcements, and he foresees increasing use of such boards as a means of advertising.

And he would recommend getting the modem and other equipment to hook up to a bulletin board.

Calls to TIBBS, he notes, are limited to 20 minutes. This is necessary, he says, due to the large volume of calls.

A good bulletin board, he says, "should provide the user base with whatever functions they desire. Ralph has tried 50 or 60 features — the popular ones stay." He notes that the systems operator is a key, saying that "the competing bulletin board here attracts a younger age group. Sometimes I'd swear the average age is 14. As a result, you sometimes get meaningless garbage on the screen. Ralph keeps that from happening. If it weren't for his heavy-handedness, I don't think that would be the case."

And a poor bulletin board?

"A poor bulletin board is one that doesn't serve the needs of the calling group," Pinion says. "The easy way to tell is, it doesn't get callers."

1:5:10. New terminal emulator program available

1200 baud possible

TI Home Computer users now have a choice when it comes to buying a terminal emulator. Softmail Inc., of Lancaster, Texas, is marketing a disk-based program called TE 1200 that gives the TI the capability of transmitting data through an RS232 interface at 1200 baud. The program requires either the Editor/Assembler or Mini Memory cartridge, 32K memory expansion, disk drive, RS232 interface and a modem for telecommunications.

The Texas Instruments Terminal Emulator II cartridge allows users to transmit data at speed up to 300 baud, about 37 characters per second. TE 1200 quadruples the data transmission speed.

According to the company, TE 1200 provides users with up to 12.5 kilobytes of data storage in RAM. This is several times the amount of storage provided by TEII. Data transmission parameters are selectable, including baud rate (110, 300 or 1200), parity, number of data bits, duplex and the number of start and stop characters bits. Communication parameters can be changed without leaving the program.

Data transmission commands are provided through the use of Control keys.

According to the company, the program features an intelligent word wrap at the end of a line, optional automatic logging to any device except a cassette recorder and file transfer compatibility with TEII files.

The program can be used with 300-baud or 1200-baud modems, though 1200-baud transmission is possible only through the use of a 1200-baud modem. TE 1200 is priced at $49.95 and is available from Unisource Electronics, P.O. Box 64240, Lubbock, TX 79464, or call 1-800-858-4580 (806-745-8834 in Texas).

1:5:10. BBS glossary

Here are some terms used in connection with electronic bulletin boards and telecommunications.

BBS — An electronic bulletin board service.

Modem — Modulator/demodulator. This is an electronic converter used in data transmission. It is used to change the digital signals used by a computer into analog signals for transmission over telephone lines. The receiving modem then converts the analog signals into digital signals for use by the computer. The modulator puts information on during transmission and the demodulator receives it.

Sysop — Systems operator, the person(s) who set up and maintain an electronic bulletin board service.

Terminal emulator — Software that allows computer users to control various telecommunications parameters, such as parity and baud rate. Terminal emulators act as a control program for telecommunications.

1:5:11. BBS is business tool, too

Bulletin boards are starting up every day. Scheduled to have begun, at least in a skeletal form, by May 1, was the Bay Cities Telecommunications Network.

Terry Hibdon of Bay Cities Electronics in Redwood City, California, says the bulletin board will "probably" have a membership fee. The fee will include a credit check, enabling members to order the software and hardware they can find listed and described on the bulletin board as soon as it comes in. Then it will be shipped to them.

One of the features of the bulletin board — whose number is (415) 364-8517 — will be a crime network where users can record the serial numbers of their computers.

"If someone's system is stolen he can call us as well as the police," Hibdon says. "The service centers and places like that could check with us. It's a kind of insurance."

Other features he foresees as possibilities are travel information, a time and temperature service, industry news and a place to trade public domain software and a "chit chat" mode to talk to other users.

With a bulletin board, Hibdon says,"you can widen your powers of buying by shopping around for new and used equipment."

By operating a BBS, he says, he can get ideas from the customers as to what they want.

"Having it inside the store makes it easy to keep up with industry developments and get information out to our customers immediately," he says.

He says he also plans to include information on programming and how to use the computer.

"Telecommunications are in their infancy," he says. "Modems are going to be more popular and people are going to be communicating computer-to-computer more often."

He says that now is a good time to get a modem and "get into it," noting, however, that many persons are "afraid to use telecommunications. A lot of people don't know what it is."

Hibdon says he expects from 60 to 70 initial users, based on surveys.

He says the bulletin board will add features based on suggestions and comments from users.

An advantage of a bulletin board, he points out, is that it can be updated on a daily basis, whereas "it takes 30 days for a magazine to get out."

He feels that long distance telephone charges on a bulletin board are not significant in that "you can grab up and copy the information to disk in 15 minutes max. Most things you can do in less than five minutes."

For more information, contact Bay Cities Electronics, 624 Wood Side Rd., Redwood City, CA 94061 or (415) 367-1880.

1:5:13. Review: Accounts Receivable/Accounts Payable

Keeping up with business

Review	
Report Card Performance ...　A Ease of Use ....　B+ Documentation　A Value ....　B+ Final Grade ....　B+	**Cost:** $125 (diskette)
	Manufacturer: Creative Expressions, 6433 Winifred, Ft. Worth, TX 76133, (817)292-8926
	Requirements: console, monitor or television, disk drive and controller, Extended BASIC cartridge, printer and printer interface.

Creative Expressions recently introduced a business applications system of which the Accounts Receivable/Accounts payable herein reviewed is a part. The system includes three other segments: Payroll, Financial System (ledger and journal) and Order Entry/Inventory. Of several such business systems that I know of, this is the only one that is not designed to work with a memory expansion. Using only a single disk drive, the Creative Expressions package seems to be aimed at the small business on a tight budget.

Performance: This accounts receivable/payable program does what it is supposed to do. Namely, it keeps track of the billing that one must do to stay in business. It's a job that few businessmen like, I venture to say, but once the user gets accustomed to how this program operates, the procedure is painless and easy to do.

Of course, it also takes care of one's payables, but that's why our creditors buy accounts receivable programs. Although I will focus on the accounts receivable function of this program, the accounts payable segment operates in much the same way as the receivable.

The program, which comes on one disk, is capable of writing 200 accounts and 400 transactions per single-sided, single-density disk. Because the program is unprotected, the informed user may change the file parameters to take advantage of a double-sided drive. Also, those with multiple disk drives may modify the appropriate program lines to permit operation with two or more drives. The program comes with a three-month limited warranty.

Operating out of a single disk drive involves a large amount of disk switching. I tested the program using a single double-sided disk drive, and to reduce the amount of disk switching I copied the program to a double-sided disk, which left enough room on the disk for data files as well as the program. I was thus able to avoid the necessity of switching program and data files.

The program is entirely menu driven, with the main menu offering the following five options:

1. Receivable/Payable
2. Customer/Vendor
3. Initialize Files
4. Change Company Specifications
5. Exit

Choosing the Receivable/Payable option results in a menu with options to add, change, delete or display records, enter adjustments, enter charges and payments and the production of a variety of receivable/payable reports. The program permits such adjustments as discounts, finance charges, sales/purchase returns, shipping charges and miscellaneous debits and credits. Among the reports are a listing of invoices on file, cash disbursements report, cash receipts report, aging report, receivable and payable reports and invoice reports for all unpaid payables and receivables. The file reorganization portion of this program section removes invoices that have been fully paid to prepare for the next billing cycle. The user also prints customer statements through the portion of the program, choosing to use either program-generated statements or pre-printed statements as he wishes.

Bill Arneson, of Creative Expressions Inc., says that the statement generating portion of the program is designed to be used with the most popular billing forms in use today.

The Receivable/Payable portion of the program is where most of the work actually done. It is arranged in a logical fashion, with prompts for all input.

The Customer/Vendor portion of the program is used to add or delete customers and vendors alphabetically or numerically by user choice. It prints labels, too.

There are only a few critical observations that I have to make about this program. One is that it does not have an abort capability that works after a function is initiated. As designed, the only way to interrupt a command once it is initiated is to press **FCTN CLEAR**. An abort mechanism would be particularly useful when using a printer. However, this criticism holds true for the TI-Count system by Pike Creek Computers, too.

While the program performs all the math in terms of figuring out the debits and credits and coming up with totals, the user can't include a description line on the statement to indicate what it is the customer is being billed for. The program does print "Thank You" next to payments when using preprinted customer statements. Of course, the user who knows something about programming in BASIC may customize the statements and forms by modifying or adding Print statements to the program.

Whatever limitations there are in this program seem to be due to the fact that it is designed to be used without a memory expansion.

How does this compare to the TI-Count's Accounts Receivable program by Pike Creek? For one thing, the Creative Expressions program is designed to operate independently of any other files or programs, while the Pike Creek program operates out of files created by its general ledger program, which must be purchased separately. Also, while the Creative Expressions program integrates accounts receivable and accounts payable, the user must purchase a separate TI-Count Accounts Payable program to have that function. The TI-Count program is more flexible in terms of printing statements, but it is useless without the general ledger program. Also, one needs no more than one file disk and one program disk for the Creative Expressions program. To get the TI-Count program to do what this one does would take at least three program disks and at least five file disks if you eschew the accounts payable program. Of course, you also have the general ledger functions with TI-Count integrated with the accounts receivable.

Ease of Use: After the normal introductory mistakes and foul-ups, I found this program easy to operate. This cannot be said for the TI-Count programs, primarily because of the enormous amount of disk-switching that must be done, even with a multi-drive system.

Documentation: The program comes with excellent documentation detailing all the functions as well as providing examples of the many printouts it generates. It includes a lengthy table of contents and comes in an attractive, sturdy three-ring binder.

Value: I found little trouble in learning to use this program. After an hour or so I felt comfortable with it and, in fact, wondered why it wasn't more difficult to use. The more I used it, the more I liked it. I am a sucker for simplicity and ease of use. Those who operate small businesses and have yet to computerize their billing procedures may find this program to be well worth its price in terms of the amount of time it can save at the end of each month. Not to mention that you don't have to be an accountant to use this program.

— JK

1:5:15. Review: CDC 9409

For a quieter drive

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation B Value . . . . A Final Grade . . . . A	**Cost:** $209 bare drive for peripheral expansion box, includes cable (add about $60 for external drive with chassis and power supply)
	Manufacturer: Control Data Corporation, 8100 34th Ave. S., Minneapolis, MN 55440 (612)853-4000
	Requirements: console, monitor or television, power supply for external drive, disk drive controller and disk manager software

Control Data Corporation makes several floppy disk drives for original equipment manufacturers (OEM). Generally, this means that the drives are built so that other companies, such as IBM, can place them into their microcomputer systems and jack up the price several hundred dollars.

However, there's no law that says the individual user can't obtain a disk drive designed for the OEM market. I purchased the CDC 9409 from a dealer in Austin, Texas. Originally, I was going to buy a Tandon but they had run out of them and were substituting the CDC 9409 for the Tandon TM 100-2, which was reviewed in the February edition of this magazine. The price was exactly the same. In fact, the Tandon and CDC drives are exactly the same in appearance, right down to the shape of the access door. The more pronounced difference I've noticed between the two is that the CDC drive operates much more quietly than the Tandon.

Performance: I've been using the CDC 9409 for about six months. It has performed flawlessly during this time.

The CDC 9409 is a double-sided, double-density 5.25-inch floppy disk drive. It can write up to 250 kilobytes of data to a double-sided, single-density disk. Double this amount for a double-density disk. Using the Texas Instruments Disk Manager II cartridge to initialize disks, one has about 182 kilobytes of storage available on a double-sided disk.

According to the manufacturer, the drive has a service life of five years. It has a mean time between failures (MTBF) of 8,000 hours.

Track-to-track access time is 5 milliseconds.

The drive is equipped with an activity light on the front panel to indicate that it is in use.

The drive is designed to industry standards in terms of compatibility. I found no problem in reading data from disks that were initialized and written to using a Tandon. Likewise, there was no problem reading data on the Tandon from disks that were initialized and written to on the CDC drive.

I've been using the CDC as an external drive. Cabling is industry (and TI) standard. The manual that comes with the TI disk controller contained all the information I needed to get the drive wired and running. Of course, the CDC drive also fits into the TI Peripheral Expansion Box.

Ease of Use: Connecting the drive to the disk controller is quite straightforward. The only tool required is a screwdriver.

Documentation: I expected somewhat more in the way of documentation than I got. My CDC came with a four-page brochure that included all of the technical specifications that I was interested in as well as drawings of interface connections and multi-drive configurations. The absence of extensive documentation is probably due to the fact that Control Data Corporation wholesales the drives to manufacturers rather than marketing them directly to end users. The manufacturers thus provide whatever documentation they feel is needed. However, the brochure is all that I needed to make a decision about buying the drive. Everything I needed to get it funning was in the disk controller manual.

Value: This drive is a fine value for the price. When computer manufacturers load them into their machines the price automatically goes up, though nothing else changes. I've spoken to individuals who repair disk drives and they give Control Data very high marks, particularly in the area of quality control.

If I had a choice between a Tandon TM 100-2 or a CDC 9409, the price being about the same, I'd probably choose the CDC. It does everything the Tandon does only much more quietly.

— JK

1:5:16. Review: Starship Concord

A venerable space game

Review	
Report Card	**Cost:** $19.95 (cassette)
Performance . . . A Ease of Use . . . . B Documentation A	**Manufacturer:** Futura, P.O. Box 5581, Fort Worth, TX 76108 (817)246-6536
Value . . . . B Final Grade . . . . B+	**Requirements:** console, monitor or television, cassette recorder, Extended BASIC cartridge

Starship Concord is one of the first space games designed to use the features of the TI Extended BASIC cartridge.

And, though space games are getting flashier and faster, Starship Concord remains as something of a benchmark program for those who are on the lookout for quality third-party software.

Coming on the scene after TI's TI-Trek, which was written in BASIC, it makes use of the sprite graphics of Extended BASIC to create a colorful display that depicts the adventures of F.P.S. Concord as it courses through the galaxy in search of the nefarious Denebens.

Performance: Essentially a strategy game, Starship Concord has sufficient speed provided by the Extended BASIC programming that the prompts are often ready before the player has decided what move to make next.

The game's graphics include two grids, one showing quadrants and the other showing the sectors within a quadrant. Each is composed of eight columns and eight rows, providing 64 locations within each grid. Within the quadrant grid are numbers indicating the number of Denebens in each. Symbols are used to represent Denebens, the Concord, stars and starbases.

Screen prompts ask the ship's captain to input commands. There are seven commands, including navigation, warp control, phaser control, torpedo control, shield control, repair control and the ship's computer. The computer is used to locate starbases, which are used for refueling, and to aim torpedoes. There is also a vertical column of indicators which provide a visual check on the status of engines, shields, weapons, etc. When the impulse engines sustain damage, for example, the indicator for impulse engines turns red. When repairs have been made, it turns green.

Every game is different in that the number of starbases and their locations, as well as the number of Denebens and their locations, is randomly selected during initialization. Up to three Denebens may lie hidden in any one sector, waiting for the Concord to appear with its shields low or with less than enough phaser power to destroy them. From a playing standpoint, the more Denebens in the galaxy the better. It is a real challenge to seek and destroy 30 enemy ships in the allotted 30 stardates. Really tough games will also provide only one starbase at which to be refueled. But that's all determined at random.

Ease of Use: The game is not difficult to learn. It loads easily and all instructions are included in the manual.

Documentation: Starship Concord comes with a more than adequate seven-page manual.

Value: Although I've had this game for several years, I still like to play it once in a while. Essentially a game of strategy and not reactions, Starship Concord has been around for quite some time and still wears well against most of the competition. Written by Sam Pincus, it is an intelligently designed game that challenges the old pro as well as the novice.

— JK

1:5:17. Review: Lost Treasure of the Aztec

Adventures don't get much better

By CHRISTOPHER BOBBITT

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation A Value . . . . A Final Grade . . . . A	**Cost:** $16.95 postpaid (disk)
	Manufacturer: Mind Game Software, P.O. Box 2155, Scotia, NY 12302
	Requirements: console, monitor or television, disk drive and controller, Extended BASIC cartridge.

The adventure program Lost Treasure of the Aztec is a text-only game designed in the great adventuring tradition of the Scott Adams and Infocom adventures. Built around a rather tried and true theme in adventuring, the search for treasure, this program is flawlessly executed. Its complexity will stupefy even the most expert adventurers for hours on end. The sheer number of commands and objects in this adventure put most other BASIC adventures to shame. It was written by Bob Ulrich.

Performance: To those not familiar with adventures, the adventure is a game where the player must solve a riddle-like problem which has many interacting elements. These adventures often take the form of a quest for something or the exploration of some place out of the ordinary. The player may be asked to explore any place, ranging from an old mansion that is inhabited by a vampire to a strange, airless world in the depths of space. The player may have to deal with strange creatures to obtain even stranger objects to solve an adventure. The adventurer must explore the areas presented by the computer in order to pick out clues and find objects which help to solve the riddle. A good adventure is much like a good mystery novel, the more complex and descriptive, the better. This adventure is very complex, and contains a fair amount of description.

The scenario for this adventure is very intriguing. According to the instructions, the whole adventure begins in 1521. At this time the Spanish general Cortez was marching toward the Aztec capital of Tenochtitlan with his army of thousands. Monteczuma, fearing that the Spanish would take all the gold objects decorating Tenochtitlan, sent out an order which stated that all the treasures were to be hidden from the advancing Spaniards. After much searching the ideal hiding place was found, the treasure was then hidden, and a stone map showing the treasure's location was placed in the city. Consequently, when the Spanish finally entered Tenochtitlan, after slaughtering the less-advanced Aztec army, they didn't find nearly the amount of treasure that they expected. Cortez searched the city and countryside in vain for the treasure. Many good men were lost in the search parties that never returned. In frustration, Cortez withdrew from the Aztec Empire with most of the Aztec people dead or enslaved. The treasure remained lost among the mountains and valleys of the area that was the Aztec Empire.

The player begins the game at a point more than 450 years after the tragedy. As the adventure unfolds, the player finds that he or she is on a deserted ocean beach. The ship that was to have brought the player to the land of the Aztecs has capsized in a storm. The player escapes from the wreck with a book of matches as his sole possession. This is the situation when the adventure begins. The game description ends with this warning: "Many adventurers have gone before you, but none have ever found the treasure. Some have never returned." More truth than poetry.

Ease of Use: The program is designed to work out of one disk drive. Throughout the game the disk drive constantly turns on and off as data are entered into the main program. The amount of data is immense; the program and the data take up two-thirds of the disk that they reside on. The gargantuan effort expended in writing this program probably isn't measured in programming hours, or even days, but weeks.

The game automatically loads itself when Extended BASIC is selected. The first program loaded contains the title screen and a good portion of the instructions and background material found in the instruction manual. After the instructions have been viewed, the program then gives the option of beginning the adventure over or continuing a previously saved game. Any person who plays adventure games realizes that a save game feature is a must. This is because most of the good adventures take days, or even weeks, to solve. The disk which contains the adventure has enough space left to store many game files, since each one takes only four sectors out of the more than 100 available. After the option desired has been chosen, the computer then goes on to load the game and the data. If you are loading a saved game, this process can take as long as two minutes. Starting the game from scratch doesn't take as long, only about a minute. When the adventure has loaded, it automatically runs itself and after a few seconds presents the adventurer's location, what is visible and a query for the player's command. At this point he must type in either a single command, such as "N" to go north, or a two-word command such as "DIG HOLE" or "CLIMB TREE." The two-word commands are usually more descriptive of their function. Because it uses menus and prompts, this program can be easily used without even looking at the instruction manual. Anyone familiar with the Scott Adams adventures will find this program very similar in its style, the type of commands it uses and the way it presents data to the player.

Documentation: The documentation, though sparse, is completely adequate for this adventure. The eight-page manual gives the scenario of the adventure, the loading instructions and a description of the types of commands accepted. The manual also explains the types of errors which may be obtained from improperly loading saved game files, and those that may result from negligence by the user. The only thing missing from this manual which often appears in the instructions for other adventure games is a section containing hints on solving the adventure. With a game of this difficulty level, hints may be crucial to preserving ones sanity. This is not necessarily an oversight, but it may mean the difference between solving or not solving the adventure for a lot of users.

Value: The value of an adventure is hard to determine. Once an adventure has been solved it is useless to the adventure player. Unlike an arcade game which is slightly different every time, the quest in an adventure never changes. This is the main reason why adventures are so hard to solve in the first place. If the value of an adventure is a reflection of its difficulty, then this is a program with great value. In comparing its difficulty to other adventure games, I believe it is roughly as difficult as the Savage Island adventures in the Scott Adams Adventure Series. At a price of $16.95 this game is a great value for the money in any case. While comparable to more expensive assembly language adventure games, it is priced to compete with adventures in BASIC.

The author responds

As you can imagine, I was very pleased to read the review of Lost Treasure of the Aztec.

A few comments, if I could:

The reviewer mentions that the time to load a saved game is two minutes and starting from scratch about one minute. In point of fact, the times are the same because they use files of the same format. The actual load time is about 1¾ minutes.

The question of hints in the manual is something I worried over for quite some time. What I decided to do was to leave the hints out. I have been giving out hints to people who write and ask, provided they pay the postage. The reason I did this is that I didn't want to "give away the store" before a person could get to the candy counter.

Bob Ulrich
Mind Games Software

1:5:18. Review: ASW Tactics II

Watch out for submarines

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation B Value . . . . B Final Grade . . . . B	**Cost:** $19.95 (tape) **Manufacturer:** DEJ Software, 575 Wisteria St., Chula Vista, CA 92011 **Requirements:** console, monitor or television, cassette recorder, Extended BASIC cartridge

ASW Tactics II is a strategy game the object of which is to destroy an enemy submarine before it sinks your three-ship task force. It was created by Roger L. Johnson, a retired U.S. Navy commander who logged 5,000 flight hours as a helicopter pilot.

Performance: ASW Tactics II is a revision of ASW Tactics I, which runs in BASIC. It starts out with a colorful and patriotic title screen followed by an admonition that the user study the instructions before going into battle. Your task force consists of an aircraft carrier and two escorts. You are the pilot of a helicopter, which is equipped with active sonar, passive sonobuoys and homing torpedoes. You may also be assisted by a jet airplane that is equipped with a magnetic anomaly detector (MAD).

Before the game starts, you must decide whether to use the MAD. The plane, which passes across the screen randomly, will drop a smoke marker when it passes over the submarine if the MAD is activated.

Having decided this, you must then determine the range of your homing torpedoes. You may choose either 1,000, 2,000 or 3,000 meters. The shorter the range the more difficult it is to hit the submarine.

The game has one main screen. Using nicely done sprite graphics, you have an overhead view of your ships and the sea. Gray clouds pass across the screen, as does the yellow airplane. Your task force steams away in the center of the screen, with wakes trailing behind it.

Your helicopter is controlled by the arrow keys. Movement is incremental so that each time you press one of the keys the helicopter moves forward a short distance. The games uses a wrap-around screen.

Sonar is your principal means of locating the submarine. It is activated by pressing the 1,2 or 3 key. The 1 key makes the sonar effective at 100 feet, the 2 key makes it effective at 200 feet and the 3 key makes it effective at 300 feet. Each time you press a key, a small reddish wave is emitted. A realistic tone is also produced which degrades as the wave diminishes. The tone is of lower pitch as the depth increases.

You may also drop a sonobuoy which remains stationary. It will alert you if the submarine comes within its range. The buoy is dropped by pressing the "B" key.

You are required to develop your own search patterns as you try to locate the submarine. Since you have a spy aboard the submarine, you may get a look through its periscope by pressing the number 4 key. This secondary screen gives you a brief view of what the submarine commander sees, which can help you decide where to search for him.

Having encountered the submarine by use of your sonar, a distinctive "ping" results, you may fire a torpedo. You do this by pressing the "W" key and the 1, 2 or 3 key depending on the depth at which the ping occurred. The submarine will take evasive action, so you are not guaranteed a hit.

Of course, while you are searching for the submarine, it is trying to destroy your task force, one ship at a time. You lose if the submarine destroys your fleet. You are declared a winner if you manage to destroy the submarine before it sinks your last ship.

The graphics in this game are well done and sound is put to good use. Sound is used to represent the whirling of the helicopter's rotors as well as the sonar. The sound of an explosion is heard when the sub or a ship is blown up.

Ease of Use: From a mechanical standpoint, the game is easy to play. There are only a few commands to know and they are easy to recall. From a strategic standpoint, this can be a very difficult game, particularly if you limit your torpedo range to 1,000 meters. I was not able to destroy the submarine at this range despite making repeated sonar contacts with it.

Documentation: The game comes with three typewritten pages of instructions. It has an easy to grasp chart of key functions and a drawing that shows how the equipment works.

Value: I found AWS Tactics II to be an interesting strategy game. For those who lack the patience to search for an invisible submarine, though, it may become frustrating. The game can go on for quite a while with very little happening until you make contact with the submarine. Then everything happens very quickly as it attacks your task force. I do feel that the game is somewhat overpriced. But that is an observation I make about many of the games reviewed in these pages.

— JK

1:5:20. Newsbytes

Protector available

In last month's Comments column we told you about a program that allows users to protect programs written in BASIC. Here are some details:

The program is written by Andy Blanton and is called "Program Protector." The program is designed to work in console BASIC only. When used with a Mini Memory cartridge it can protect a console BASIC program under 4 kilobytes long from being listed or edited. Actually the first line of a program will appear on the screen when listed, but that's all. It is thus recommended that the first line be a REM statement. The 32K memory which is needed to protect BASIC programs longer than 4 kilobytes.

Programs that are protected using Protector can be copied by users. After protecting a program it is copied onto disk or cassette.

For more information or to order write A. Blanton, P.O. Box 234, La Verne, CA 91750. The program is priced at $14.95, plus 6 percent sales tax for California residents.

TI makes profit

It didn't take long for Texas Instruments to show a profit after dumping its home computer. The company reported profits of $79.8 million in the first-quarter of 1984, up from $7.1 million in the first quarter last year. The profits amounted to $3.32 per share, compared to only 30 cents per share in 1983. Sales were up, too, climbing from $1.17 billion in the first quarter of 1983 to $1.34 billion in the first quarter this year. The first quarter profit this included 41 cents per share from the sale of home computer inventories. The merchandise had been written off when the company left the home computer market last fall. TI reported losses of $145.5 million in 1983.

Galaxy is here

Microcomputer Games Inc., a division of the Avalon Hill Game Co., has translated its Galaxy space game for the TI-99/4A. The company released B-1 Nuclear Bomber for the TI several months ago. A review of it appeared in the February edition of this magazine.

Unlike B-1 Nuclear Bomber, Galaxy requires the Extended BASIC cartridge to operate. From 1 to 20 players may play. Players send their fleets out to explore and conquer the universe, solar system by solar system. Each planet has its own characteristics. Some may have immense industrial development while others may be barren. The defensive capabilities of each varies also. Players may compete against each other or the computer.

For more information, write the company at 4517 Harford Rd., Baltimore, MD 21214 or phone (301) 254-5300.

Cartridge deals

A Lubbock, Texas, company, Sunware Ltd., is offering programmers access to the TI-99/4A GROM and peripheral ports by transferring their diskette-based software into a solid state format. Programmers supply the company with their program and the company then reviews it, and quotes a cost for conversion. Programs not written in TMS9900 assembler must be converted, according to the company. A price for mass production of the cartridge will also be given, according to the company. The company also offers marketing services for distribution of the cartridges.

For authoring guidelines and other details contact Sunware at Park Tower Bldg., Suite 140, 1617-27th St., Lubbock, TX 79405 or phone (806) 747-2534.

$1 million worth

The Eldorado Trading Group of Palo Alto, California, has taken on more than $1 million worth of TI software, the company says.

Larry Boggs, controller for the company, says they have a full line of TI software and hardware, enough for "through this year and the next."

He says the company has more than 75,000 cartridges in stock, including TI-Writer and Microsoft Multiplan. The company also has peripheral expansion boxes, "everything but the computer."

He notes that "much of the software you mentioned in your May issue as being hard to find, we have."

He says the company is also marketing the Axiom printer, produced by a subsidiary of Seiko. The printer cable connects directly into the side port of the TI.

The company has a toll-free telephone number for ordering. In California, the number is 1-800-248-2224. For other states, the number is 1-800-227-8292.

PEB connector

Anyone who owns a TI Peripheral Expansion Box knows what ugly is. It's also known as the big, black box-end cable that plugs into the side of the computer, linking it to the PEB. A California company called Ten-X Precision is marketing a cable it calls the Ten-X Interconnect System that puts the bulky TI cable out of sight, if not out of mind. One end of the Ten-X cable is plugged into the computer's I/O port or speech synthesizer, and the other end is linked to the TI cable. The user may then place the black box that forms the end of the TI cable behind the PEB so as not to be bothered by it again.

The interconnect system also tilts the TI keyboard at a slight angle which, the company says, improves typing comfort. The unit is unobtrusive, according to the company. The unit comes in two models: one that includes the cable to attach to the PEB cable and a unit that comes without the cable for those who wish only to tilt their consoles. The cost is $43.90 and $14.90, respectively. For more information, contact the company at P.O. Box 163, Concord, CA 94522.

Newsbytes is a column of general information for TI-99/4A 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 News-bytes format. Mail items to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

1:5:21. User Notes

Loading tip

Al Curran of Harwich, Massachusetts, has a tip that may put an end to any problems you've had loading programs from cassette.

Curran, who operates Amateur Radio Station WA1WIE, urges users not to do anything violent to the offending cassette recorder. Instead, he recommends you borrow a recorder from someone and load the cassette into it. Then remove the three lines that go from the computer into your recorder and in their place install a line that is attenuated. He says this is necessary to guarantee proper impedance matching. Such lines can be purchased at Radio Shack and other electronic supply stores. This line goes from the output (ear) of the borrowed recorder to the input (mic) of your recorder. Now set the volume and tone levels about halfway on the borrowed recorder. Install a new tape in your recorder and set the levels where you normally keep them for loading purposes. Start your recorder in the record mode, then immediately start the borrowed recorder in the play mode. The program will now be transferred into your cassette recorder.

"You will be pleasantly surprised when you rewind the new tape," Curran writes. Unhook the attenuated line, replace your lines and load the tape into the computer. He says the program should load now.

"I have a tape that I bought with five programs on it and when I tried to load it, it was a disaster. I tried for two nights using all sorts of settings but nothing worked. This little trick was super and I'll bet you get yourself another recorder just to keep for those abominable programs that just won't load," he writes. He adds, "I use my TI-99/4A for radio-teletype and it has proven to be a flawless computer for almost three years."

Bug debugger

Charles E. Roberts of Springfield, Missouri, thinks TI users shouldn't have to put up with bugs, crawling bugs that is.

He says there's no need to purchase one of those ultrasonic devices that supposedly drive roaches, mice and other critters out of homes. "Your 99 has the capability of producing these high-pitched sounds," he writes. "If you have a tweeter with your hi-fi system that will produce sounds in the range of 25,000 to 44,733 Hz, and you can hook up your hi-fi to your television, then you can make your own Bug Debugger by making your 99 play through the same television with the following program:"

```
10 REM
20 REM BUG DEBUGGER
30 REM
40 CALL CLEAR
50 X=25000
60 Y=30123
70 Z=36570
```

```
80 FOR LOOP=0 TO 144000
90 CALL SOUND(-700,X,0,Y,0,Z,0)
100 X=INT(X*1.0075)
110 Y=INT(Y*1.0075)
120 Z=INT(Z*1.0075)
130 IF X>44733 THEN 170
140 IF Y>44733 THEN 190
150 IF Z>44733 THEN 210
160 GOTO 220
170 X=25000
180 GOTO 220
190 Y=25000
200 GOTO 220
210 Z=25000
220 PRINT X;Y;Z
230 NEXT LOOP
240 REM WILL RUN FOR 25 HOURS
```

If you change line 240 to read GOTO 50 the program will run until you stop it.

Extra memory

Anyone who has the 32K expansion memory knows that it provides only about 24 kilobytes of random access memory for actual use by the user. The remaining 8K isn't accessible via BASIC. However, there is a CALL LOAD command that appears to do the trick.

After starting the system in Extended BASIC, enter CALL INIT:: CALL LOAD(-31866,33,0). Then do a SIZE command to see how many kilobytes you've got. It should show that there is about 32,000 kilobytes of program space available. We don't guarantee what the results will be if you now decide to write a 32K program, so be cautious. (We're told that if you exceed the 32K limit for programs or data the console will lock up.)

64K memory?

This is just for kicks, but there's a CALL LOAD that makes it seem as if your TI has 64 kilobytes of RAM, though we all know that's absurd. It requires the memory expansion to work. Enter CALL LOAD(-31866,160). Then run the SIZE command. It should show that you have 65,535 bytes of program space free. This is not correct, of course.

A different color

Have you ever wanted to change the color of the TI screen, text and cursor in the immediate (programming) mode? According to the Cleveland Area 99/4A Computer Users Groups newsletter, a simple routine entered without line numbers will do the trick. It works only in Extended BASIC.

Here's the routine:

```
FOR I=0 TO 9::CALL COLOR(I,16,1):: NEXT I::CALL SCREEN(14)::ACCEPT AT(1,1): A
```

After pressing **ENTER**, press **FCTN 4**. Voila! A screen of a different color. You can change the foreground color by changing the CALL COLOR number and the number in CALL SCREEN.

Disk loader

Here's something else from the Cleveland Area Users Group, a disk program loader that runs out of Extended BASIC.

First, enter the following program:

```
10 DIM PS$(40),A(16)::CALL INIT::GOTO 25
15 CALL LOAD(-212,J,A(1),A(2),A(3),A(4),
A(5),A(6),A(7),A(8),A 9),A(10),A(11),A(12),A(13),A(14),A(15)A(16))
20 RUN "DSK1.          "
25 OPEN #1 "DSK1.",INPUT,RELATIVE,INTERNAL::INPUT #1:D$
30 DISPLAY AT(1,6)ERASE ALL: "DISK NAME= ";D$::R=3
35 FOR I= 1 TO 40
40 INPUT #1:P$,T
45 IF LEN(P$)=0 THEN 75 ELSE IF P$="LOAD" THEN 40
50 IF T=5 THEN 55 ELSE 40
55 IF I<10 THEN C=2 ELSE IF I>9 AND I< 21 THEN C=1
60 IF I=21 THEN C=15:: R=3 ELSE 65
65 I$=STR$(I)::DISPLAY AT(R,C):I$&"="&P$::PS$(I)=P$::R=R+1
70 NEXT I
75 CLOSE #1::IF I>20 THEN R=22
80 DISPLAY AT(R+2,1):"CHOICE:"::ACCEPT AT (R+2,8)
BEEP SIZE(2) VALIDATE (DIGIT):YC
85 P$= "DSK1."&PS$(YC)::J=LEN(P$)
90 FOR I=1 TO J::A(I)=ASC(SEG$(P$,I,1))::NEXT I::CALL CLEAR::GOTO 15
```

According to CAUG, this program will read a disk catalog and build a list of BASIC and Extended BASIC programs to be run. It will list up to 40 programs. The CALL INIT and CALL LOAD lines changes the RUN "DSK1.xxxxxxxxxx" statement so that you don't have to change the load program every time you add or delete a program.

Okay, having entered the program (we recommend you save it under any name just to be safe), enter

```
SAVE DSK1.LOAD,MERGE
```

Then enter

```
NEW
```

Then enter

```
MERGE DSK1.LOAD
```

Then enter

```
CALL PEEK(-212,A,B,C,D,E,F,G,H,I,J)::PRINT A;B;C;D;E;F;G;H;I;J
```

Now look for the following numbers to appear on the screen, in this order:

```
15, 68, 83, 75, 49, 46, 32, 32, 32, 32
```

(the commas are for punctuation only).

The 15 is the length of the literal (the number of characters) in the RUN statement.

The 68 is a D in ASCII. The 83 is an S. The 75 is a K. The 49 is a 1. The 46 is a period. The four 32s are spaces.

If all of these numbers appeared, you're in the clear. Enter

```
SAVE DSK1.LOAD.
```

If you didn't find these numbers, you must use the CALL PEEK and PRINT to find the location of the RUN literal. CAUG recommends that you start at -500 (instead of -212) and go from there by increments of 20 to -1. They suggest you use the **FCTN REDO** key and just change the address to be PEEKed. If you find the correct address, change the address in line 15 from -212 to the address you PEEKed and then save the program.

'We added a few lines to the PEEK, changing -212 to the variable XX and starting it at -500 in a FOR-NEXT loop using increments of -1 to count down to -1. Our PEEK looks like this:

```
FOR XX =-500 TO -1:: CALL PEEK(XX,A,B,
C,D,E,F,G,H,I,J)::PRINT XX::
NEXT XX
```

This saves time, but you've got to keep your eyes open to catch the right set of numbers before they scroll off the screen.

By the way, make sure you've entered 10 spaces in the RUN statement on line 20. Also, if you don't find the right numbers the first time, you may want reload your saved copy of the program and start all over by entering the PEEK lines. We found that the second go around worked while the first didn't.

Size in BASIC

Programming in BASIC doesn't mean that you can't find out how much memory you have left. Here's a simple routine to check the amount of memory remaining in the console:

```
80 S=S+8
9O GOSUB 1OO
```

Insert these lines at the beginning of your program (assuming the first line of the program is 100) and RUN. When the computer says "MEMORY FULL" type

```
PRINT S
```

The number that is displayed is equal to the amount of bytes remaining. Of course, you'll need to REM or delete these two lines out before running your program.

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.

1:5:23. Infocom adds 2 titles to software library

Infocom Inc., which only recently started marketing its adventure and fantasy games for the TI Home Computer, has introduced two new titles for the TI and other computers.

They are Sorcerer and Seastalker. Sorcerer, a fantasy game, is a follow-up to Enchanter, which was introduced last fall. Seastalker is an adventure game written with the beginner in mind, according to the company.

According to Infocom product manager Michael Dornbrook, "with its focus on magic, the Enchanter series has really given players a new type of challenge."

Dornbrook notes that improvements in programming techniques permit Sorcerer to "understand" a vocabulary of more than 1,000 words. "That capability allows Sorcerer to add substance to the Zork-Enchanter universe by supplying it with a richly detailed history and geography."

In the Zork trilogy, the company's other fantasy series, the emphasis is on exploration, treasure hunting and solving puzzles through the use of tools and physical effort.

"In Enchanter, and now Sorcerer, players advance toward their goal through the use of magical powers they acquire along the way," Dornbrook says.

He claims that Sorcerer's 1,000-word vocabulary is nearly double the size of any other interactive fiction product.

Infocom says Seastalker can be played by persons as young as nine. It is the first of a series of text adventures that the company plans for young or inexperienced adventurers.

Seastalker is a project of author Jim Lawrence and programmer Stu Galley. Lawrence has written some 60 works of fiction, including a number of ghost-written titles for such series as Tom Swift, The Hardy Boys, Nancy Drew and the Bobbsey Twins. He has also published fiction for juveniles under his own name.

Galley wrote The Witness, an adventure-mystery marketed by Infocom.

Seastalker comes with a portfolio, submarine logbook, decoder, nautical chart and a decal.

Seastalker is priced at $39.95. Sorcerer is priced at about $50 and comes with a manual, data wheel and pouch. Both games require a disk drive.

For more information, contact Infocom, 55 Wheeler St., Cambridge, MA 02138.

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1:6:3. Comments

Why Keep Your TI?

What reason is there to hang onto your TI home computer ? Why not buy another, more powerful, computer if you can afford it?

Well, nothing's stopping you, or me for that matter. But I haven't seen anything I like that much, within budget constraints, to make me jump ship. Sure, there are more games available for the Ataris and Commodores, but game playing is not the principal use I have for computers. Also, I like the simplicity of the TI. That comes from having used the machine for several years, I suppose, but it's something I've not felt about other machines I'm familiar with, such as the Commodore and IBM. I like the TI's funky keyboard. I find it easy to use for virtually any task, unlike the IBM PC which is definitely not designed for word-processing. I don't like the feel of the Commodores I've used. The keys are mushy compared to the TI, and I've had more problems with keys repeating themselves on the Commodore than the TI. My first TI developed a severe "bounce" problem that eventually went terminal, pardon the pun. But TI solved that problem in later keyboards.

I will admit that I have had some desire to buy a TI-Pro, but thus far I can't find anything I could do with it that I cannot already do with my trusty 99/4A. (Yes, I know you can run Db-II and other very sophisticated programs, but who can afford to spend $400 and more per program for home use?)

From a somewhat more analytical point of view, I think that home computer users are either satisfied with the systems they initially purchased and hence are not likely to go out and buy another system, or were not initially satisfied and probably turned around and got a different system immediately. I bought my first TI when the price went down to $300, figuring it was a cheap way to learn about computers. (Apple was selling for about $2,000 at the time.) I didn't like the way the peripherals attached to the side of the computer, but otherwise was very happy with it. Then TI announced its Peripheral Expansion Box, and that was all the convincing I needed to stay with the TI.

Then, too, the home computer market, though volatile in some respects, is not like the business market where computers are bought and sold as much for what they can do as for the fact that they can be depreciated. The home computer market is like any other specialty market (cameras, stereos, etc.) in that purchasers generally find something they like and stay with it, regardless of the "new and improved" models that come out in subsequent years. I've got a Nikon F2A camera body that I bought about six years ago and I won't trade it in on any camera that's come out since. It does everything I want it to do as well as I want to do it. As the saw goes: if it ain't broke, don't fix it.

PROGRAMMERS FIGHT BACK

Last month I touched on the plight of programmers who are being victimized by software pirates. Specifically, I noted that the protection utilities of TI Extended BASIC are no longer very effective against even a moderately determined pirate. But that doesn't mean that the programmers are defenseless. Rather, they are coming up with new ways of protecting their programs that may keep them more than a step ahead of the pirates. I have heard of one programmer who has developed a routine that is supposed to erase the program if a user tries to copy it. Others are writing their programs into files, using unusual access requirements (such as lowercase disk names) to load the programs. Of course, most of these protection routines work out of the expansion memory, so you may see fewer programs written for system configurations that don't permit such protection routines. We intend to dig deeper into this in the near future.

WHAT'S IN A REVIEW?

As you probably know, I write most of the reviews that appear in *MICROpendium*. I doubt if you know what our policies are regarding software reviews and how we decide what to review. Aside from suggestions by readers, most reviews are based on software that is sent to us for consideration. Generally, if the program doesn't really grab me the first or second time I load it into the computer, it will probably not be reviewed. As I've learned, there's enough really good software out there to relegate the not-so-good stuff to a box that just sits on the shelf. Also, I do not believe in letting the bad drive out the good, so to speak, so you will generally read only reviews of items that I like or thought would be of benefit to other TI users. There will be exceptions to this, of course, but space is at such a premium for us that we don't want to waste it on products that are either worthless or poorly done.

STARTING THIS MONTH...

A new column will appear in *MICROpendium* starting with this issue: a listing of items that have been reviewed and the date of the review. It is set in a smaller type size than other articles so that it will not take up much space.

At this point, back issues will continue to be supplied to subscribers who desire them simply by notifying us of which issues the subscriber wants. We will backdate the subscription to include the back issues so that subscribers will not be charged more than $1 per copy for each. We will continue to do this until we run out of back issues.

That's all for now.

— JK

1:6:4. Feedback

Protectionism

I am very sorry to hear that some of the third party software developers consider the TI-99/4A market not worth supporting because they feel that user's groups are encouraging buying a single copy of software, then making multiple copies to hand out to other members. I can assure these developers that this is not the policy of the Central Texas Users' Group. While we are always trying to get the best price for our members on software, free is not what we had in mind.

The question of protecting software is a thorny one that software developers have been losing sleep over for years. I can't help them much with this problem except to vote no to publishing methods to unprotect programs. While I am personally intrigued by these methods (mostly because it would allow me to backup to disk some cassette software that I have acquired over the years), disclosing the information would cause more harm than good.

Why more harm than good? Because the computer is only a vehicle on which software runs. Without software, it is nothing but a large paperweight. (This is something TI did not understand until too late.) I feel that when software developers stop publishing programs for the TI-99/4A, it will be time to begin looking for a new machine. Since it is the purpose of users' groups to help their members get the most out of their machine, hurting the software developers by copying their programs is counter-productive.

Mike Schultz, President, Central Texas 99/4A Users' Group

Enjoyed it

Our club has thoroughly enjoyed reading the article on the TIBBS by Laura Burns. In the past year we have seen the modem increase in numbers for the TI home computer as TI owners want to telecommunicate with other owners to exchange information, software, etc. The BBS is more cost efficient to the user due to inexpensive telephone rates and usually free access to these systems and also when compared to large database systems such as The Source where the monthly credit card bills can be several hundred dollars. Our club wants to thank Ralph Fowler for creating the TIBBS program and we hope to purchase this package in the near future, as our club's members who have modems would benefit from its existence in our city.

I wish to congratulate you on publishing such a fine magazine that is eagerly awaited each month by our club.

Winnipeg 99/4 Computer Club Winnipeg, Manitoba

Clarification

Mark me down as interested in MMM, especially bit-map mode.

On page 22 of the March issue under "Speaking of BASIC," you explain how to list to speech synthesizer using TEII. Fascinating! However, the statement about not being able to stop the listing is untrue. **FCTN CLEAR** does indeed stop the listing to speech, but can only do so if you hold said keys down until the end of a line. It will then list the next line and stop.

Scott Oldham, Chattanooga, Tennessee

On piracy

Thank you so much for a much improved magazine. Each issue is worth the money.

Your question about "copying copyrighted programs" is very thought-provoking. If you look at the free software that is floating around for the Apple, I guess it's inevitable that the same conditions would prevail with the TI or any other computer, including the IBM. Is it right? Not really, and of course it isn't legal. It may seem more prevalent with the TI software, since TI has left the market and people have been scratching for every piece of software that they can find with the fear that if they don't get it now, it won't be available.

Of course, if the copying continues, those fears may become a reality.

Dave Peden, El Cajon, California

Seeks test mode

First let me say that you have a terrific magazine . . . I really enjoy every department but I especially enjoy User Notes. As an intermediate TI user/programmer I find this section really interesting. I tried the test mode for Alpiner just for fun, Then with my Burgertime cartridge I tried **SHIFT 8** (*****) when the game title screen appeared and the following message appeared:

```
CODE MODIFICATIONS BY -
    JOHN M. PHILLIPS
```

This is probably the person who translated the program for the TI. I have not found a test program for Burgertime as yet.

Bryan J. Lizotte, Sheiron, Connecticut

Found it here

Do you recall in TI-Writer where it says you can make a program into a text file but you CANNOT make a text file into a program? Well, I found a company that makes a product called Program Writer. This program works great. I needed something to convert downloaded text files into programs without retyping. Program Writer really fit the bill. The company's name is The Softies (7300 Gallagher, Ste. 220, Edina, MN 55435).

The program comes with a tutorial manual which really helped me get going with it.

Hallie Bremer, St. Louis Park, Minnesota

Votes 'no'

Protection: I know one way to remove the proprietary disk protect and one CALL LOAD to beat Extended BASIC protect and would like to see such material published. However, if I had a magazine like yours I would not publish such information, hoping to avoid losing support of advertisers and getting a reputation as a computer crook. I do not buy software very much so it is not a big subject.

Third party software: I am regularly astounded by people who write software (and books) who expect me to buy their stuff when they are turning out stuff easily duplicated by anyone who reads the TI manuals. Now that the beginners in TI are either going to quit or get better, I see the market for BASIC games drying up and the only demand continuing in programming aids and machine language. (In a year I predict most TIs still in use (not in the closet) will have 32K and disk and most buyers will expect full-service software if they buy any.)

Extra memory: CALL LOAD(31866,33,0) seems no more real than (-31866,160). If you load a program into the expanded (32K not 24K) size and do a SIZE you find the same result as if you loaded the program without the CALL LOAD. I think you are right in giving interesting CALL LOADs but suggest testing or disclaimers be run with each one, like you did on 64K, up front.

Tunnels of Doom trick seems to work on Savage Island, Voodoo Castle and Mission Impossible. What didn't work?

First class (mailing) is needed for magazines selling time-dated or flea-market stuff, but your ads are mostly dealers so I can't see why it would be worth doing. I agree, you shouldn't hold up publication unless certain of something really big (and really certain).

My big point: I will probably continue supporting all TI magazines as long as I continue to be active in TI. However, I am getting upset at the personalities running certain publications . . .

Children: I believe there is a certain amount of hard core TI support out there and unless you turn us off with your petty bickering we will support you all. I have never seen any attacks on others in the field in *MICROpendium* and hope you will keep it that way.

Douglas Smith, Waldorf, Maryland

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. Mail Feedback to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

1:6:9. Sound is key quality

A speech synthesizer is a nice thing to have, if you are a TI user.

If you are a TI user who is also blind, it is a particularly important piece of equipment.

Dana Walker of Montgomery, Alabama, began using the TI-99/4A when her husband, Dr. David Walker, "decided a computer was what we absolutely needed."

In an article she wrote for the TIBUG (Birmingham Users Group) newsletter last year, she describes how she began.

"The first thing I did, after setting up the computer, was to label a few keys in braille, to help me get oriented to the keyboard. A friend had already had the reference manual and the TI BASIC book read onto tape, so I got a copy and began studying.

"The first big problem was that the computer is rather uncommunicative about errors. It would just beep and sit silent and uncooperative until my husband came in to read the error message to me."

Her husband began working on a program to read error statements, then she heard about one created by another blind user.

An Ohio-based user group for the blind has yet another one, she found.

When she contacted the Ohio group, she got Hangman from them, in a version which combines speech and graphics, so that "the sighted can play with me or I can play by myself."

When Walker wrote her article, she said that she used the TI Terminal Emulator cartridge and the speech synthesizer.

"The only drawback to the 99/4A is that with the Terminal Emulator in use, you can't use any of the other program modules," she wrote. "This means that you can't use the memory expansion card. Being able to run two modules at the same time would expand the possible uses of the TI-99/4A for the blind programmer. TI says, by the way, that in about a year they're coming out with the speech on a disk. This will be a great advantage."

However, she notes that the disk-based speech program did not live up to her expectations.

"It runs in Extended BASIC," she says. "You're still limited to using only one module. It's not as convenient to use as the Terminal Emulator."

A friend has worked on a program to make an impact printer produce braille hard copy. However, Walker notes, his program uses only grade 1 braille, which writes English letter by letter. Grade 2 braille, which is used by more blind persons, uses contractions — the letters "tgr" to represent the word "together," for instance, or a single symbol for the word "the." Bob Justice, of the Ohio blind user group is working on a search routine to enable the writing of grade 2 braille, Walker notes.

She says her favorite programs are games. Besides Hangman, she plays blackjack and craps and some games that are "musical in nature." She notes that most of the games are "just games people have gotten from each other or gotten out of books," modified for use with the speech synthesizer.

Her husband, who teaches logic at Auburn University in Montgomery, uses the TI-99/4A to compute grades. She teaches English at the same university but doesn't have a grading program for her classes.

"I wanted mine to be a little different from his," she says. "I haven't gotten around to modifying his yet."

1:6:10. User group helps blind

By LAURA BURNS

Because his sight was fading away with retinitis pigmentosa, Bob Justice knew he would have to quit working some day.

He worked as a pin-spotter mechanic in a bowling alley, and later as a leather-goods designer and production supervisor.

Wanting to retrain, he wondered whether he could become a computer programmer.

"The TI home computer came way down in price, and with synthesized speech, it seemed like a good way to find out whether or not computing would be the way to go," he says.

His brother, Michael, also had a TI. They found that there was not a lot of information available on using speech.

"We thought that there are other persons like us and decided it may be a good idea to get a group going," he says.

The Ohio-based TI group for blind users is small.

The disappointing part is, counting my brothers and I, there are less than a dozen people, " Justice says. "But we think people we are in contact with are in contact with others."

There is no membership fee for the group, he says.

"We help people in any way we can," he says. "What we know about computers is self-taught. If anything we know would help someone, we contribute. We are also glad to receive any type of information."

Justice, who is legally blind but not totally blind, says persons interested in the group can correspond with him by cassette or in print, which he can read by magnifying it, at 3461 S. Buena Vista, South Charleston, OH45368.

The group is based "almost totally" on TI, he says.

"We're familiar with some other things," he says. "More expensive computers have things, but they are financially out of reach for most blind people. "

He notes that "commercially for Texas Instruments computers there are no programs for the blind.

The group, he says, has a few games members developed themselves and adaptations of other games.

For example, a game called Enemy Chase is "a matter of trying to match tones" by raising or lowering the tone. If you match the tone, "you've shot down the enemy. It's like lining up sights on a screen."

Justice also mentions a file box program and a check register program which is being developed.

A blind user can keep talking book lists on the computer, coding so that the program has titles listed as to topic, he comments.

Some programs include some screen display for uses with some residual vision, Justice says, noting that he can see white characters on a black background on a large screen.

"We don't have a large library, and they're not always our own original idea," he says of the group's program collection. "Hangman was copied out of a book and it was totally graphics. I rewrote what I had to make it available to blind people."

He notes that a "major frustration with the Texas Instruments computer, since it is not designed for the blind or visually impaired, is that it's not totally user friendly for the blind."

The black on light blue screen color, which shows black on gray on a black- and-white screen, is difficult for a visually impaired person to see, he notes. To overcome this, a person can program the computer to show white letters on a black background using Extended BASIC.

Another problem is "you can't get the program to talk when you're in the 'write' mode," he says. "You have to write in the program and then have a way of checking. If you're not too good of a typist and type in an S instead of an A, sometimes the error is hard to find. "

Justice says "we had to develop an error program" but notes, "we're not the only ones. Other people have developed a screen reading program." The 41-year-old father of three says he is currently writing programs for other persons to gain experience. He has written a time summary analysis program for a city and is writing a mailing list program for the Newsreel Club, a cassette-magazine club for blind persons. For a merchandiser, he is writing a mailing list program which is connected to a database inventory program. When it prints out the invoice, it will subtract the merchandise sold from the inventory. These programs are being done on a voluntary basis, Justice says, because, "I'm still learning."

He notes, "I will gain experience. After I've done programs for several people I will have established a portfolio."

1:6:11. Programmer has tips for all

Jim Foust of Decatur, Georgia, has done programs on the TI-99/4A that "TI says can't be done in BASIC. Some of them they say can't be done at all."

The blind user began using a TI home computer when "I bought one and the speech synthesizer. My son read the books. It seems like programming sort of became natural. The machine is pretty logical."

He says, "People are under a misconception about BASIC. BASIC is a very sophisticated and high-powered language. The only disadvantage is that it is slower. It will do anything the rest of them do and a lot they can't."

He says he learned programming from two books, one of which, the owner's manual, "ranges from poor to worthless.

But the book that teaches BASIC that comes with the computer, he says, "is one of the finest."

Foust says he was even interested in the section in the BASIC book, which I spends a lot of time on graphics and color. Normally that's as boring for blind people as anything could be."

However, he sees the section as helpful, not only in communicating with the sighted world and overcoming the gap between the blind and sighted world, but "there's a lot of programming hints you use for other things than color and graphics."

He says he has programmed a few games and filing, inventory, name and address listers and budget programs. "I strongly recommend that a person not get everything in one program," he says. "You can't do it. It would take a Philadelphia lawyer and two accountants to figure it out. Instead, you should have little-bitty programs and the same data base. This allows you to load it faster, it will run faster and you don't run out of memory."

Long programs are a disadvantage because "the more you've got in there the more often the computer has to stop what it's doing to purge its memory."

Foust uses an FM radio to detect the radio frequency output of the computer. Using the radio, he can tell when the computer begins purging.

"Using the radio is a beautiful thing for blind people and it wouldn't hurt the sighted," he says. "You take an FM radio and tune it to what you might call garbage. When you hear a little blip, blip, blip, blip, blip, that's the cursor blinking."

Using the radio, he can tell when the computer runs into the next program loop — "it makes a little fluttering sound" — or when it has quit.

He has little use for TI's speech utilities using the Extended BASIC cartridge.

"You'll probably never in your whole life run into a tackier piece of software," he says.

He recommends, instead, the Echo GP (General Purpose) Speech Synthesizer from Street Electronics in California, which he says will operate off any RS232C port on any computer.

One advantage, he notes, is "when you go to Cousin Bob's, you can use it with his IBM."

Foust says he is in contact with several blind users throughout the country and does a lot of programming for both blind and sighted persons. He says he programs "semi-professionally" in that he does customized software. Currently, he says, he is creating a program on a TRS80 for the Coats and Clark Company, a firm noted for manufacturing thread, zippers and other sewing aids.

He has high praise for TI's BASIC.

"I firmly believe TI BASIC is far, far superior to any BASIC I ever ran into," he says. "I wish you could get the TI language into some of these other computers."

Foust is a member of the Atlanta TI Users Group and is interested in helping other blind users.

"There's no sense in everybody digging the same hole," he notes.

One person he has helped was a blind police dispatcher in Birmingham, Alabama. The police department was "about to let him go" when they converted to computer dispatching.

Foust suggested a TI-99/4A with a Terminal Emulator II and RS232 interface to "patch him into" the mainframe computer, which happened to be manufactured by Texas Instruments.

"Now he can do as well as any sighted dispatcher, except faster," Foust says.

1:6:12. By following 400 rules, Echo GP talks to you

The Echo GP (General Purpose) Speech Synthesizer, with a cable which attaches to an RS232 port, sells for $249.95.

"Unfortunately, we had to raise the price, so it's $50 more than it was a month ago," Andy Clare, sales manager for Street Electronics, which produces the Echo GP, says.

He notes that there is a 10 percent discount on the Echo for the disabled. However, he says, "within the next couple of months," the company will be marketing it through dealers and not engaging in direct sales.

The Echo GP is a hardware device which "hooks up just like a printer," he says. The speech is phonetically based, with approximately 400 rules built into the system.

"You type in the words and if, for instance, you have a K followed by an N, like in 'knee' or 'knight' the K will be silent," he says. "Of course, these are English rules. It doesn't do a real good job with foreign languages. If you type in French, for instance, it doesn't sound especially good: It sounds like freshman French."

He notes that the Echo GP can be used on mainframe computers. Clare says that a version of the Echo produced for the Apple II, which is less expensive and comes with a diskette, is the company's most popular model for blind computer users.

For further information, write Street Electronics. 1140 Mark Ave., Carpinteria, CA 93103 or call (805) 684-4593.
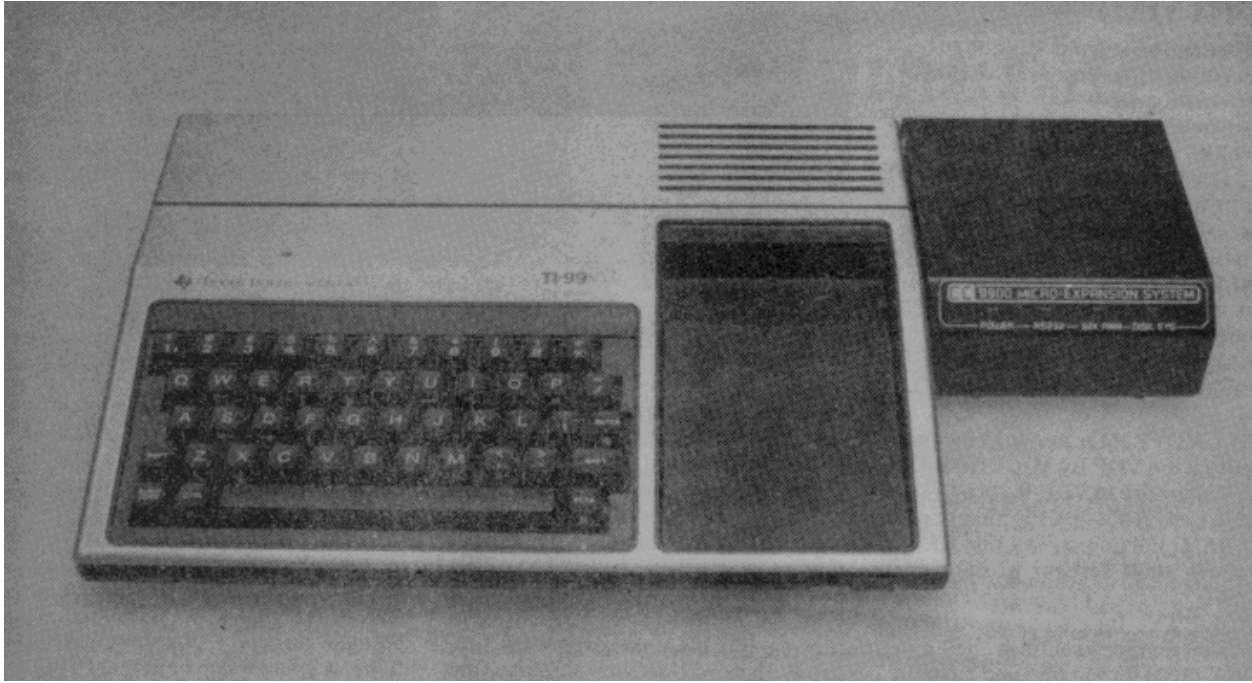
1:6:13. A new peripheral box for the TI

CorComp Inc. peripheral products for the TI home computer are beginning to reach the market and the likelihood is that more will be coming.

The company's 9900 Micro-Expansion System is now available, configured as an RS232 stand-alone unit. The unit can be expanded to contain a 32K memory card and a disk drive controller card. The memory card and controller are expected to be available at the end of June.

The disk controller card will format double-sided, double-density disks. TI's disk manager card is capable of formatting both sides of a disk, but is designed only for single density formatting. The CorComp disk controller comes with disk-based disk manager software.

The CorComp box attaches directly the side of the TI-99/4A. Or it may be plugged into the side of the TI Speech Synthesizer. The metal box is about twice the size of the synthesizer and is black in color. Four indicator lights on front let the user know that the power is on and which of the three peripheral cards it contains is operating. The box comes with a transformer similar to the transformer that came with the TI computer. It is attached to the CorComp box via a six-foot, five-pin cable. The box does not have a power switch.

The back of the box includes ports for one RS232 connection, one parallel connection and a disk drive cable.

Although *MICROpendium* will review the product when the disk drive controller and 32K memory card are available, we found the RS232 card to work identically to the TI RS232 peripheral. Data transmission via The Source telecommunications network was flawless, using Terminal Emulator II. Dumping of data to a printer using the parallel port was routine. Accessing the printer using BASIC and through programs designed to operate out of Extended BASIC was also routine. The box is about the same size as an expansion box being marketed by Myarc Inc. of Basking Ridge, New Jersey.

The CorComp expansion box is priced at $149. An upgrade kit to add a disk controller and memory expansion to the box is priced at about $290. A fully-configured unit with disk controller, expansion memory and RS232 is priced at $399. A second RS232 port may be added for about $15.

The company also is marketing an RS232 card, disk controller card and expansion RAM compatible with the TI Peripheral Expansion Box. The RS232 card has two serial ports and one parallel port. Prices range from $199 for the disk controller (which is identical in operation to the controller already mentioned) to $117 for the RS232 and $136 for the 32K RAM card. The disk controller comes with a disk-based disk manager.

The CorComp disk manager operates out of BASIC or Extended BASIC and requires a 32K memory expansion.

The disk controller card and disk manager program comes with many features not found in the TI controller and disk manager cartridge. In addition to formatting double-sided, double-density disks, the card is capable of controlling up to four disk drives. The TI card can control three drives. About 360 kilobytes of data may be stored on a double-sided, double-density disk, compared to about 180 kilobytes on a double-sided, single-density disk.

Also, according to the company, the controller will load files about 2-4 times faster than the TI controller.

The CorComp controller also provides the following capabilities not available with the TI controller:

● CALL POKE and CALL PEEK for rapid reading and writing to CPU memory.

● CALL POKEV and CALL PEEKV for rapid reading and writing to VDP RAM.

● CALL MOVEM for moving blocks of memory from VDP RAM to VDP RAM or CPU memory to VDP RAM or VDP RAM to CPU RAM or CPU memory to CPU RAM. CorComp says this CALL can move 30-40 screens of data per second.

● CALL EXEC for executing ROM or expansion memory routines.

● CALL MGR for loading and running the CC-Disk Manager program.

The disk manager also offers the user the option to configure the system to his needs. Users may select text and screen colors, set up each drive for number of sides, density and number of tracks, and the printer type can be configured for catalog and disk test printouts. The configuration is saved to the disk manager diskette as system defaults.

According to Jackirae Sagouspe, CorComp marketing director, "We have a network of 1,000 dealers now selling CorComp products in the U.S. We are establishing an exporting program that will service Canada, the United Kingdom and other countries."

Sagouspe notes that anyone who cannot locate CorComp products may contact the company for the location of vendors. The phone number is (714) 630-2903.

On the horizon for the company is the introduction of the CC-99000 Expansion System. This is a box that measures 4 inches × 12.5 inches wide × 12 inches deep. This system, which includes an array of disk drive and system status indicators as well as a flexible cable connection to the keyboard, optional RAM disk and four optional auxiliary motherboard locations, is expected to be released in the fourth quarter of this year.

This system provides room for two half-height disk drives, and has an echo switch that will allow modem users to echo modem input directly to a printer.

1:6:14. Notes on up/downloading on CompuServe

In response to a reader's question regarding uploading and downloading on CompuServe, Robert Hubbard of Union City, New Jersey, provides the following information. It has been condensed.

First, to use CompuServe, you must have a Terminal Emulator II, disk drive and controller, RS232 card and a 300 baud modem.

To see what is available for downloading, type PRO at any menu screen after leaving SIG. Following an OK prompt, type R ACCESS. This takes you into the Access database. Then use the command: BRO/KEY=99 to see what entries are available.

To download, you must copy the file into your filespace. Type COPY followed by the filename and Access will copy the file into your filespace with the name it was stored under in Access. Then EXIT Access.

After getting another OK prompt, enter R USR: TE2TRN. This activates the TI-CompuServe file transfer utility. You will then be asked whether you want to download to your TI or upload to CompuServe. Type D to download. You will be asked to enter the file name that you want to download. Then you will be notified that a file transfer has been requested and TEII will request the disk drive number you wish to download to as well as the name you would like to give the file. Do not use periods in the file name or you will not be able to load it out of your disk drive. Block counts, record counts and error counts will be displayed on the screen during transfer. You will be notified when the transfer is finished.

Uploading starts by selecting the upload option at TE2TRN. You will be asked to give a file name for the data you wish to transfer to your CompuServe workspace. Periods are permitted in this name. You will then be instructed to press CONTROL 4, which takes you to the TEII file screen. Key in the drive number and file name and the transfer will proceed. After completion, you can then SUBmit the file to Access so others may download it. Enter R ACCESS at the OK prompt and key in SUB followed by the file name. You will be asked for a key word and description. Use TI 99/4A as at least one of the key words. Once copied into Access, other users will be able to download the file.

A few warnings: Files uploaded by TE2TRN cannot be read by normal means, since they are stored in 9-bit ASCII. TE2TRN is an unsupported program so CompuServe cannot be held responsible for it. Do not SUBmit files uploaded by TE2TRN into SIG Access as there is no way to download directly from the Access system for the TI.

For more information, contact the TI SIG coordinators via the MI or B commands. (SIG stands for special interest group.)

1:6:15. Review: Theon Raiders

Fast moving, fascinating

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation B Value . . . . A Final Grade . . . . A	**Cost:** $24.95 (diskette)
	Manufacturer: Intersoft, 5407 Salem Hill, Austin, TX 78745, (512) 447-1757
	Requirements: console, monitor or television, joysticks, Editor/Assembler cartridge, disk drive and controller, 32K memory expansion. (Theon Raiders is also available in a Mini Memory cartridge version. It comes on cassette or diskette. Neither Mini Memory version requires the 32K memory expansion.)

Theon Raiders went on the market in 1983. Except through mail-order it has not been readily available. And that's too bad, because I found this game to be more absorbing than any of the TI cartridge-based space games, including Parsec. If I had to choose between having Theon Raiders or Star Trek by Sega Enterprises Inc. in my software collection, I'd have a tough time making the decision.

This game comes in versions for the Editor/Assembler cartridge and the Mini Memory cartridge. This review is based entirely on the Editor/Assembler version.

Performance: Theon Raiders is designed for joystick jockeys. This is a shoot-'em-up, no two ways about it. Sure, you've got to navigate your vessel, decide on the velocity and every once in a while go into warp drive and hyperspace, but when all is said and done your job is to shoot down the menacing hordes of aliens who are intent on destroying your space station.

After loading the game a brief title sequence is displayed. The screen consists of a view of space from the bridge of your star ship and a small blocked off area at the top left of the screen that serves as your radar. In the center of the radar scanner is a circular space station. Your ship is inside the space station when the action gets under way. Surrounding you are several enemy cruisers.

On the right top portion of the screen are four numeric readouts. The first one reports your compass bearing, the second your power supply and the third your velocity. The fourth one works only in the Editor/Assembler Version and only at difficulty level three. It reports on the amount of damage your photon torpedoes have suffered from direct hits. There are seven torpedo banks and each direct hit knocks out one of them. They can be restored by reducing velocity.

After choosing the difficulty level, 1-3, the game gets under way. (Difficulty level one should be accessible to most players. Level three is very tough.)

To leave the space station you must accelerate the star ship. Pressing the number 9 key increases velocity while pressing the 0 key reduces it. Reaching a velocity beyond 100 automatically puts you into warp drive. At warp speeds you can outrun the Theon battle cruisers as well as their torpedoes.

Direction is controlled by using the joystick. Moving it to the left causes the compass bearing to decrease while moving it to the right causes it to increase.

After leaving the space station, you must attack the enemy cruisers before they are able to reach the station. You set your compass bearing and then adust your speed. As you approach a Theon cruiser you see orange blips approaching you. These are its torpedoes and the nearer they get the larger they become. You must destroy them with your torpedoes to avoid being hit by them, or you can dodge them. Eventually you may reach the cruiser itself, a white blip. You destroy it in the same way as you destroy the Theon torpedoes. The Theon cruisers will crash into your ship if you fail to destroy them, thus ending the game.

Generally, you fire your torpedoes in bursts, and direct them into the targets using the joysticks. Once you've locked onto a Theon the action is furious. Your wrist will get cramps trying to fend off the oncoming torpedoes and Theons.

After destroying a Theon you must change your bearings again and go after the next one until you've rid the sector of all Theons. Then you go into hyperspace and emerge into another sector, complete with a space station and more Theons. The primary difference between the sectors is that the color of your torpedoes changes.

Every hit you score on a Theon or its torpedoes will add power units while every torpedo you fire depletes your power supply. The amount of power that is restored and depleted is also determined by the velocity of your star ship.

When you've finally run out of power units the game ends, with your score appearing at the bottom of the screen. The high score appears at the top of the screen. You may replay or exit the game at this point. I think you'll choose to replay.

Theon Raiders creates an excellent three-dimensional effect utilizing photon torpedoes, approaching enemy torpedoes and a background of stars. The game play is flawless. Written in assembly language, all input, whether through the joystick or keyboard, bears instantaneous results. Sound effects are realistic and well done. There are sounds for the firing of torpedoes, explosions and a whirring-type sound when you rotate the position of the star ship.

Ease of Use: Aside from following the loading instructions, and learning how to control your velocity and direction, this game is easy to use, though difficult to win. Even at the easiest difficulty level, at high speeds, everything happens very quickly. The challenge is not in figuring out how the game works but in figuring out how to defeat the Theons, which is as it should be.

Documentation: Theon Raiders comes with a 10-page pamphlet that includes loading instructions for all versions. It provides an adequate description of how to play the game.

Value: Because this game is written in assembly language it is directly comparable to any other space game available for the TI. Although I am not familiar with all such games, I know of none that is better designed or executed. And, it is priced right at $24.95. Seeing games of this quality developed by third-party programmers is indeed encouraging.

— JK

1:6:16. Review: Assembly Language for the TI Home Computer

Everything you need to know

By **CHRISTOPHER BOBBITT**

Review	
Report Card	**Cost:** $16.95
Performance ... A Ease of Use .... A Documentation A	**Publisher:** Steve Davis Publishing, P.O. Box 190831, Dallas, TX 75219
Value .... A Final Grade .... A	**Requirements:** Console, monitor or television, Mini Memory cartridge and cassette recorder or Editor/Assembler cartridge and disk drive system and 32K expansion memory.

Introduction to
Assembly Language
for the
TI Home Computer

It seems that forever there has been a serious lack of quality instructional and "readable" material on TI-99/4A assembly language. Many of us who have combed the local bookstores, through the hoard of books on 6502 and Z80 assembly language, have ended up resigning ourselves to never knowing assembly language. Even more frustrating was the fact that the manuals that came with the cartridges that allow assembly were always obscure, and were about as much fun to read as a dictionary.

To be fair, the manuals that TI provided were only meant to teach about how to use the assembly language available on our machine, known as 9900 assembly language. They were never meant as works to teach how to program in TMS9900 assembly language. Once one learns assembly language he will find that these manuals are exceedingly rich reference works that provide magnificent amounts of information

on assembly language, and are invaluable tools. However , the question remains: how does one learn 9900 assembly language? The answer, get a book.

Until recently this was impossible. This is, until Steve Davis Publishing (Yes, the same Steve Davis who wrote *Programs for the TI Home Computer*), published a book called *Introduction to Assembly Language for the TI Home Computer*, by Ralph Molesworth. This book is THE introduction, the one that TI never bothered to write, to 9900 assembly language. Like the program book by Steve Davis Publishing, this one is a quality product, full of programs, facts and useful information

Performance: The quality of the book itself is very high. The book begins with the basics, starting with how to use the screen editor in the Editor/Assembler cartridge, and the line-by-line assembler with the Mini Memory cartridge. It continues upwards in difficulty to handling disk files in assembly and mixing assembly with BASIC. Along the way, various aspects of assembly language are covered. There are chapters on how to perform binary and hexadecimal arithmetic, what an address and a register are, how to code an assembly program, how to assemble it after it is coded and how to display text and graphics as well as define graphics characters and their colors, and there is a most interesting chapter explaining how assembly may be used to imitate the INPUT X$ statement in BASIC. For the number-cruncher, there is even a chapter on assembly language sorting and array handling programs.

Throughout the book there is an emphasis on explanation. All explanations are easy to follow, contain vital information on the subject and are even illustrated with examples. Every program given in the book is explained line by line, routine by routine. Every variable, every register and every simple instruction is explained in depth. Routines that perform useful functions are highlighted and explained separately. The book even gives text references to the Editor/Assembler manual by section and page for more in-depth information. This alone helps the user to sort out the amount of information presented in that manual. At the end of each chapter the vocabulary presented in the preceding pages is reviewed, and summaries of the information presented on important techniques are given in special cases.

The programs presented are well edited and free from errors; all may be typed in directly out of the book with no difficulty. Most of the programs are even useful, besides their educational properties, and will be used by the programmer as parts of larger programs for years to come. A few, such as the keyboard input program, the sorting program, the Mini Memory "DISPLAY AT" routine and the lower-case redefinition program, are especially useful.

Ease of Use: The book is generally easy to read. All important information is presented using only the vocabulary introduced in previous chapters. The author immediately assumes that you know little or nothing about assembly. However, he also assumes that the reader is learning the vocabulary along the way, and the book uses it. All the text and programs in the book are in large letters, and the zeros and O's are easily distinguishable. The chapters are even numbered by whole numbers, not by obscure decimal section numbers. Last of all, the book doesn't constantly stress that planning is 100 percent essential to assembly language programming, and all your programs will fail unless completely documented. Instead, it gives a simple warning of that fact in the beginning and in the summary. The book assumes you have a measure of common sense, which is nice for a change.

Documentation: As stated above, the programs presented in the book are extensively documented. Nothing goes unexplained; every line, no matter how trivial, is reviewed. The book is written in a friendly style and is a pleasure to read. It almost takes the pain out of learning a very difficult subject.

Value: A book such as this has obvious value to the would-be assembly language programmer. Even the programs themselves that are presented in the book are worth the price of the book. The various routines given are invaluable. Most of the subjects are covered in depth, the section on keyboard input especially so. The only disappointment I had in this book was that little or no information was given about the various screen modes available to the assembly programmer. Nothing was said on how the programmer is to go about getting into text mode, which allows 40-column displays of text, or, more urgently, bitmap mode, which allows fantastic graphic displays using the very pixels themselves. Perhaps another book by Ralph Molesworth would go more in depth on the well-explained subjects already covered.

Over all, it is a fine book, and is extremely useful in gaining an understanding of assembly language. I would recommend this one over all the other assembly language books to the novice programmer or hobbyist.

1:6:17. Review: The Game of Wit

Words for the wise

Review	
Report Card	**Cost:** $16.95 (cassette)
Performance . . . A Ease of Use . . . . A Documentation B+	**Manufacturer:** TEXware Associates, 350 First North St., Wellington, IL 60973, (217) 352-8594
Value . . . . A Final Grade . . . . A	**Requirements:** console, monitor or television, cassette recorder, Extended BASIC cartridge, dictionary is optional
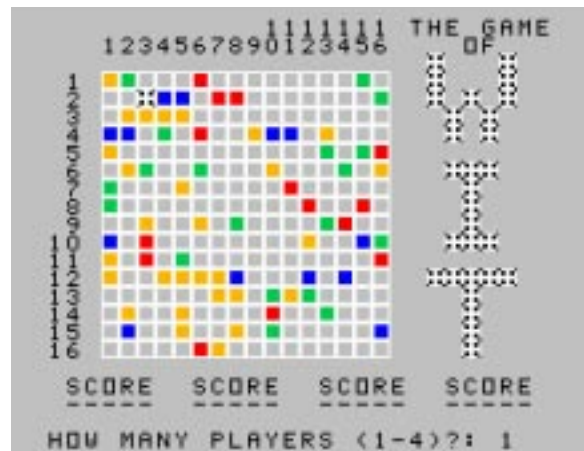
If you like to play Scrabble, you will probably enjoy The Game of Wit. Similar to the popular board game, The Game of Wit may be played by one to four players. Though the rules are similar to those of Scrabble, there are more letters in the letter pool and the point system is a bit different.

Performance: The Game of Wit is played on a "board" that includes 256 squares divided into 16 rows and 16 columns. Some of the squares are colored, indicating bonus values. A green square, for example, makes the letter that is placed on it worth triple its normal value. Blue squares increase the value of the letter by a factor of five.

Scoring is similar to Scrabble. The most common letters, such as vowels, are worth one point while the less common letters are worth more. Words are formed in the same way as on a Scrabble board or crossword puzzle. As in Scrabble, foreign words and proper nouns are prohibited. (There is nothing to stop you from adopting your own rules, however.)

The game starts with the game board being drawn on the screen. Then a musical fanfare is played, which is also played at the end of the game. The program then asks for the number of players. The lower portion of the screen is used to display the score and for inputting words. Each player's letters are shown in a box at the upper right of the screen when it is his turn to play. Players have the option of passing or playing. Also shown at right is a list of letters and their values.

Unlike Scrabble, in which a player may review his letter at all times, in The Game of Wit a player sees his letters only when it his turn, Which leaves little time to build a strategy. This is not a big problem because you don't know what letters will replace those you used until it is your turn to move again. As the title implies, you have to have your wits about you to play well. Once a player presses the **ENTER** key, signifying his intention to play, he has about three and one-half minutes to enter his word or lose his turn. After entering the word, the player is asked for row and column number coordinates and whether the word is down or across. Then the computer asks whether any of the other players would like to challenge the word. If not, it is entered on the screen and the points added to the player's total.

If a player uses a letter that he doesn't have, the computer lets him know of his error and reports that he has lost his turn.

There are 115 letters in the letter pool, somewhat more than in the Scrabble letter pool.

Ease of Use: Four people, varying in age from eight to 42, tested this game. Most have little expertise with programming, but none had any trouble learning how to use this program. All were familiar with Scrabble to some extent, so the rules of play were obvious. Viewing the game board on a 10-inch screen was a bit difficult, but if someone made an untoward mistake it was easy enough to "pass" our way back to give him another chance without otherwise affecting the score or the outcome of the game.

Documentation: The game comes with a well-designed, 12-page manual that assumes users have never played Scrabble or other word games.

Value: If you like word games as I do, you will want to have The Game of Wit. This game is well done.

— JK

1:6:18. Review: Pole Position

It's a race against the clock

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation B Value . . . . B Final Grade . . . . B	**Cost:** $29.95 (cartridge)
	Manufacturer: Atari Inc., 1312 Crossman, Sunnyvale, CA 94086
	Requirements: console, monitor or television, (joystick optional)

One popular myth about the TI home computer user is that he is software-starved. That is to say, he does not have access to the many popular titles that are available to users of other popular home computers.

In one sense, this has been true. Until recently TI users have not been able to purchase software by the "major" distributors. While this remains true in many cases (very little non-game software is being translated for the TI), Atari Inc., Infocom and others have been translating their games for the TI. The question now for the TI user is whether access to these other programs is an advantage.

The answer depends on your taste in software. I looked forward to getting a copy of Pole Position, but having gotten it and having played it I'm just not sure that it was worth waiting for. Don't get me wrong: the graphics are well done, the sound effects are realistic and the action is fast and furious. It's just that when I finished playing it I didn't have any great urge to play it again. (This may be based on age, since a 13-year-old who tried it out thinks the game is exciting.)

Performance: Pole Position is a one-player auto race game in which the drive must first qualify for a race in time trials and then race in a field of eight cars against the clock. The player's view is from behind his car and slightly above the road.

Prior to starting the time trial, the player selects the level of play (Novice, Experienced, Advanced) and the number of laps in the race (8). After a brief sequence in which a banner traverses the screen indicating that the time trial is about to begin, the player is then presented with a screen depicting a two-lane road. The player's race car appears on the track and readouts indicating speed, elapsed time, points, gear, high score and current score appear at the top of the screen. The qualifying lap then begins, with the player able to use either the keyboard or the joystick to control his car.

After the qualifying lap is finished, assuming you completed it in good time, the elapsed time and position at the start of the race are displayed. The faster you completed the qualifying lap, of course, the higher up in the pack you start. Bonus points are also awarded on the basis of the time trial. Winning the pole position, for example, is worth 4,000 points. The actual starting position doesn't make much difference, however, since you can easily pass all of the cars before reaching the first curve. Also, there is an indeterminate number of cars already on the road that you will have to steer around as the race progresses. The more laps you complete, the more cars will be on the road. Although I was able to complete a four-lap race at the novice and experienced levels, my best run at the advanced level was to complete one lap and part of a second.

The principal difference between the novice and high levels seemed to be in the number of cars on the road. The higher the level, the more cars. There may have been other differences, but I didn't notice them.

Velocity is controlled in two ways. You start out in low gear and must then shift into high gear to reach the higher speeds. (The fire button on the joystick acts as your gear shift. The "Y" key will also do the trick.) You may slow down by downshifting or by decelerating by pulling back on the joystick or pressing the down arrow key. The car is accelerated by pushing the joystick forward or by pressing the up arrow key. Steering is done by moving the joystick left or right or pressing the left or right arrow keys.

Scoring is based on the number of cars you pass as well as how quickly you complete laps. You have a certain amount of time to finish each lap. If you run out of time, your car comes to a stop and the race ends. Crashes, either with other cars or with roadside signs, result in a loss of valuable time.

Sound effects are equivalent to the engine sounds in TI's Car Wars. You hear the engine accelerate and decelerate. The squealing of tires is also realistic. The graphics are well done, with virtually no bleeding of colors. The scenery is realistic, though as a driver you do not have time to watch it as you hurtle down the road at speeds of up to 195 miles per hour.

Players may change the level of play or number of laps after each race. The "P" key is used as a pause key.

My principal criticism of this game has to do with what happens when you finish a race. Basically, nothing happens. You get your points and that is it. Completing an eight-lap race would seem to deserve more than that. You don't even know what place you took, though the assumption appears to be that if you finish the race, you won it. I would like to have seen a better scoring system. Also, you must run a time trial for every race. This gets to be very tiresome very quickly. Because all races occur on the same road, each race is much the same as the previous race. There is precious little variety.

Ease of Use: This is a very simple game to use, particularly with the joystick. You must read the directions before using the keyboard for input. Players may chose to use either the left side or right side of the keyboard for input, or both.

Documentation: The games with an adequate four-page manual.

Value: If you like arcade games or race games you will probably like Pole Position. I've seen it priced at $24.95 and do not recommend that anyone pay more than $30 for it. When this game first came out, it was heralded as one of the best games of the year. The original copyright belongs to Namco and is dated 1982. Personally, I do not see what all the excitement was about. All that I know is that I feel that I reached my level of competence very quickly and I don't think I will ever finish an eight-lap race, even at the novice level. Frankly, I don't care whether I do. (The 13-year-old is shaking his head over my comments. He likes it a lot.)

— JK

1:6:20. Newsbytes

Spelling Checker

A spelling checker designed to operate out of the TI-Writer cartridge will be marketed starting July 4 [1984], according to its designers. The program is expected to sell for $49.95.

Nebraskan Tom Kirk is the author of the program. According to Gerald Turner, who is helping out on the project, Kirk started the program last year. Turner says it is designed to operate out of the TI-Writer Utility option. It comes on two disks, he notes, and includes a 20,000-word dictionary. Users may add their own dictionaries to the system. There is no limit, theoretically, to the number of words that can be added to the program, he says. Also, the program can be used with the Editor/Assembler cartridge.

According to Turner, after loading the program using TI-Writer's Utility option, the spelling checker requests the text file to be loaded. It then checks the text for exceptions to the words in the dictionary. The same routine is followed for user dictionaries. After the text has been checked against the words in the dictionaries, the program displays the words that were not recognized. The user then has the option of changing the spelling of the words or leaving them stand. Turner says the program is done and all that remains to be done is the printing of the spelling checker manual.

For more information, write to Kirk at 2606 Ponderosa Dr., Omaha, NE 68123.

Expanded compiler

SST Software Inc. of Cedarburg, Wisconsin, released its Expanded BASIC Compiler on June 5 [1984]. According to SST, the Expanded BASIC Compiler contains all of the features of the SST BASIC Compiler as well as most of the features of TI's Extended BASIC cartridge and other commands available in either TI BASIC or Extended BASIC. The program includes commands for bitmap mode for high resolution graphics and integer arithmetic for speed.

Users may also add their own commands to the Expanded BASIC Compiler, using the Editor/Assembler cartridge, the company says. The Expanded BASIC Compiler requires the expansion memory, a disk drive and controller and either the Editor/Assembler or Mini Memory cartridge. It sells for $95. Those who purchased the BASIC Compiler before June 5 may purchase the Expanded BASIC Compiler for $50, the company says.

As a demonstration of the speed of the compiler, the company ran a benchmark program published in the April edition of *MICROpendium* that counts the number of ways change can be made for a dollar. The compiled version of the program took only 37 seconds to calculate the 292 change variations. One reader reported that the benchmark program ran in just under 30 minutes in TI BASIC and Extended BASIC.

For more information, write the company at P.O. Box 26, Cedarburg, WI 53012, or call (414) 771-8415.

Program book

Remoguides & Catalogs has come out with a 141-page book that includes 50 program listings (25 games, 16 educational, 9 personal). Thirty-two of the programs are written for console BASIC, Included are programming hints and an explanation of flowcharting. The book includes program contributions by 10 programmers. It was assembled by Remo A. Loreto. The price is $14.99. For more information, write: Remoguides & Catalogs, P.O. Box 1-4781, Cincinnati, OH 45214.

Amnion helpline

Helpline, formerly known as the International 99/4 Users Group Library Services, is operating independently of IUG. The Helpline is a service of Amnion Stoneware, which also markets products for the TI home computer market. However, all Helpline services are free of charge to any caller or writer.

Helpline provides information on hardware and software products as well as providing help to those with programming problems. Helpline maintains files on third party manufacturers. Guy Romano, Ph.D., is the resident authority and provides his services on a voluntary basis.

Users may contact Helpline by calling (415) 753-5581 from 9 a.m. to 3 p.m. (Pacific time) Monday through Saturday, or write them at 116 Carl St., San Francisco, CA 94117, enclosing a self-addressed, stamped envelope for a reply.

TInstrumentalist

Unisonic Resources, 922 Sherman St., Toledo, OH 43608, is marketing a quartet of instrumental music programs on cassette for the TI. According to the company, the programs are designed to use the computer as a tool to help develop the skills necessary to play a variety of instruments. Programs written in BASIC are available for violin and trumpet. Programs requiring Extended BASIC are available for flute and clarinet. The programs emphasize correct intonation by playing scales in unison with the computer, the company says. The programs also display fingerings, note names and position on a staff. A metronome feature is also included. The programs are $15 each, including postage and handling.

Taxes in Texas

The Texas Legislature is expected to enact a state sales tax on software sales this summer. Software has been exempt from the state sales tax. The exemption came about after a court ruled that software is not a tangible item and thus should not be taxed. Though software was made available via tangible media such as cassettes and diskettes, the argument was made that taxing the medium would be like taxing a shoe box but not the shoes inside.

A sales tax is charged for software purchases in most, if not all, other states.

Newsbytes is a column of general information for TI-99/4A 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.

1:6:21. User Notes
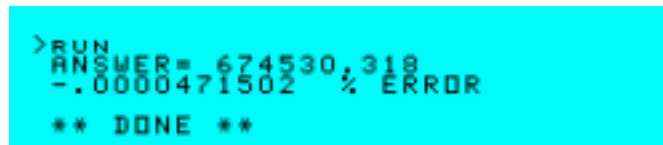
Most accurate ?

The Houston (Texas) Users Group suggests TI users type the following brief program into their computers as a means of determining the relative accuracy of the TI versus other well-known microcomputers.

```
100 N=1.0000001
110 FOR C=1 TO 27
120 M=N^2
130 N=M
140 NEXT C
150 PRINT "ANSWER= ";N
160 PRINT ((674530.470741-N)/N)*100;" % ERROR"
170 END
```

The Houstonians note that the program came from the April edition of *Scientific American*. The program squares the number 1.0000001 27 times. They note that some pocket calculators gave the results with 0.001% to 0.02% error. The Apple II, it is reported, had a 96.63% error and the IBM PC gave an answer that was 1212.06% in error.

How accurate is the TI? You'll have to enter the program to find out.

Free cassette

The Los Angeles 99ers Computer Group says that TI users who bought their consoles before Oct. 31, 1983 may still be eligible to receive a "Teach Yourself BASIC" cassette from Texas Instruments. At the time, TI offered purchasers of its home computer a choice of either attending a free programming class or the tutorial cassette. Of course, the classes were discontinued. However, the LA 99ers say you can still receive the cassette by calling the TI toll-free hotline at 1-800-TI-CARES to obtain the cassette.

Extra long

The 9900 Users Group Inc. of Moorestown, New Jersey, offers a suggestion that may be of benefit to those who write lengthy pieces of text in PRINT statements in Extended BASIC. What it allows you to do is to eliminate the discontinuous appearance of the text when the program is run. It may also have applications in program lines.

First, begin typing in the PRINT line. As you reach the end of the line length limit, enter the end quote, type in a double colon statement separator (::), hit **ENTER** and start another PRINT line on the next program line. When you run it you'll notice there is no break between the first PRINT entry and the second. You'll need to experiment to determine just where the statement separator should be placed. When it is done properly, the end of the first line is followed directly by the beginning of the second.

Get it straight

The following program comes via the Manasota 99/4A Users Group in Sarasota, Florida. The Floridians suggest using it to check for image distortion on your television or monitor.

```
100 CALL CLEAR
110 CALL CHAR (32,"FF818181818181FF")
120 PRINT ::::::::::
130 CALL HCHAR(10,1,88,5)
140 CALL HCHAR(10,28,88,5)
150 GOTO 150
```

The program displays 32 vertical lines and 24 horizontal lines, with the top 12 lines going across the screen. Five "X"s will appear on the left and right sides of line 10. Columns 1 and 32 will be missing from the bottom 12 rows. The program runs in BASIC. If you run it in Extended BASIC, it will lock up the computer and you will have to turn it off to unlock it.

132 characters

If your printer is attached to the computer via the parallel port, it's likely that when you access it you will use the simple "PIO" command to do it. That works quite well, of course, but what if you want to do more than just print out lines according to the 80-column printer default ?

According to the Johnson Space Center TI Users Group in Houston, Texas, you can print up to 132 characters of compressed type on a single line simply by defining the length in the printer output statement. Here's an example:

```
100 OPEN#1:"PIO",VARIABLE 132
```

Assuming you have set your printer for compressed type, you will be able to print up to 132 characters on a line, depending on how carriage returns are used.

Tuneful keyboard

Ilya Feygin of Jackson Heights, New York, submitted the following BASIC piano keyboard program. You won't learn how to play a piano with it, but it is easy to use and doesn't take much time to enter.

```
100 CALL CLEAR
110 DIM A(150) ,K(1000)
120 FOR T=1 TO 150
130 A(T)=T+110
140 NEXT T
150 READ A(65),A(83),A(68),A(70),
A(71),A(72),A(74),A(75),A(87),A(69),
A(82),A(84),A(89),A(85),A (73)
160 DATA 262,294,330,349,392,440,494,
523,277,311,370,415,466,554,523
170 READ A(49),A(50),A(51),A(52),
A(53),A(54),A(55),A(56),A(79),A(76),
A(80),A(59),A(13)
180 DATA -1,-2,-3,-4,-5.-6,-7,-8,
554,587,622,659,698
190 INPUT "DURATION ":D
200 BB=1
210 CALL KEY(3,K(BB),S)
220 IF S=0 THEN 210
230 IF K(BB)=32 THEN 270
240 CALL SOUND(D,A(K(BB)),2)
250 BB=BB+1
260 GOTO 210
270 FOR I=1 TO BB-1
280 CALL SOUND(D,A(K(I)),2)
290 K(BB)=0
300 NEXT I
310 GOTO 190
```

Feygin, aged 12, says the program produces a scale of notes and half notes, as well as eight noises. The first row of keys generates the noise, the second row the half notes, the third row the notes and the fourth row will produce a variety of low tones. They notes are played as you press the keys. The program will also replay every note by simply pressing the space bar.

Loading up

Here are some CALL LOADs that you may find useful. Use of them requires an Extended BASIC cartridge and expansion memory. They may also work using the Editor/Assembler or Mini Memory cartridges.

CALL LOAD (-31806,64): Disables sprites.
CALL LOAD (-31806,32): Disables auto sound processing.
CALL LOAD(-31806,128): Disables **FCTN QUIT**, sound and sprites.
CALL LOAD (-31806,0): Restores any or all of the above functions.
CALL LOAD(-31748,1): Represents normal cursor speed and normal duration for warning tones and input beeps. Loading with CALL LOAD (-31748,12), for example, causes the cursor to blink faster and increases the duration of the tones. Using zero halts the cursor and disables the tones.

Word processing

Del Gittinger, president of the Marion Area 99ers in Marion, Ohio, recently faced the problem of producing the group's newsletter without access to a bona fide word-processing program. Rather than just wait for a program to show up, he devised the following program that he calls his Quick and Dirty Word Processor.

```
100 CALL CLEAR
110 DIM TEXTS(24)
120 CALL SCREEN (12)
130 CALL VCHAR(1,2,62,24)
140 CALL VCHAR(1,31,62,24)
150 FOR X=1 TO 24
160 ACCEPT AT(X,1)BEEP SIZE
(28):TEXT$(X)
170 NEXT X
180 OPEN #1:."RS232.BA=9600"
190 PRINT #1:CHR$(15)
200 FOR X=1 TO 24
210 PRINT #1:TEXT$(X)
220 NEXT X
230 CLOSE #1
240 GOTO 100
```

Be mindful that the program is set up to dump to the printer after entering 24 lines of text. Each line is entered individually, allowing the user to manually right-justify it if he likes. Of course, once a line is entered, it is not possible to go back to correct or change it. These parameters can be changed by the user. Also, for those with a parallel printer, change line 180 to OPEN #1: "PIO".

This program can be modified so that the text is saved to disk or cassette for printing.

Accuracy counts

John Contario of Milford, Ohio, writes: "When I originally read the 'We dare you' note (February issue) to try running a TI against a Commodore 64, I assumed that the advantage was (our 16-bit) speed. After getting stomped by almost a factor of 3 by my friend's 64 in the run time category, I asked specifically what his output looked like and only then found that the TI advantage was accuracy not speed. Since he did not actually understand the program, he didn't realize that it ran — but not correctly.

"Enclosed is a summary of what I could assemble from friends and co-workers as to how other computers did with this program."

COMPUTER	TIME (sec)
IBM PC	02.5
HP 85B	03.4
DEC PDP-11	04.0
Kaypro l0	05.5
Waters 721 Controller	05.6
HP 75	08.7
Apple IIe	11.2
TI-99/4A (XB)	13.8
Atari 800	23.0
Atari 1200	23.0
TI-99/4A (BASIC)	27.7
HP 41CV Pocket Calculator	38.9

Models With Incorrect Output

Model	Time	No. Missed
Commodore 64	10.4	9, 25, 36, 100
TRSS0 Model I (XB)	12.0	25, 49, 81, 100
Timex Sinclair 1000	24.0	9, 25, 36, 100

This is the test program that was used:

```
100 FOR N=1 TO 100
110 IF SQR(N)<=INT(SQR(N))
THEN 130
120 PRINT N
i30 NEXT N
140 END
```

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.

Volume 1 Number 7. August 84. 24pp
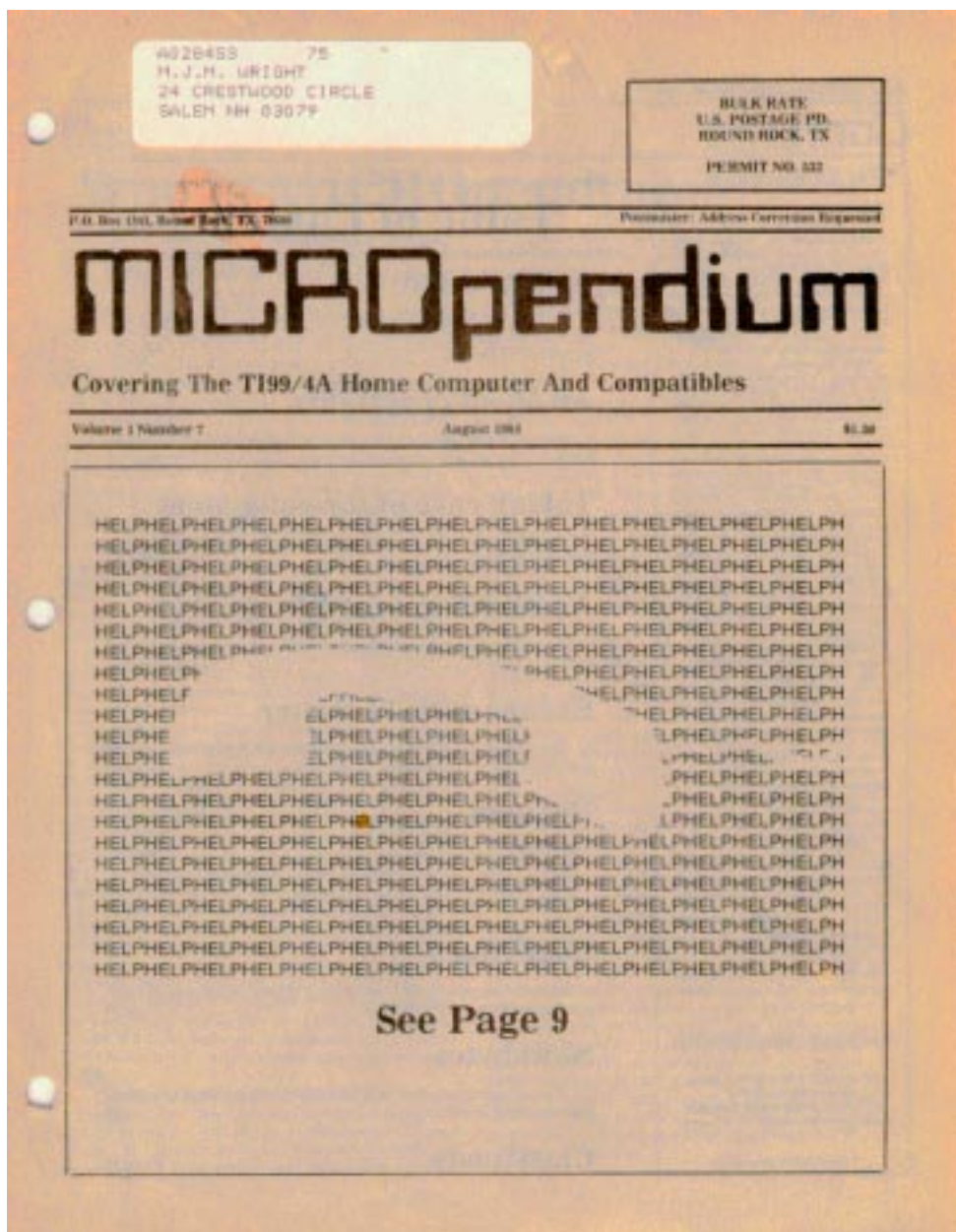
1:7:3. Comments

Who is MICROpendium?

It would be nice if the staff of *MICROpendium*, both of us, were making a living at publishing the magazine. (Please, we're not asking for sympathy. If we didn't want to publish this periodical, we wouldn't.)

Making a living with *MICROpendium* is a goal for us, of course, but in the meantime we continue to hold full-time jobs. I'm referring to myself and the editor, Laura Burns. I am a news editor at a newspaper and Laura is an information specialist with an agency of the Texas state government.

So what does this have to do with anything? Not much, except as a way of moderating some of the blame we are open to when an issue gets mailed out a few days late. Or when we aren't able to get back to someone quickly enough when they've phoned or sent a letter. We produce *MICROpendium* often despite our real jobs and we do it because we enjoy it. So, the next time you feel we haven't quite measured up to your expectations, remember that we probably haven't measured up to our expectations, either.

CONFLICT OF INTEREST?

Since my background is in newspapering, I find it difficult to ignore some of the things that go on in the world of computing, particularly in other periodicals. One item in particular caught my attention recently. If it weren't such a glaring problem I wouldn't bother to mention it. However . . .

The most recent edition of *Enthusiast 99*, which is circulated to members of the so-called International 99/4 Users-Group, carried an article about an assembly language debugger. Nothing wrong in that. It was written by Terry Heim, whose byline identified him as the IUG's Staff Technical Writer. Nothing wrong in that, either. However, what is not mentioned in the article, which reports glowingly about the product, or elsewhere is that Terry Heim is also marketing the program, called Bugout, through his company, The Data Process. In other words, Mr. Heim has a financial interest in the success of the product of which he writes. In the newspaper world, this constitutes the appearance of a conflict of interest, at the least. Although there is nothing wrong with the vendor writing about his product, the reader should be told of this fact so that he can decide for himself how much weight to give to the writer's opinion of the product. IUG owes it to its members to be candid about such things.

PIRATES OR EXTORTIONISTS?

Judging by the response from readers, *MICROpendium* will not be publishing programs meant to defeat software protection routines, including TI proprietary and Extended BASIC protection. The mail is about nine to one against publishing this information. So be it.

But don't think that we're just going to drop the subject. Far from it. You'll be reading updates about the problem in this column or elsewhere for as long as it remains an issue. For example, one software developer writes: "We have received a threatening letter from a certain California pirate, indicating that he was about to make public the means for copying our program if we didn't kiss certain parts of his anatomy. We didn't, and haven't had a sale in California for months!"

It would seem that some of the pirates would just as soon watch the programmers walk the plank. If they succeed, it's the honest user who will lost the most.

NEW PROGRAM FORMAT

Starting with this issue, we will not be setting type on program listings that appear in *MICROpendium*. The only exception will be for very short listings. Instead, we will use printouts of program files. We hope to eliminate proofreading errors by doing this.

NEW STUFF

The highly sought, and until now elusive, 80-column card is now available from Foundation Computing. There's a few caveats regarding its use, but for the first time TI users can have an 80-column display.

One wonders why such things weren't available when TI was still supporting its home computer. Of course, the development of such things takes time, and so one shouldn't be surprised at all the innovative software and hardware that's been coming out since the computer was discontinued by its maker. It's just a very unusual circumstance, that's all. What defunct machine has ever had such post-mortem support? Now, finally, we've got a 1200-baud terminal emulator, an 80-column card and a double-density disk drive controller. What next?

ANNOUNCING A CONTEST

You'll notice in our User Notes column that we are starting a programming contest. There are a number of software prizes to choose from. If there's enough interest in it, we'll continue to expand on it. We're just running it up the flagpole to see if anyone salutes.

And, to close out this month's column, I'll give you a thought for the day. If you were stranded on a desert island with a TI home computer, peripherals and a power source, and you could have any five pieces of software, what would you choose ? I can think of more than five I'd like to have, but I've got to draw the line somewhere, and five seems like a good number to me.

That's all for now.

— JK

1:7:4. Feedback

Useful stuff

In reading your May issue I was surprised to see something on turning the disk drive off, as I was just this morning working on this same problem for our local users group, Monterey Bay 99ers.

If you CALL PEEK(-31888,A,B) you will see A=55, B=215. To turn off the disk drive enter CALL LOAD (-31888,0). As you said, enter CALL LOAD(-31888,55) to turn it back on.

Also, it should be said that this is useful when running BASIC programs that are over 12K, since these load into the console RAM and with Extended BASIC and disk drive this is reduced to less than 12K. However, I would recommend using the Mini Memory or Editor/Assembler and enter 1 for BASIC since a lot of these programs use character sets 15 and 16, which are reserved for sprites in Extended BASIC. Also, Extended BASIC uses up about 2K of console RAM.

I hope this will help your readers better understand what it is that you are trying to say.

Walt Davies, GATOR SOFTWARE, Salinas, California

Clean keys

The solution offered by Chuck Moats to the GROM problems (March issue) was very helpful.

Another common problem is a key which prints two or more letters instead of one. The solution to this came off of The Source. Lift off the plastic key with a pair of pliers, shoot in some quality contact (TV tuner) cleaner onto the switch and press the key back into place. Sometimes part of the switch comes up with the key, but this is no problem if you are gentle. You need small slip joint pliers to get a grip on the keys.

Bob Stephenson, Albuquerque, New Mexico

Suggestions

Since my mama always told me to say something nice; I and a lot of other users are mighty glad to see you filling the void of TI mags since *Compute!* is gone and *99'er* is going (no tears here). Now for the hardball. I have been impressed with some past issues, particularly with coverage of important software like the IUG database (even if it is a poor implementation), Companion word processor review, coverage of Ralph Fowler's TIBBS, and even the users hint about previewing formatted documents in TI-Writer. However, I do have some suggestions.

The "extra-memory" hint is BS! I've seen this LOAD put out all over the place and it don't work. All you're doing is loading a value that is spit back on the SIZE command. I call this kind of thing pseudo-science and information sources like yours should be putting a stop to it. There are several simple tests you could have run, such as the "Size in BASIC" hint on the same page.

As for the reviews, I liked the TE-1200 (first write-up I've seen), but I thought the game reviews were an April Fools joke until I realized it was the June issue. Since when do people get paid for ripping off a game like Star-Trek and just changing the names. There's a public domain program available in CompuServe called Super-Trek that really utilizes TI's graphics and is a quantum jump ahead of this.

Having said that, I would like all the back issues before May if available, and keep it up! Also, I vote for disclosing protection breaking schemes for backup purposes only. I've personally backed up every protected disk I have through either LOADs or rewriting disk sectors (and haven't given any away). And the excuse by software developers about not writing for TI because they are copied and traded just doesn't wash. Apple users are famous for this and they have plenty. TI doesn't even have a single commercial protection-breaker available while Apple has several hardware and software versions.

Curt Purdy, Phenix City, Alabama

Users must pay

I'd like to respond to the issue of publishing deprotection methods: Please don't! It would be a disservice to software supplies, and, ultimately, to users.

It is difficult enough to recoup the investment in time, effort and money required to develop and market programs; jeopardizing the potential rewards of such investments will result in them drying up, After three years of much hard work, I've finally broken even — if I don't count the investment made in equipment. Given the very poor support we've received from consumers, it is very difficult to motivate myself to develop anything new. They don't buy what I've got now! And why should they, if they can just make copies, at will.

It's a sad indictment of today's moral and ethical standards that so many people either find nothing wrong with pirating software, or do so anyway. It is no different, to my mind, than picking the developer's pockets. The logic of the rationalization — prices are so high, quality so low, products so misrepresented, and consumers so ripped-off: copying of software is perfectly justified — completely escapes me.

Who is kidding whom? Anyone who copies a program, other than one he owns, for his personal use, is morally guilty of theft! Selling the original/copy and retaining the copy/original, is equally immoral, as is accepting or buying a copy known to be illegally produced. Personal use of an illicit copy is simply personal use of stolen property — the creative work of the copyright holder. (Our DISKIT and BACKUP programs encode program copies with the serial number of the original purchaser to discourage their use for piracy. Extended BASIC program copies immediately display the number when the program is RUN.)

What consumers and developers need is just what you are producing now: fair reviews of what is available, so consumers can locate products of a quality and price that match their needs and willingness to pay. What developers need is an affordable and effective advertising vehicle. Reader response to your ads will determine how effective a vehicle *MICROpendium* is — it's too soon to judge.

To sum up, if users want more and better programs, they must be willing to pay for them, and developers must be motivated to produce and market them. You can do a lot to help or hinder both.

Larry Sabo Maple Leaf Micro Ware Kanata, Ontario

Another 'no'

I wanted to write regarding your editorial "Who needs protection anyway?" Are you serious, or are you just trying to find out if anyone reads your editorials? I can't imagine that you really want to drive that last nail in the coffin. It is true that the deprotection codes have appeared in a few newsletters, but the great majority of newsletter editors have refrained from publishing them. At least a dozen newsletters reprinted my editorial comments on the subject, and several of the editors wrote their own very strong editorials on the subject.

It is true that the deprotection codes have been passed around by word of mouth and on the BBS, and are known to most of the users who belong to users groups and who do any programming. However, they are not known to most of the users who use their computer only to run programs and who don't know what most of the keys are worth. And they are not known to very many of the hundreds of thousands of TI owners who have no contact with a users group. But if the codes are published in a national magazine. . . ! I can't imagine that the TI market will stay active enough to support development of new cartridge-based programs for too long. After that, if everyone knows how to copy the disks and cassettes, will anybody bother to program anything?

This doesn't affect me, because I write in BASIC and can't protect anything. I just try to offer so many different programs that maybe somebody will want something they haven't been able to copy for free. However, I like the TI computer and I'd like to see it die a natural death rather than be murdered.

A few of the user groups are irresponsible swap clubs, but most of them are, as a group, very conscientious about copyright laws. But as for the individual members of those groups — 75 percent of them will copy anything they can get their hands on. Another 20 percent or so are more responsible — they will only let a few of their friends copy their programs, and their friends will only let a few of their friends . . . and put that in your computer, run it through a loop a few times, and see how much market is left!

As you say, take away the profit motive, and there's no incentive.

Jim Peterson, Tigercub Software, Columbus, Ohio

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. Mail Feedback to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

1:7:5. Debugged

Most who tried the two-line routine under the headline "Size in BASIC" that was included in the May User Notes column probably figured out what was wrong with it on your own. For those who didn't, let us say that everything was wrong with it.

Briefly, here's the right stuff:

```
80 S=S+8
90 GOSUB 80
```

Add these lines to the beginning of a program and enter RUN and wait until you receive a MEMORY FULL IN 80 message. Then enter PRINT S. A number will appear indicating the amount of memory in bytes available.

1:7:9. Ring for assistance

Amnion Helpline

By LAURA BURNS

Persons who have questions about their TI-99/4A computers may be able to get an answer — in any of 17 languages —by calling (415) 753-5581 between 9 a.m. and 3 p.m. Pacific Time.

At the other end of the line is Dr. Guy Romano, who operates the Amnion Helpline.

Romano says he started working with the TI about three-and-a-half years ago, at which time there was no user group in San Francisco, where he lives.

TI users started calling him with questions, he says, even persons who worked for TI.

They "started passing my name around," he says. When J.C. Penney's began selling the TI the salesmen gave his phone number to customers and he was "deluged with calls."

He says, "I started gathering all the data I could about the machine to try to help people."

Romano has certain self-imposed guidelines when dispensing advice.

"One thing I try very hard not to do is not to try to evaluate or give my own opinions about various things," he says. "I like to tell them what exists and try to tell them about things, just to know what's available and pass information along to people."

The phone keeps ringing during the hours the helpline is open.

"I have gone from maybe a low of 15 calls to a point where I've gone 14 hours nonstop on the phone," he says. "Starting last November I was generally a minimum of about 12 hours almost nonstop on the phone."

For this reason, he has cut the hours back. Callers call from all over, from Europe and Southeast Asia as well as from the United States, he reports. From the San Francisco area, he notes, come a "relatively small number."

"If a German calls, I can help him in German. If a Frenchman calls, I can help him in French," Romano says,

The native of France, who has lived in this country "for quite some time," says he speaks five languages better than English and 12 as well as English. He holds a Ph.D. in Romance languages and one in Germanic linguistics (a third doctorate is in fine arts), as well as a master's degree in Chinese. (English during the interview was clear, fluent and idiomatic.)

He says most of his life has been spent in education and curriculum development and notes that his "first taste" of working with a computer was in 1953 or 1954 with a mechanical translator for the U.S. government — "something like a cousin to the ENIAC" (which he describes as not so much a computer as "a house filled with radio tubes") — and "fighting with computer programmers to get the language to fit the computer."

The Amnion Helpline is free of charge. Romano says he is paid by Amnion only for handling their products that are sold or transferring orders for them. Amnion, he says, wanted to maintain the Helpline and pay for it "but I won't let them."

The reason is: "I want to be able to give people the true answers about anything without feeling obligated to any manufacturer or source and thereby give some colored information. I can be honest all the way around. There are enough different kinds of things people subscribe to and pay fees for which are of questionable help."

The Helpline, he notes, operates with "no strings attached."

For the TI-99/4A, Amnion produces Wortex, a word processing program, which sells for $50, and Archiva, a database program, which sells for $25. Both require a fully configured system, he notes, Archiva comes as Archiva 300 or Archiva 600, depending on whether the purchaser has a single-sided or double-sided disk drive.

Amnion is a ceramics production firm which also evolved into computer ceramics (chips, etc.). Romano supervised work and operated the Helpline, which he has continued to do since the main plant has moved to Australia, for Amnion customers and others.

He says questions he is asked range from "next to ridiculous ones to very, very difficult technical ones that I don't feel qualified to answer," for example, regarding hardware design.

A question might be as simple, for example, as "how to hook up a cassette recorder. It goes the whole gamut."

He says that "people are looking for someone to tell them the truth in that they've heard certain things about products — do they exist? There's a lot of rumors out there, that TI's going to go into business again, that sort of thing."

He notes that people have "been burned sending away to these little companies" and want to know whether products are good or not.

Romano says, "I can report what's been reported to me. I try to keep it at that level," rather than recommending products.

He says he can help users find sources for particular products and that he also helps with programming questions but that for the latter, "they have to write me a letter.

That's another reason I cut the time on the telephone, because I spend the rest of my time answering letters."

The mailing address for the Amnion Helpline is 116 Carl St., San Francisco, CA 94117. Correspondents should enclose a stamped, self-addressed envelope.

Romano says he does not count the letters he's answered, but "last September I remember putting my 2,000th stamp on an envelope."

He became involved with the TI rather than another computer "purely by accident."

Planning to work on computerization of certain projects, he decided to learn about computers so he would be able to ask intelligent questions. After first purchasing a "little Sinclair" and finding that it did not meet his needs, Romano was planning to purchase an Apple when a friend told him the price for the TI had dropped.

"At that time I had never heard of TI," he says, even though the 99/4 computer had been in existence for about 10 months.

He bought the TI for $600 and started learning various programming languages and "it all just blossomed from there — it was pure accident."

1:7:10. Copyrighting, how to go about it

The good news is that copyrighting your original computer program is not hard to do.

The bad news is that there are not enough legal precedents as of yet to say what that copyright actually means.

"The actual literary expression" is what is protected by copyright, explains Richard Anderson, a public information specialist with the Copyright Office. However, he notes, "Exactly what is protected and to what extent is still being defined by interpretations."

He notes that an idea in itself is not copyrightable, and that the formulas involved are not copyrighted.

Atari and Apple Computers now have cases regarding programs and program infringements in the courts, Vicky George, another information specialist with the Copyright Office, notes.

She also notes that the OCLC Database was recently registered "with a certain amount of argument."

She says "people who contributed to the database were objecting to registration on the grounds that OCLC isn't entitled to claim authorship or ownership. This might possibly end up in litigation."

Programming copyright cases are thus obviously pioneering territory for the copyright lawyers who take them on. But don't get a lawyer to handle copyrighting the program in the first place, because it is a relatively simple procedure. What you need is to get Form TX from the copyright office, fill it out and pay a fee of $10.

Form TX is the class for non-dramatic literary works, which programs are considered to be because of the actual instructions to the computer that the programmer writes on it, Anderson explains.

(Form TX also comes in handy if you want to copyright any fiction or non-fiction, poetry or prose, or a textbook, reference work, directory, catalog, or advertising copy.)

Along with the form and fee, you will have to send the Copyright Office the first and last 25 pages of the printout from your program in source code. These printouts are all stored at a site in suburban Maryland under the auspices of the Library of Congress, Anderson says. He says that approximately 4,000 programs were copyrighted during Fiscal Year 1982.

To get the application, you can call the Forms Hotline of the Copyright Office at (202) 287-9100 at any time of the day or night to leave your request as a recorded message. Anderson says this will result in a faster response than a written request, but you may also write in for the form to: Copyright Office, Library of Congress, Washington, D.C. 20559.

Should you not be able to figure out everything on the forms or need additional information regarding copyright, you can get help by calling the Copyright Public Information Office at (202) 287-8700 weekdays between 8:30 a.m. and 5 p.m. Eastern Time.

The Copyright Office may be covering even further aspects of the computer field, George notes. Legislation has been introduced in both houses of Congress to copyright the mask works of semiconductor chips.

1:7:11. An ounce of prevention

There's not a whole lot the average TI user can do to repair a piece of malfunctioning hardware. However, there are things any computerist can do to help prevent malfunctions, and most of them are of the obvious, common-sense variety.

For one thing, take a few minutes to wipe the dust away from your computer station. Pick up stray paper clips and other items that somehow find their way into things. If you've got a peripheral expansion box, make sure you vacuum the dust behind it periodically. Of course, avoid putting liquids next to your hardware for fear of spilling them.

If you live in an area where cockroaches are common, you might consider placing a thin layer of powdered boric acid under your hardware. The roaches pick this stuff up as they crawl over it. Eventually it dehydrates them and they die.

Those with cassette players should keep the recording head of their recorder clean. User can purchase a head cleaning solution or use alcohol. Kits are available that include a mildly abrasive, woven cassette tape and cleaning solution for this purpose.

Cleaning of disk drive heads is similar to the cleaning of cassette heads. There are a number of head cleaning kits available, consisting of a cleaning disk and a bottle of alcohol-based cleaning fluid. Prices range to $25 and more, but they can last a year or more.

The magnetic oxide on the surface of a disk contains a lubricant that reduces head wear. However, this oxide will accumulate over time on the head. This buildup can result in lost data, reduced head life and reduced disk life.

Disk cleaning kits are designed to remove the oxides from the heads, but must be used strictly according to directions. When the instructions call for the use of nine drops of cleaning fluid, don't think that 99 drops will clean the heads much better. Most likely the extra fluid will drip into the works, causing more serious problems than those caused by oxide buildup. When the instructions call for running the cleaning disks in the drive for 10 seconds, don't think that running them 60 seconds will clean them even better. The cleaning disks are mildly abrasive and will damage drive heads if used excessively. Also, don't clean disk drive heads too often. Once a month is enough. Cleaning them every six to eight weeks may even be a better idea.

Also, it's not a good idea to leave a disk in the drive when you turn the machine off. Nor is it a good idea to leave the disk drive door closed when turning the system off, since closing the door is what brings the heads together. If you're worried about something crawling into the drive when the system is down, close the drive door after the system has been turned off. Similarly, start the system with the drive doors open.

There are disk drive test disks available for some computers, though *MICROpendium* has not seen one for the TI. The disks run tests that measure alignment and other factors that could result in more serious problems if left unchecked. Corrective measures are almost always cheaper than repairs.

Just a little common sense can go a long way.

1:5:11. CC-99000 Expansion System

The CorComp 99000 Series expansion system, pictured above, is expected to be released this year for use with the TI-99/4A. The box will also be used with the company's CC-99000 computer, which may be introduced by the fourth quarter of this year, according to the company. The expansion system supports up to four double-sided, double-density disk drives and includes 32K of random access memory. Two half-height disk drives can be mounted horizontally inside the box. The box measures 12.5 inches wide, 4 inches high and 12 inches deep. It will use a flexible cable to connect to the TI-99/4A or the CorComp computer.

1:5:11. Wrong CAUG

Somehow we've gotten the Capitol Area Users Group of Harrisburg, Pennsylvania, mixed up with the Cleveland Area Users Group. In this case, a CAUG by any other name isn't necessarily the same CAUG. The program cropped up in the User Notes column for June. We credited the Cleveland group for a disk loader program when it was actually the Harrisburg group .that originated the program. We hope this clears things up.

1:5:12. How to spell, even if you can't

The 99/4 Auto Spell-Check by Dragonslayer ASC is out. The creation of Tom Kirk, it can be ordered by writing him at the following address: 2606 Ponderosa Dr., Omaha, NE 68123. Purchasers may also order by telephone using Master Card or VISA credit cards. The number is (402) 291-8323.

The program comes on two disks and includes a 20,000-word dictionary. Users may create as many user-defined dictionaries as they like. The program will be reviewed in the September [1984] issue of *MICROpendium*.

The program is written in TMS-9900 native object code. It is 7.8 kilobytes long. The program requires a memory expansion and disk drive to operate. It will work with either the TI-Writer or Editor/Assembler cartridges. The program is priced at $49.95 plus $3 for shipping and packaging. Included is a 10-page manual.

The 99/4 Auto Spell-Check operates by comparing text files with the dictionaries and then displaying words not included in the dictionaries on the screen. Users have the option of adding these words to a user-defined dictionary file, correcting misspelled words and viewing the word in context, among other things. The program can handle text files containing up to 23,000 characters.

1:7:13. Foundation unveils 80-column card

The company that has been selling a 128K card for the TI-99/4A has changed its name and is introducing a new product to the TI home computer market.

Foundation Computing, formerly known as Foundation, has developed an 80-column card for the TI Peripheral Expansion Box. The card will come bundled with the Companion word processing program, modified for an 80-column display. The company is also looking into producing other programs for the 80-column card, including a terminal emulator.

According to company official Bill Hunter, the card has been in development since last January. Although prototypes are available, production versions are expected to be produced by the end of July, with delivery to begin in August.

Foundation Computing was waiting for delivery of controller chips for the card in early July prior to actually assembling the card.

The card will resemble TI-manufactured cards, Hunter said. The company is also going to start marketing its 128K card in a case that is identical to TI peripheral cards, he said. Hunter said this is because the company wants its products to "look as officially TI" as possible.

The 80-column card can be used with a number of currently available programs in a limited way, according to Hunter. With programs such as Microsoft's Multiplan spread sheet, users can produce an 80-column display of data on the screen by accessing the card as a device in much the same manner as a user would access a printer. Although users can display an 80-column screen in this way, they must actually input the data in the normal 40-column Multiplan mode.

According to Hunter, the 80-column card can provide users with an 80-column display using virtually any program that can access a printer.

The 80-column version of Companion will be able to access the 80-column card directly so that input can be done in an 80-column mode.

Those interested in ordering the card may contact Foundation Computing at (415) 388-3840. Hunter says that the company is taking names but not payments on the cards. When they become available, he says, those who submitted their names first will be given the first opportunity to purchase the card. The card is priced at about $250.

1:7:14. Escape with TI-Writer

The manual that comes with TI-Writer is first-rate, when it comes to showing you how to use the program. But there's a few subjects that it only touches upon, leaving the user to fill in the gaps on his own. One of these subjects has to do with the use of ASCII codes.

The manual provides several paragraphs of information, mostly to let you know that, yes, ASCII codes can be used. It doesn't tell you much about how to use them, though. So, for those who are interested in these things, read on.

Through the use of ASCII codes users can instruct their printers to print solid lines of varying sizes, as well as graphics and other useful things. To access these items through the TI-Writer cartridge, you are required to get into the special character mode. You do this by pressing **FCTN U**. This will change the shape of the cursor. To get out of it, you simply press **FCTN U** a second time.

Once in this mode, you may access the various escape control characters, which includes ASCII codes 0 to 31. The TI-Writer manual includes a list of these definitions. The keyboard is defined through the use of ASCII codes 0 to 127. Included here are all the shifted and unshifted keys and some of the **FCTN** keys. ASCII codes above 127, however, must be accessed through the use of an escape code, such as ASCII 27, which is defined as **FCTN R** on the keyboard.

Suppose you want to print a solid line across the page. The only way to do this with TI-Writer is to first use the transliteration command to define the ASCII code that represents a solid line. In this case, we'll use ASCII 130, which will create a line about one-sixteenth of an inch wide. We'll use the asterisk to represent this code. The transliteration line should look like this:

```
.TL 42:27,130
```

where 42 is the asterisk, 27 the escape code and 130 the ASCII code for the solid line.

Having defined the transliteration command, place the cursor at the point where you want to start the solid line. Then press **FCTN U** and then press **FCTN R**. You will notice that the **FCTN R** is represented on the screen by a character that looks like a tiny "b." Now, follow this with an asterisk. This will result in the printing of a line that is one column long. To make a longer line, simply alternate **FCTN R** symbols with the asterisk until you've reached the length of line you want. Then hit **FCTN U** to get out of the special character mode.

When you print it out, you'll see your line. You may be able to figure out a way whereby you don't have to repeat the **FCTN R**-asterisk routine for the length of the line. Let us know if you do and we'll pass it on to other readers.

1:7:15. Review: Terminal Emulator-1200

Going faster with the RS232

Review	
Report Card Performance . . . A Ease of Use . . . . C Documentation C Value . . . . A Final Grade . . . . A	**Cost:** $49.95 (diskette)
	Manufacturer: Softmail Inc., P.O. Box 745, Rockwall, TX 75087, (214)722-1079
	Requirements: console, monitor or television, disk drive and controller, expansion memory, Editor/Assembler or Mini Memory cartridge, printer is optional

TE-1200 is the only terminal emulator program available for the TI-99/4A that permits users to transmit and receive data at speeds of more than 300 bits per second via the RS232 port. Let me qualify that: I know of only one other terminal emulator program, TI's Terminal Emulator II cartridge, and it operates at no more than 300 baud.

Performance: TE-1200 is a fully-programmable terminal emulator program, allowing the user to select baud settings ranging from 110 to 9600, parity (odd, even or none), the number of data bits (7 or 8), duplex (half or full) as well as the number of stop and start bits. The default is for X-off and X-on.

TE-1200 allows the user to do virtually anything he can do with TEII except access the speech synthesizer. It also does not support graphics or color.

I operated the program out of the Editor/Assembler cartridge, accessing both CompuServe and The

Source, as well as a university mainframe, at both 300 and 1200 baud. I used a Signalman Mark XII modem, which will be reviewed in the next issue of *MICROpendium*.

Those who subscribe to The Source, in particular, know that one of the most frustrating aspects of telecommunications is the sometimes interminable wait between the time a command is issued by the user and the time it is finally implemented by the host computer. While much of this annoying condition is the result of such variables as the number of users using the system at that time, I found that at 1200 baud these delays were much shorter than at 300 baud.

Using a 1200 baud modem also provides the user with more control codes than are available with many 300 baud modems. TE-1200 allows the user to take advantage of such modem features as auto dialing and answering. However, these are not a function of the terminal emulator per se, though they are implemented through it.

Unlike TEII, TE-1200 uses the 32K memory expansion, and provides the user with 12.5 kilobytes of data storage. TEII stores only about three screens of data. While TEII is able to print out only the screen that is displayed when the output command is issued, TE-1200 allows the user to define the beginning of the output by pressing the **CTRL 3** key. Pressing the **CTRL 4** key defines the ending parameter of the material to be printed. Unfortunately, TE-1200 does not permit the user to page back to print out previously viewed data. (However, one can page back to view the data.)

TE-1200 also provides more flexibility in correcting text before sending. Using such features as the SMAIL function on The Source, for example, I was able to retype several lines, even after hitting the **ENTER** key. Using TEII, one can retype only the line one is typing on, and then only before hitting the **ENTER** key.

TE-1200 also uses **CTRL** keys to start a file transfer and to terminate it and permits the user to reset the transmission parameters without exiting the program by pressing **CTRL 1**. However, this does not mean that one can log on to a telecommunications service at 300 baud and then change to 1200 baud. Neither CompuServe nor The Source allows this kind of change without signing off and logging on again.

File transfers worked quite well at 300 and 1200 baud. Although telecommunications services charge about twice as much for 1200 baud service than for 300 baud service, downloading and uploading is about three and a half times as fast at 1200 baud than at 300 baud. This can result in a real savings for those who routinely write files to disk or printer.

I found the auto-logging function to be very useful. This allows the user to automatically dump to disk all the data that crosses the screen. One can go through various sections of a telecommunications service very quickly in this way, writing the data to disk and reading the data at one's leisure after signing off.

One thing I don't like about TE-1200 is the fact that it double spaces all output to the printer. Line lengths depend entirely on the number of screen characters the user inputs when logging on to the telecommunications service, but line feeds seem to be generated by a program default. With a 12.5K buffer, dumping data can consume a lot of paper over the course of a single evening's telecommunications.

As a note to those who purchase this program to be used with a 1200 baud modem, the pin alignments probably will have to be modified before it will work with the TI RS232 configuration. Rather than having the pins modified on either the RS232 or the modem, I had a double-ended connector built for $15. All pin switching was done in the connector. This way, if I ever decide to sell the modem, I can do so without having modified it. Most off-the-shelf modems that I know of are not configured by the manufacturer to operate with the TI without a minor modification.

Ease of Use: Anyone familiar with how an RS232 port works will find this program to be easy to use. Everything is industry standard, as they say.

Documentation: The documentation that comes with TE-1200 consists of four pages that are stored on a file on the TE-1200 disk. It can be read using TI-Writer or the Editor/Assembler cartridge. It is very short on description, explaining only the barest facts that you need to get the program going. It is designed to be used only by those who are already familiar with terminal emulators. I must point out, TI did a bang-up job with the documentation that came with TEII.

Value: If you're looking for a 1200 baud terminal emulator, this is the only one in town. It does what needs to be done to send and receive data at 1200 baud. At this point, 1200 baud is the business standard for telecommunications. There are many things that are being done at 1200 baud that simply are not worth doing or cannot be done at 300 baud.

Until now, TI users have been locked out of many serious telecommunications applications. This program opens another door for TI users who are interested in moving forward in telecommunications.

— JK

1:7:16. Review: Tower

Keeping them flying

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation A Value . . . . A Final Grade . . . . A	**Cost:** $18
	Manufacturer: Not-Polyoptics, 13721 Lynn St., Woodbridge, VA 22191
	Requirements: console, monitor or television, cassette recorder, Extended BASIC cartridge
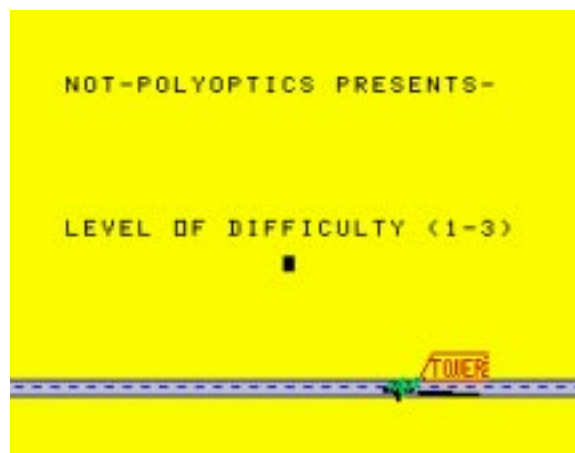
Tower (aka Civilian Air Traffic Controller) is among the most recent programs offered by Not-Polyoptics. Although most of the company's games are written in BASIC, some of its most recent additions, including Tower, utilize Extended BASIC. And to good effect, I might add.

Performance: The object of Tower is to guide a number of airplanes of varying descriptions to a safe landing while simultaneously insuring safe takeoffs for those already on the ground.

According to the documentation that comes with the game, you are an air-traffic controller at Washington National Airport. It is night-time and there is poor visibility, with a ceiling of 400 feet. You are equipped with a radar screen that provides a view of the airport and surrounding areas. Visible on the radar screen are the Potomac River, the Pentagon and populated areas. You have two runways under your control, north and south. Arriving airplanes approach the field from either the northwest or southeast and it is up to you to provide the commands that will help the pilots land the planes safely.

You have a number of commands at your disposal, including those having to do with changing altitude and direction and velocity (by raising or lowering flaps). You can also place a plane in a holding pattern if you like. The status of each flight is reported at the right of screen, providing such information as flight identification, course, altitude, type of plane and flap position. There are three types of planes using the airport: 727s, DC9s and private aircraft. Each type has its own characteristics. For example, DC9s are fast but difficult to control.

The game starts out with a screen devoid of flights. Then the first flight appears as a white blip and its status appears at the right of the screen.

From now on it's up to you to get it on the ground.

By inputting commands regulating altitude, direction and velocity, you are able to guide the planes to a safe landing. Complicating the matter, however, is the fact that the second, third, fourth and fifth flights appear on the heels of the first. Dealing with five flights at once is the challenge that the game offers and one which, at the higher levels, becomes difficult. At level one, the planes appear on the screen at respectable intervals so that you can guide one to a landing before giving serious consideration to the next one. At levels two and three, the planes come onto the screen in rapid succession, requiring you to consider what effect an altitude or velocity change on one plane will have on those following it. You may have three or more planes stacking up from one direction, making such considerations vital. Also, one must make allowances for momentum and inertia when issuing commands.

With several planes on the screen at one time it gets difficult to recall which is which. Using the identify command, you can momentarily replace each blip with a large letter representing their IDs. Very handy, indeed.

Further complicating matters at the higher levels are such things as clearing planes on the ground for takeoff and getting them airborne without colliding with incoming traffic. Not to mention the possibility that the landing gear of one of the planes on the ground will malfunction, blocking off access to one of the runways. Also, at level three, a terrorist may take over a plane soon after takeoff and demand to be returned to the airport immediately. And, of course, one mustn't overlook the possibility that a plane will run out of fuel. More than one game ended for me in the flame-out and subsequent crash of a fuel-starved 727.

At all three levels, there is a storm cloud that passes across the screen, causing turbulence for those planes that cross its path. Also, the higher the level, the lower the weather ceiling and the less leeway you have in terms of runway approaches.

What can I say? It is fun to play. Tower uses sound effects to indicate that input has been recorded and to indicate that a plane has landed or taken off. The radar screen provides a representational view of the area around the airport. The response to input, of course, is not immediate. You have to make sure that you firmly press the keys down or you'll likely get a "Transmission Garbled" response from the computer. Lest you not think this is serious business, the game also keeps score for you, displaying the results at the end, either after you've landed five planes successfully, had one crash or shortly after the fifth plane has taken off. Landing five planes, provided you've done it efficiently, will result in an "A." Any time a plane crashes, your grade automatically drops to an "F." Anything lower than a "B," the documentation cautions, is a poor grade.

Ease of Use: The game uses multiple keystrokes for input to identify the plane by its letter, the type of activity you want to initiate (direction, altitude, etc.) as well as the number to indicate how high or in what direction you want the plane to go. This seems to be more difficult at the start than it actually is.

Documentation: Tower comes with a six-page manual that provides sufficient narrative to get the user ready to take over the tower.

Value: I enjoyed playing this game. I particularly appreciated the fact that the three levels differ in significant ways, and not just in the fact that things go faster as in many games. I became competent at level two fairly quickly, but failed to get any grade higher than an "F" at level three. I don't know how many times I said, "Just one more time," after seeing my failing grade appear on the screen.

— JK

1:7:17. Review: Galactic Battle

Rule the universe, admiral

Review	
Report Card Performance . . . A Ease of Use . . . . B Documentation B+ Value . . . . B Final Grade . . . . B	**Cost:** $17.95 (diskette)
	Manufacturer: EB Software, 12912 Villa Rose, Santa Ana, CA 92705
	Requirements: console, monitor or television, disk drive and controller, 32K memory expansion, Extended BASIC cartridge, printer is optional

Galactic Battle is a space game for 1 to 9 players in which each player competes against the computer and others in an attempt to take over a galaxy.

Performance: Although this game uses several screens, the graphics are not Galactic Battle's strong point. Its strength lies in the playing out of a battle between as many as nine "admirals" who command fleets of space ships.

Prior to the start of battle, players are asked whether to load a game that has been saved. (The save game feature is a necessity, since a full-scale galactic war can take hours to complete.) If not, the computer asks whether you have an 80-column printer attached. If so, you may choose to have the galactic map printed out. The players then select the number of planets to include in the galaxy, from 10 to 34, the number of players, from 1 to 9, and the time period, from 1 to 999 "years." The time limit may be changed while the game is being played.

There is a 20 row by 20 column screen map for those who play without a printer. Although this map shows only the relative positions of the planets, a display with the X and Y coordinates of the planets will also appear. Players may then mark the coordinates on a sheet of graph paper for a true representation of the galactic map. Players may reject any arrangement of the galaxy if they wish. Once a map has been accepted, however, it remains the same for the duration of the game.

Each planet is identified by a number, from 1 to 34, depending on the number of planets in the galaxy. Each player starts out with a fleet of 100 vessels on his home planet with which to conquer the galaxy.

The game now gets under way. The main screen consists of two rows of data listing the planet number, the owner's number, the number of vessels occupying it and the production capability of the planet. Of these figures, the most important is the "production" number. This refers to the number of vessels it produces during a year. The more ships your planets produce the larger and more powerful fleets you are able to create.

A turn ("year") consists of each player inputting the number of vessels in a fleet, the number of the planet from which the fleet is to come and the destination of the fleet. Players may enter as many fleet movements as they like during a turn. The actual arrival of the fleet at its destination is determined largely by the distance it has to travel to get there.

These fleet movements may be inputted at each turn. The actual outcome of battles is determined between turns when a second screen appears, depicting a planet's surface. There are several gun emplacements on the surface. Overhead, the attacker's fleet, in the form of a rocket, passes across the screen. Indicators at the bottom of the screen display the strength of the two forces as the battle progresses. One nice touch is that the gunners on both sides occasionally miss, thus improving the chances of the weaker side. The two forces exchange fire, with the winner determined by who gets the first shot in as well as the difference between the strength of the attacking and defending forces. Generally, small fleets will fail to overcome defensive forces.

Patience is the key to galactic victory. The best strategy seems to be to take over nearby planets first so as to increase the production of vessels so as to be able to amass larger fleets for longer distance battle. At the start, the computer "owns" all the planets except those designated as home planets. Thus, no matter which planet you attack, there will be a defensive force stationed to try to repel you.

Further complicating matters for the would-be galactic conqueror are "star alerts." These occur randomly between turns and essentially represent a variety of hazards encountered by fleets during flight. They may consist of time warps that will delay arrival at the destination, or attacks by space pirates which will inevitably reduce the size of the fleet.

The graphics in this game are quite adequate, though I found some of the color schemes to be annoying.

For example, the status screen which provides the data on all the planets uses blue for the characters on a black background. This is very difficult to read.

Sound is used to represent explosions during battles, which is appropriate. Jon Burr, who authored the game, says that expansion memory subroutines are used to control all the screen graphics and screen clears.

My principal reservation is that more was not done to speed up the game. Having to press the **ENTER** key each time you input a single command slows things down and increases the likelihood of mistakes, which means that the commands must be re-inputted. Also, the battle scenes take up too much time for my taste, particularly in the latter stages of a multi-player game when 10 or more battles will be fought between turns. I'd much rather have simply been informed that the battle was fought, the strengths of the opposing forces and the outcome rather than having to sit through battle after battle. What makes this game enjoyable is the strategy that goes into playing it.

Although the game starts out with a one-minute, 45-second introductory sequence, users may forego this by hitting the space bar.

Ease of Use: Aside from the above reservation regarding the inputting of commands, this game is not difficult to play. However, novice players will probably not fare well in their first game. It takes a couple of tries before the strategic complexities are fully appreciated. I found that some players simply do not have an appreciation for strategy and tend to be defeated rather quickly while others, who do understand strategy, pick up on it quickly and are able to play rather successfully. This does not seem to have any bearing on age or sex, since pre-teens and women did as well as the men and teens who played it.

Documentation: The game comes with a 12-page manual that came close to answering all of my questions. Specifically, I would like to have seen a bit more description of "star alerts," particularly regarding their frequency, effects, etc.

Value: Those who have printers will appreciate the printer option of this game. The price is reasonable for what you get. This seems to have appeal for those who are inclined less to arcade action and more to the cerebral side of war making.

— JK

1:7:18. Review: Galaxy

. . . or, rule the universe

Review	
Report Card Performance . . .　A Ease of Use . . . .　A Documentation　B Value . . . .　B+ Final Grade . . . .　B+	**Cost:** $16 (cassette)
	Manufacturer: Microcomputer Games, 4517 Harford Rd., Baltimore, MD 21214
	Requirements: console, monitor or television, Extended BASIC cartridge, tape recorder and cables
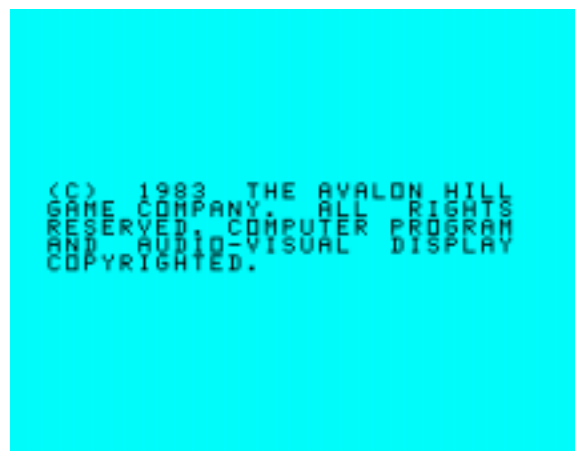
Galaxy is Avalon Hill's second translation for the TI home computer. The first was the TI BASIC version of B1-Bomber. Galaxy is programmed to operate in Extended BASIC.

Performance: This multi-player space-strategy game operates much like Galactic Battle, which is reviewed elsewhere in this issue. The principal difference, aside from the fact that it comes on cassette and uses only console memory, is that it is easier to use and uses only one screen.

Game set-up includes provisions for loading a saved game, inputting the number of players, from one to four, the number of planets, from 5 to 26, four-letter designations for each player (each player has his own color, too) and the duration of the game, from 50 to 100 "months." Players may also decide whether to allow the computer to attack the participants and the frequency of the attacks. At the start of the game, each player has one planet while the others are owned by the computer, whether he is allowed to attack or not. The screen depicting the galaxy may be redrawn at the beginning until all players are satisfied.

The screen display is well-designed, using the upper two-thirds to depict the galaxy and the lower third to display input prompts and display the results of battles. Each planet is denoted by a letter from A to Z and a colored circle corresponding to its owner's color.

Players have a choice of several commands, which may be displayed on the screen at any time by pressing the "H" key. The commands include (L)aunch ships, (I)nspect planet, (C)alculate transit time and (N)o further orders. Other commands permit the user to reset the time limit, save the game, etc.

Each player starts out with a home planet and at least 100 ships. Ships are launched by pressing the "L" key and responding to the prompts for the source planet, the destination planet and the number of ships to send.

The Inspect command allows the user to review the status of selected planets that belong to him. This command reports the number of ships on the specified planet and the ship production capability (from 0 to 10) of the planet. The production capability refers to the number of ships the planet creates per turn. The more ships it creates, the more useful the planet is to a player since he can use the extra ships to create larger fleets with which to attack other planets.

The transit time command lets the player know how many turns it will take for a fleet to fly from one planet to another.

Sound is used to simulate battle sounds between turns when attacks are made. Beeps are used to indicate that a key has been pressed during input. The **ENTER** key is used only after all input for a particular move has been made. Each player may launch as many fleets as he likes during any turn. The "N" key is pressed to signify the end of a player's turn.

I have no major reservations about this game. It is well-implemented, considering that it is designed to run out of the memory available in the TI console. The screen display is easy to read and the color coding of planet ownership is a nice touch. I also like the fact that the user decides whether to let the computer play or not.

Ease of Use: This is an easy game to play, from the standpoint of input. The ability to call up a list of available commands at any time is very helpful. A minimum of keystrokes is necessary to input the commands for any move. People of all ages who played this game picked up on it right away.

Documentation: The documentation gives the basics for several versions of the game (Commodore, Radio Shack, IBM, Atari and TI). Although the company makes an attempt to allay criticism of the documentation by noting that it has been verified by Software Testers of Universal Microcomputer Programmers (STUMP), I think it is inadequate. For example, the documentation does not include any specific reference to the pre-game selection of options. It is my opinion that documentation should reflect the software, and it is principally on this basis that I evaluate documentation. Sorry, STUMP.

Value: I enjoyed playing this game with the family. Everyone, regardless of sex or age, was able to participate. And it wasn't long before mom and one of the boys started to develop alliances to attack you know who.

— JK

1:7:21. User Notes

File converter

Trying to get a file written by one program to be read by another needn't be a cause for frustration. The following program takes the original file (written onto disk using TE-1200) and modifies the file characteristics according to the user's needs (in this case for use by TI-Writer). Here is the basic program, which runs in Extended BASIC:

```
100 REM DISK CONVERTER
106 INPUT "FILE TO CONVERT
    =":ABC$
107 INPUT "FILE TO CREATE
    =":DEF$
110 OPEN #2:DEF$,DISPLAY
    ,VARIABLE 80
120 OPEN #1:ABC$,DISPLAY
    ,VARIABLE 128
130 LINPUT #1:A$
140 PRINT #2:A$
145 PRINT A$
150 IF EOF(1)THEN 170
160 GOTO 130
170 CLOSE #2
180 CLOSE #1
190 END
```

Lines 110 and 120 are the most important at this point. The characteristics of line 110 (DISPLAY, VARIABLE 80) matches the characteristics of a file created by TI-Writer. Line 120 loads a file written in display format with a 128-byte variable record length. Most of the actual work is done by line 130.

Suppose you want your file to be read by a program that requires internal format with a record length of 254 bytes. The procedure is a bit different, since LINPUT cannot be used with internal format files. First, you would modify line Il0 to reflect the characteristics that you want your file to have:

```
110 OPEN#1:ABC$,INTERNAL,VARIABLE 254
```

Then you would have to change line 130 from LINPUT to INPUT:

```
130 INPUT#1:A$
```

Each record appears on the screen briefly as it is read. This is a particularly useful program to use with TE-1200 files because TE-1200 has an auto-logging feature that allows the user to dump all data that crosses his screen into a disk drive automatically. Terminal Emulator II will dump to a disk but only one screen at a time and only on operator command. This means that the user has to wait while the data is being written to a disk, using up valuable on-line time when using a telecommunications service such as CompuServe or The Source.

Where's the error?

This tip comes from a column written by Don Mason in the Massachusetts Users of the Ninety-Nine and Computer Hobbyists (MUNCH) newsletter. It has to do with pinpointing the location of error messages generated by the computer.

Suppose you've just finished writing a program. You've saved a copy of it and now you RUN it. What happens? An error message is generated: DATA ERROR IN LINE XXXX. You look at the line referred to in the error message and it turns out to be a READ statement. Now you want to isolate the error. One way of doing it, according to Mason, is to change the READ statement to PRINT. Now when you RUN the program the error message that appears will tell you the last value that it read correctly, the next one being incorrect.

Cassette to disk

How many times have you tried to load a lengthy program from cassette onto diskette and found that you couldn't do it? Once is too much. Here's a suggestion from the Airport Area Computer Club of Coraopolis, Pennsylvania, that should help.

First, the problem usually results when trying to load a long BASIC program. While the cassette program works fine without a disk system, plugging a disk drive into your console results in the loss of about two kilobytes of program space. The disk system requires this memory for system overhead.

Now, having said that, enter BYE, get into TI BASIC and enter a CALL FILES(1) command. Then enter OLD CS1 and load the program from cassette.

Now, delete a single line from the program. Choose a REM statement if possible, but write the line down for future reference. Next enter SAVE DSK1.*filename*. After saving the program to disk, enter BYE again and load Extended BASIC. After getting into Extended BASIC, enter NEW then CALL FILES(1). Then enter OLD DSK1.*filename* to load the program from disk. Replace the line you deleted if you like and then enter a CALL FILES (3) command. Then enter SAVE DSK1.*filename* and save the program again. Then enter RUN.

Okay, what if the program will run only in BASIC? Follow this procedure: enter BYE, get into TI BASIC, load the program from disk and then enter RUN. If you get a MEMORY FULL IN LINE XXXX message do the following: enter CALL FILES(1), enter RUN, then enter SAVE DSK1.*filename*. From now on you will have to enter CALL FILES(1) before loading the program from disk in BASIC.

Of course, these methods will not work if the program length exceeds the available memory. However, most BASIC programs written to cassette will be shorter than the 14.5 kilobytes available in console RAM.

Lots of color

So you thought TI BASIC gives you access to0nly 16 colors. Not according to the Cin-Day Users Group of Cincinnati, Ohio. Here's a color demonstration program by Ed York that will open your eyes. (By the way, it runs perfectly well in Extended BASIC, too.)

```
100 REM COLOR BONANZA BY ED YORK
110 REM CIN-DAY USER GROUP
120 REM TI BASIC
130 CALL CLEAR
140 FOR A=40 TO 136 STEP 8
150 CALL CHAR(A,"55AA55AA55AA55AA")
160 NEXT A
170 FOR B=2 TO 14
180 C4LL COLOR(B,1,1)
190 CALL VCHAR(1,2*B,24+8*B,22)
200 CALL VCHAR(1,2*B+1,24+8*B,22)
210 NEXT B
220 FOR C=2 TO 14
230 CALL SCREEN(INT(16*RND)+l)
240 FOR D=2 TO 14
250 CALL COLOR(D,D,C)
260 NEXT D
270 CALL KEY(0,E,F)
280 IF F<1 THEN 270
290 NEXT C
300 GOTO 220
```

Win some software

Part of the joy of programming is the tinkering one does to make a program or routine just a little bit better, make it do just a little bit more than it originally was supposed to do.

Below you'll find a rudimentary score-keeping program that comes from the Los Angeles 99ers Users Group. What we want to see is what readers can do with it to improve it as a score-keeping program. We ask that you use no more than 1000 bytes. We will accept versions written either in BASIC or Extended BASIC (only one entry per person) on either cassette, diskette or printout. We will return all media if return postage and packaging is included. Include whatever documentation that is required for the program's use. The best BASIC and Extended BASIC versions will be published in a future edition of *MICROpendium*. Winners may select from the following programs, donated by the manufacturers. Please indicate your first and second choice when you submit your entry.

Here are the prizes, all of which have been reviewed in previous issues of *MICROpendium*: On Gaming, C.A. Root Associates; Void, Kean Computing Inc.; Thief, Tomputer Software; Mad-Dog, Data/Ware Development Inc.; ASW Tactics II, DEJ Software; Monthly Budget$ Master, SA2 Software; Budget Master, TXMasters; Home Budget, DCH Software; and Escape from Balthazar, Inter-8 Enterprises.

```
100 REM ***SCORE KEEPER***
110 CALL CLEAR
120 INPUT "HOW MANY PLAYERS ?":X
130 FOR PLAYER=1 TO X
140 INPUT "NAME ":PL$(PLAYER)
150 INPUT "POINTS ":PTS(PLAYER)
160 PRINT
170 NEXT PLAYER
180 REM ***NOW ASK FOR PLAYER BY NUMBER
190 PRINT :::"ENTER 0 TO QUIT":::
195 INPUT "PLAYER #":N
200 PRINT "_____"
210 IF N=0 THEN 250
220 PRINT PL$(N),PTS(N)
230 PRINT :::
240 GOTO 195
250 END
```

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 T! 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.

1:7:22. Newsbytes

TI addendum

Star Micronics, manufacturer of Gemini printers, has produced an addendum to its User Reference Guide that relates specifically to the TI home computer. Contact the company for more information or to obtain a copy: Star Micronics, No. 3 Oldfield, Irvine, CA 92714, (714) 768-4340.

Rumors dispelled?

Is TI producing its home computer in Brazil? Has General Electric picked up the rights to produce a TI-99/4A clone? These rumors have been making the rounds lately but, according to a TI spokesman, there's nothing to them. Actually, the spokesman indicated that he is not aware of any such activities. He provided *MICROpendium* with the telephone numbers of other TI executives who might be able to shed more light on the issue. Unfortunately, one of the numbers turned out to have been disconnected and the other was not answered despite repeated calls. We have yet to hear from our Brazilian correspondent.

Pascal users

TI users who own the p-Code card may be able to find some help with Pascal programming from a California group that supports the UCSD (University of California San Diego) Pascal system. Called the UCSD p-System Users Society (Box 1148, La Jolla, CA 92308), the group's library of programs is reportedly compatible with the TI. Membership is $25 annually. For more information, write them, making sure to indicate that you are a TI-99/4A user.

Newsbytes is a column of general information for TI-99/4A 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.

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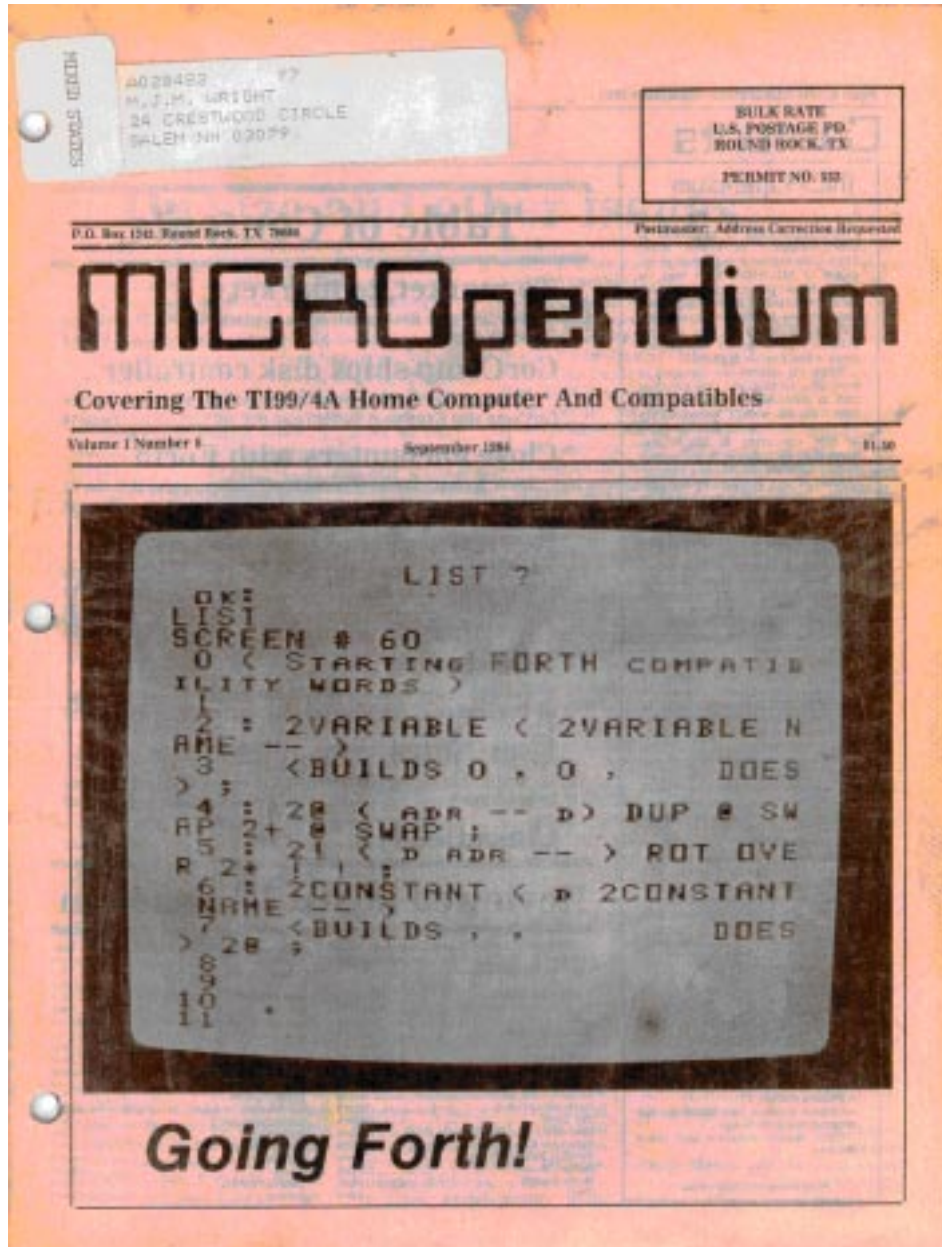
1:8:3 Comments

On size and other issues

This issue of *MICROpendium* marks something of a watershed for us. It is the biggest issue we've put together thus far, one-third larger than our standard 24-page offering. We debated over whether doing this would create unwarranted expectations about 32 pages becoming the standard but decided to do it anyway. We cannot promise that the next edition will have 32 pages, but it s certainly something to shoot for. Of course, if and when 32 pages becomes our regular output, we will start aiming for 40 pages. (Because of the configuration of the press, we must increase or reduce the page count in increments of eight pages.)

We hope to have a review in the next edition of the first piece of TI software that erases itself if the user tries to copy it. It's called Killer Caterpillar and it's being marketed by Norton Software. It's written in Assembly language. This anti-piracy technique will be showing up on more and more software in the near future. Of course, there are others who will probably figure out a way to beat it. But for now, the programmers may have gained the upper hand against the pirates.

CorComp Inc. is finally getting its disk controller card for the TI Peripheral Expansion Box to the market. We hope to have a review of it in the next issue. Elsewhere in this issue you will find an update about the card. The debut of the card hasn't come as smoothly as the company had hoped. Company officials had expected to have not only the card by early July, but also the version(for its 9900 expansion system. From what I've seen so far, I'd say the wait has been worth it. Anyone with a PEB will be interested in this card, which supports double-density drives while providing a number of powerful features that programmers will find very useful. We've detailed the features of the card in previous issues so we won't bother repeating them.

They said they would do it, and by Godfrey they did.

We've not received much of a response yet to our programming challenge. We're reprinting it in this issue. We're looking forward to receiving more entries. As I said last month, we're trying it out. If there's not interest, we'll drop it like a hot rock.

Meanwhile, the TI marketplace is changing in rather dramatic ways. At this point, *MICROpendium* is the only monthly publication devoted to the TI-99/4A. We did not think this would be the ease when we started publishing at the beginning of the year. But that is the fact today. We hope that, as our circulation increases, which it is, we can provide ever-increasing quantities of useful information to TI users. But there is a limit as to what we can do on our own. We could use some help with reviews of hardware and software and books having to do with the TI. We're looking for reviews that give the pros and cons of products, with the accent on products that are worthwhile. We aren't much interested in providing free publicity for worthless junk, unless it is such a ripoff that other users should be warned of it. Of course, we'll pay for the review upon publication. We've put together a brief outline of what we're looking for and how much we'll pay for it. We'll send it to anyone who asks for it and includes a SASE.

What kind of products are we interested in having reviewed? Just about anything, particularly hardware and applications software, that has not been reviewed in these pages. That covers a lot of territory. Anyway, write if you're interested.

— JK

1:8:3. Feedback

Will keep TI

As for pirating, I've approached it will a dual attitude. TI-based, cassette or diskette based is fair game, because the supply is limited but the demand is growing, in particular for the Scott Adams series of adventures. I've not received any bootlegged copies of the other adventures, but I cannot blame somebody who does. They can't get it anywhere else!

Third-party goods, however, are off limits. I've told the members of my (users) group, some who feel that deprotecting and mass copying of third-party software hurts no one, at least not very much, that the practice will kill the availability of BASIC and Extended BASIC software. Pretty soon, all the software will require expansion memory, Extended BASIC and a disk drive.

I agree wholeheartedly about keeping the TI. When my machine no longer fills my computer needs and desires, then I'll trade up. But to what? I still haven't figured that one out. Anyway, by the time my TI is totally obsolete, 256K+ machines the size of paperback books will be commonplace!

Dan Parrott, President, South Mobile and Alabama Users Group(SMAUG)

A disservice

I deliberately did not write to you concerning publishing programs meant to defeat software protection routines because, in the final analysis, the decision must be your own and not that of your readers. You seem to have reached a decision although it was based on letters from your readers. I knew most letters would be against such programs as the people most interested would be the programmers and distribution companies, and they naturally would be against it. They also would be more likely to write to you than the average user. If a real pirate wants to find out how to unprotect a program he will certainly find a way without having to read it in the *MICROpendium*.

I personally have changed more than one utility program to suit my needs and no one has received a copy of these programs just because I have the knowledge to copy them. You have stated that you are more interested in changing and improving an existing program than writing new programs. Surely you can see the benefit of being able to unprotect some programs in order to improve them for your personal use.

I think you are doing your subscribers a disservice by not publishing these programs. As I said, it must be your decision and I am disappointed you made it based on letters instead of thinking it out yourself.

Charles E. Roberts, Springfield, Missouri

Thanks for help

Last April I wrote to you describing the problem I was having with getting DSK3 external operational after installing two half-height TEACs in the Peripheral Expansion Box. The information you gave me together with what I learned when I called Lubbock did the trick.

You were quite right about removing the resistor pack from DSK2. The twist comes with DSK3, because you have to remove its resistor pack also, even though the manual says not to), and replace it with a DIP switch with Nos. 1 and 4 open and the others closed. What's interesting is you can use a 12-, 14- or even a I6-pin DIP switch. It doesn't matter that two or four pins are hanging over with no socket to enter. Works like a charm.

Robert H. Howry, Los Angeles, California

Free service

I have been programming in TI Forth for many months now and have been offering a free service to anyone who desires it. I have many TI Forth words that demonstrate the various VDP modes, as well as a utility program that allows anyone with a single disk drive to copy the TI Forth system disk, or any other data disk. Also, I have translated two programs from Extended BASIC — Shoot an Airplane, and Battlestar — as well as the original TI Forth programs, a Number Guessing Game, Moire Pattern, a Real Time Clock, Diamond Draw, and Suicide Ships, which is my latest program. I have been placing messages to this effect on several TIBBS boards, and have had a good response, but I feel that this offer should be on a wider scale.

Anyone desiring these free offerings send a blank diskette to: John J. Volk, Route 1 Box 291, Van Buren, AR 72956.

John J. Volk, Van Buren, Arkansas

Likes it

MICROpendium is really great! The only way to improve it would be to enlarge it!

An item of interest I haven't seen mentioned anywhere: when TI increased the warranty on the TI-99/4A it seemed that those of us who bought our computers right before that, with a mere 90-day warranty, were being short-changed. However, when my computer needed repair early this year it came home without the bill I expected. Instead, the invoice was marked "under warranty." Apparently TI covered all the consoles with the new warranty. Needless to say, I was delighted.

I was not nearly as delighted with the advice I received when I had called TI's technical advice number with a problem. My computer refused to initialize a new disk. I assumed I had a faulty disk, but couldn't try again because it was the last disk in the box. Later when I bought another box of disks and the computer refused to initialize two of them, and also refused to perform a disk test on them, I called TI for

help. I was told the problem was probably in the disk drive controller, that I should send it in for repair, and that it would take around three weeks. Since that was the only problem I had, and since it was late in the fall and I didn't want my controller getting mixed up in the Christmas mail rush, I put it off. Meantime, TI exited from the home computer market, prices dropped, and I bought another console for a backup. The first thing I did was initialize a new disk — and it worked. The problem was in the console, not the disk drive controller. I would have been very unhappy if I had shipped it off for repair, only to have the same problem when it returned.

I have complained a lot about TI's lack in the field of customer relations. However, they do some things right! Extending the warranty on all consoles was one. Another is that their programs, such as "Teach Yourself BASIC," are not protected. I learn a lot from reading programs to see what brings about the results I see on my monitor. I also appreciate being able to use a hard copy as my backup to save disks.

Mrs. Claire Roberts, Clovis, New Mexico

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. Mail Feedback to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

1:8:6. To market, to market: What products get there?

By LAURA BURNS

From a gleam in the programmer's eye to a product marketed nationwide is quite a journey for an idea.

How this is achieved was discussed by several large mail-order firms, some of which also maintain stores, which deal in products used with the TI-99/4A.

Craig Reitan, manager of Unisource Electronics, headquartered in Lubbock, Texas, says that his company tries to carry a good selection in each category, "but not everything."

For example, he notes, Unisource carries four word processing programs, ranging from a $19.95 program to TI-Writer.

He says Unisource tries to select products according to the range of equipment required to operate each program, "so that people, no matter what size system they have, can get that functionality, and we cover the range between."

Usually, he says, this means carrying from three to five "of each type of thing." This policy is true for both hardware and software, he says.

Roger Dooley of Tenex Computer Marketing Systems which publishes a catalog called "The Everything Book for the Texas Instruments 99/4A Home Computer," says Tenex's policy is to live up to the name of the catalog.

"We carry, as far as we know, the largest selection," he says.

Dooley says that "a major frontier open to software developers" is entertainment products which utilize Assembly language and expansion memory. "We're seeing some movement in that direction, but it's a largely untapped area."

He says that TI users are disappointed in game programs written in console BASIC and Extended BASIC after comparing them to Assembly language software marketed for Atari home computers and the Commodore 64.

Jerry Price of Tex-Comp says that "an exciting game at a low cost" would be in demand. Price, quality and novelty are important, he says, in that many games "look alike."

In demand, he says, would be a good database manager, a good spelling checker for TI-Writer, a "decent Koala-type pad for TI" and a color printer for TI. (Elsewhere in this issue is a review of a spelling checker program called 99 Auto Spell Check.)

Terry Miller, general manager of the Triton Products Co. a mail-order company, claims his company has the largest selection of TI-created products and that it tries to carry products that appeal to the mass TI market. Triton is the company which took over Texas Instruments' home computer inventory after TI left the home computer market.

"We won't carry any product we may have a problem with or the manufacturer won't be strong enough to stand behind," he notes.

He says the company has a testing procedure to protect the consumer and "down the road protect us from having to take the products back."

A program that Unisource would not want to market, Reitan says, would be "probably entertainment programs where that particular game is being successfully accomplished. You don't need three or four Centipede programs." There is more duplication in game software than any other area of software production, he notes.

Dooley of Tenex also notes that "right now we are not adding a lot of entertainment products. The game market is quite saturated with Texas Instruments" and other products.

"There are a lot of copycat titles, simulating arcade games or other popular computer games that are the sort of product that has little appeal right now," he says. However, he notes, consumers are interested in adventure games.

He says that the company is always interested in looking at utility programs which enable users to incorporate high speed subroutines into their own programs without having to understand Assembly language, as well as utilities that provide sorting functions and support the speech synthesizer, among others.

Tex-Comp's Price notes that utility programs in general don't do well, as they appeal to a limited group. However, he notes, there is room in the market for "outstanding" utilities, such as Navarone's Disk Fixer and the Super Duper, and QUICK-COPYer programs. (QUICK-COPYer is reviewed elsewhere in this issue.)

He says educational programs sell well.

"People are clamoring for a first rate SAT preparation program for TI," he says.

He notes that there has been an "artificial deflation in prices" with TI products such as Munch Man, Alpiner and Parsec discounted to $9.95.

"Parsec used to sell as high as $50," he says. "It's hard to come out with a game at $19.95," he says. "We can't even produce a module for under $10."

He notes that Tex-Comp is selling Parker Brothers games originally retailing at $40-50 for $19.95.

"The public has come to expect lower prices," price says. "We looked at a couple of word processing programs which were excellent, but the people who wrote them wanted them to retail at more than $100. We just can't market software at $100 any more for the TI."

He says the company that makes the product usually dictates price, but the dealers have "a good idea what's going to move."

Some programmers who spend long hours in developing software will never recover their investment, he says.

"User groups today are really out of line making unauthorized copies," he says. "Today you see a more sophisticated disk or module — neither are 100 percent safe. My opinion is that charging super-high prices encourages copying. This has been proven in the home video field: now that price has come down and they're releasing movies quicker, there's much less copying."

"We're not going to carry products that are outrageously priced," Triton's Miller says, adding that price is not the only criterion used in determining whether or not to carry a product.

Reitan says that price is less important "if a product is unique and provides a function needed in the market."

He says that the TE-1200 terminal emulator, which retails for $49.95, provides a new function in that it can download faster than TI's Terminal Emulator II (up to 1200 baud for TE-1200 versus 300 baud for TEII), and spool directly to a printer.

Though the manufacturer makes "90 percent" of the decision about the price of a product "we sometimes make a recommendation regarding whether they should adjust it. Sometimes if a product is not a good value we just won't carry it at Unisource," he says.

Dooley of Tenex agrees that price is "important but it depends a great deal on the quality of the product and the function of the product. We are looking for perceived value to the consumer. We're not looking for a cheap product or a minimum price product."

Though manufacturers establish a price range, he notes, disparity exists among different retail channels regarding such things as discounting.

In considering whether to carry a product, "generally we have several different types of individuals within our company review a product," he says, in hopes of getting different viewpoints. The company requires a sample and evaluates it from the standpoint of technical performance, ease of use and general consumer appeal.

Price says the type of review depends on the product. Tex-Comp would give the sample to associates or customers familiar with similar products, such as word processors or business products. A game might be evaluated by his own children or those of an employee, he says.

Miller says that Triton gets the product sample into its lab and persons familiar with using the TI-99/4A play it or test it out according to "as many variables as possible."

He adds, "When you're dealing with a major manufacturer, you're less concerned about this. Still, we try it out."

Unisource's review process for deciding on what products to carry, Reitan says, includes reviewing a sample or demonstration disk along with the packaging and documentation that comes with it. The first hurdle for acceptance or rejection is the uniqueness of the product and the adequacy of the packaging. Then they get reaction from retailers and have customers give feedback as to how they perceive it at the price. Then the company makes the decision whether to carry it in the store, the catalog or both, he explains.

As for how soon an accepted product hits the market, this varies. Reitan says it can be a couple of weeks for the retail locations, but for marketing through mailers or the next issue of the catalog, it can be a period of months. These go out third class mail, he notes, so there is a lapse of time before the old catalog is replaced. However, he notes, the catalog is "where the value is."

Dooley says that the time it takes to get a new product marketed depends a great deal on where Tenex is in its advertising cycle, but is generally three to 12 weeks, "depending on where we are and how timely we perceive the product to be."

Price says how soon Tex-Comp gets a product on the market "depends on what shape it's submitted in. If it's in professional shape, it could be weeks. If it needs rewriting, maybe months."

He gave the example of a disk program which Tex-Comp told the manufacturer (Heritage Software of Columbus, Georgia) could "be a winner" on cassette, and is now being rewritten for that format.

Miller says that Triton "can react rather quickly." Like others, he notes the catalog as a variable.

He says that the company is "very open-minded" regarding third-party software and says, "We're not real formal here. It doesn't have to go through a board." A third-party manufacturer "could call us up or write to us" enclosing a sample of the product and the price the manufacturer hopes to get out of it.

Reitan says Unisouree accepts third-party software and also deals with a local publisher "if the author doesn't want to deal with duplicating and packaging." He encourages third-party authors to submit to a publisher, noting that Unisource doesn't do publishing directly. He also notes that "it's a negative" to buy from a supplier of only one program.

"We have a tendency to buy from publishers who are already submitting programs," he says.

However, he adds, this is up to the authors of each program.

"If they have something unique we're certainly not going to not buy it from them," he says.

He says Unisource prefers that third-party authors submit their programs in a protected fashion.

"We'd never dream of doing anything but send it back to them," he says. "But we feel they'd feel better about it if it's protected."

Dooley says Tenex is also interested in third-party software and notes that they receive a great many unsolicited products. He notes that Tenex also regularly contacts third-party manufacturers.

"In the TI market, all the established people generally contact us," he says. "We solicit information from other manufacturers about their TI development and try to encourage them to develop other TI products."

Price says Tex-Comp is extremely conservative in regard to third-party software, in that "if you deal with mama-papa companies" through retailers, as a consumer, if there are problems with your software, "they'll never find you." He says, however, that "we do deal with a number of small companies that have good track records. If we get a product from someone who is an unknown, we have to evaluate it far more thoroughly. Even TI programs have been known to have problems."

Packaging, he says, is not as important as well written documentation in products sold by mail. If a product is designed for the retail market, he says, "it not only has to look good, but be pilfer-proof."

Earlier, he notes, TI had trouble with customers switching cartridges. Packaging for stores is also important, he says, because most clerks "know nothing about the software."

Miller agrees that packaging is not very important in direct mail, "not like in a retail store."

Reitan says documentation is important, and in a retail store, "owners are more sophisticated" about what they are willing to pay for. Packaging, he says, is "very important and becoming more and more so."

In a store, "a plain brown envelope or even a poly bag with decent graphics" is less acceptable to the consumer, he says.

"It's very important at the retail level," Dooley of Tenex agrees. "People by and large relate the quality of software to the quality of packaging."

In the long run, he notes, the quality of the software itself determines its success. However, in a store, where the salespersons do not have time to demonstrate the software, the packaging may make a difference in the number of sales.

All the dealers agree that the best thing for third parties interested in obtaining wider marketing or distribution of their product should try to get listed in their catalogs.

"I think what they have to do is look at their current distribution channels and evaluate them, and contact major distributors who distribute at the retail level," Dooley says. "They should ensure they have at least one major mail-order house, like Tenex."

Direct mail order is more important as retail stores eliminate or reduce their TI product lines, he notes. Many users already have to rely on mail-order purchases to support their machines, he says.

Price says manufacturers can succeed by approaching "the heavy hitters that move a lot of stuff with a professional proposal and package." Through small ads, he says, manufacturers can sell two or three items a month, whereas through the Tex-Comp catalog they might sell 70 or 80 of the same item "because of our reputation for not carrying anything that isn't good." Many customers are reluctant to buy from small companies, he notes.

Miller of Triton agrees that "they should get in contact with companies like us. People that use direct marketing techniques like us are probably their best bet."

For small companies, he notes, it is difficult to set up a dealer network.

"Being in the catalog is the place to be right now," Reitan says. "It's the place where those million or two TI owners are getting their software today."

As evidence, he points out that Unisource "is doing more business in the July summer doldrums than we did at Christmas last year."

This, he says, is the result of most persons not having a TI retailer or, if they do, the retailer doesn't stock the range of products available from a company such as Unisource. TI users, he says, are "being forced to buy from people like us."

1:8:14. CorComp distributes disk controller card

CorComp Inc. began shipping its disk controller card for the TI Peripheral Expansion Box the last week in July, according to Jackirae Sagouspe, CorComp marketing director.

Shipping began both to dealers and to user groups which had ordered the card for review purposes, she says. The disk controller carries a suggested retail price of $199. Included is an extensive manual and a disk manager diskette.

In addition to formatting diskettes (single- and double-density as well as single- and double-sided), the card is capable of controlling up to four disk drives. The TI disk controller card can control up to three drives and supports single-density formatting only. (The double-density feature of TI's Disk Manager II cartridge can be implemented through the CorComp card.)

About 360 kilobytes of data can be stored on a double-density, double-sided 5.25-inch floppy disk, compared to about 180 kilobytes on a double-sided, single-density diskette.

Users may set the step times of their disk drives by changing the settings of dip switches within the card. The card reads and writes files noticeably faster than TI's disk controller.

Prototype boards for the disk controller and the expansion memory for the CorComp 9900 Expansion System were expected by Aug. 4, Sagouspe says. The boards will then be distributed to 10 test sites. The boards were expected to be under production during August, with shipments to dealers beginning the week of Aug. 20. The 9900 expansion box currently consists of an RS232 card. It connects directly into the side of the TI console.

Sagouspe says that the board for the 9900 system needs to be tested and marketed before the schematic is finalized for CorComp's 99000 Expansion System. The 99000 system is expected to consist of a motherboard containing an RS232 card, 32K of RAM and a disk controller.

CorComp has a network of 1,000 dealers throughout the United States. Sagouspe says that anyone who cannot locate CorComp products may contact the company at (714) 630-2903 for the location of vendors.

1:8:16. Review: Wycove Forth

Close encounters of the Forth kind

By CHRIS BOBBITT

Review	
Report Card	**Cost:** $50 (diskette and cassette)
Performance . . . A Ease of Use . . . . B+ Documentation B+	**Manufacturer:** Wycove Systems Ltd., P.O. Box 499, Dartmouth, Nova Scotia, Canada B2Y 3YB
Value . . . . A Final Grade . . . . A-	**Requirements:** console, monitor or television, disk drive and controller or cassette recorder, Extended BASIC, Mini Memory or Editor/Assembler cartridge

The most difficult task a reviewer may ever encounter is to review a language. By their very nature, programming languages are not specialized to perform one specific task, but instead will perform a range of functions, depending upon their purpose. They are tools through which the programmer makes the computer perform a desired task.

Some of the languages available on the TI-99/4A are more specific in purpose than others, and are generally easier to use. Such is the case with Pilot and LOGO. Both versions of BASIC available from TI are more difficult to learn, but are correspondingly less specific in the types of tasks that they can perform.

The next step up the ladder in non-specificity and capability is Pascal. Pascal is said to be as easy to learn as BASIC, once several crucial concepts are learned. But it opens up to the user a whole range of new capabilities.

The most difficult language to learn, but the most powerful and non-specific, is of course Assembly language. Less esoteric but nearly as powerful and fast as Assembly is a newer language that I would place roughly between Pascal and Assembly. This language is called Forth.

The rule of thumb in comparing languages is that the less specific a language is the faster and more powerful it is. However, when reviewing a language, it isn't very fair to compare it to other languages. Each programming language has unique capabilities, ease of use and purpose. One cannot argue that Assembly language is necessarily better than LOGO because it is faster; it is also much more difficult to learn and harder to write programs in.

There is very little ground for comparison between most of the languages available for the TI home computer. With few exceptions, there is only one version of each. TI thought it was reasonable to supply only one version of each language to its computer owners, and most, if not all, of the third party software publishers do not have TI's resources to develop alternate versions. Fortunately, with Forth there are two versions available: Wycove Forth and the public domain version from TI called TI Forth. Naturally, any review of Wycove Forth is going to involve a comparison to TI Forth.

First, though, a little Forth history.

Forth was invented by a scientist named Charles Moore in the early 1970s. He developed it to help him as an astronomer. Because Forth was written by only one person, it has a unity of purpose and implementation seldom matched by those languages that were written by committees, such as Pascal and BASIC. Forth, like other languages, has evolved much to its present, sophisticated state. The present version is still true to its heritage though; it still retains its characteristic vocabulary and idioms, the 16-line by 64-column screen, its Polish notation mathematics, and its logical, yet unusual, data storage system.

To understand Forth, one has to understand how Forth works. Forth is basically an interpreted language. That is to say, the Forth language is really a program which reads the commands in Forth programs, converts them to assembly commands and executes the assembly commands. This central program is called the "kernel." The kernel contains several of the more common commands and programming statements, but by all means not all of them.

Forth is an extensive language, and takes full use of all the disk storage that it can. Many commands reside on disk, and have to be called off the disk one by one from their resident locations when the program is run. This disk storage is divided into 90 blocks of 1024 bytes each, called "screens." On these screens reside such things as the program editor, and in the case of Wycove Forth, the commands for music, speech and graphics.

Both the Wycove version of Forth and the TI version can hold only five screens of data in memory at one time. That implies that the programming area for Forth is only 6K. But since Forth is such a compact language, once Forth words, or subroutines, are defined, they are stored outside of the program area, making 6K seem like an infinity.

Wycove and TI Forth, like all other versions of Forth, use a particular form of mathematics commonly known as Polish notation, previously implemented on, among other things, Hewlett-Packard calculators. This particular system looks at the memory of the computer as if it were a stack of empty boxes and, ironically, calls the memory the "stack." One number may be placed in each box. In order to perform an operation, the computer looks at what is in the first two boxes and performs the given operation. This doesn't seem too different until you go about writing a formula in Polish notation. In BASIC, to add two numbers, say 2 and 3, one would use the statement:

```
PRINT 2+3.
```

In Forth, the same statement would look like this:

```
23+.
```

Forth takes any numbers entered and places them on to the "stack" in the reverse order from which they are entered. Therefore, the last number entered is the first on the stack. When an operation is performed the computer takes the first two numbers off the stack, adds them in this case, and then puts the answer on the top of the stack. To print out the result, we use the Forth word or command "." which prints out the number at the top of the stack.

Mathematical operations in Forth all follow this basic pattern. Forth has many words, or commands, for manipulating the stack, which is done in much the same way as a programmer manipulates strings in BASIC.

A common question asked about every language is: "What does it do?" Well, to quote the Wycove Forth manual, "Forth is a high-speed, extensible language suitable for general computing and in particular control, game and graphics applications." More specifically, Forth allows programmers to define specialized commands that function like subroutines out of the built-in commands. Programs may be written using both the created commands and the ones built into the language. Forth is limited only to the number of the resident machine's features it can access, and the amount of memory available, both on disk and in RAM. Like Assembly language, the programmer has access to 32 independently moving objects, or sprites, and 255 redefinable characters. In both versions of Forth, the programmer has the option of writing programs on a 64-column screen that uses the bitmap graphics mode of the computer, as well as writing programs that specifically take advantage of the bitmap mode's drawing features. Like BASIC, Forth has a number of special commands that enable the programmer to do things such as read data off a diskette, or manipulate string data. However, Forth performs many of these tasks at a speed close to Assembly language, yet with a simplicity that rivals BASIC.

Performance: How is a language supposed to perform? Unlike a common program, a language has no specific function, performs no given task, and cannot be played like a game. A language's performance, as gauged in a literal sense, refers to how error-free it is. After an extensive amount of testing of Wycove Forth, which consisted of defining and destroying words, or commands, performing complex mathematics and writing small to large programs, I am happy to say I haven't found anything which can be called an error. After many attempts, I have been unable to "crash," or stop the language. I can't say that the language is "bug" free, but it performs as the manufacturer says it is supposed to.

Performance is a term describing more than just how error-free a language is. In the case of a programming language, performance is also a term describing how it stacks up to other languages, no pun intended. The most obvious comparison of performance can be drawn between Wycove and TI Forth. Each version of Forth has its particular advantages over the other.

When Wycove Systems Limited was making its version of Forth, it was implemented to take advantage of the many features found on the TI-99/4A, features ignored by the TI version, among these being speech and sound. These various features can be utilized through commands unique to Wycove Forth. For example, by utilizing letters for notes and numbers for octaves, translation of sheet music using Wycove

Forth is simple. The programmer does not have to deal with frequencies of notes. Speech synthesis is also available with Wycove Forth commands if the speech synthesizer is attached. However, Wycove Forth is limited to the 300 or so words built into the speech synthesizer simply because the cartridges that allow Wycove Forth to be loaded do not support more than that. Despite this, there are instructions on how to make minor hardware modifications to the Terminal Emulator II cartridge so that it can be used by Wycove Forth to produce unlimited speech potential. These changes are not endorsed by Wycove Systems, and are only suggested as possible enhancements.

Both versions of Forth have a lot in common. Both take advantage of the machine's graphics capabilities. The TI version does allow one more graphics mode than the Wycove version, the multicolor mode. This particular graphics mode is of dubious use, however. It allows block graphics, where each block measures four by four pixels. The programmer that uses TI Forth can use this mode to color in any of the 64 by 48 blocks on the screen with one of 16 colors. The TI version also has two extra variations in bitmap mode which allow the programmer to more easily mix graphics with text. One of them, called SPLIT1, is a screen with 16 lines in the bitmap mode and eight lines in the text mode. The other, called SPLIT2, maintains 20 lines of the screen in bitmap and the remaining four lines in the text mode. These, too, are of dubious use as bitmap mode is usually used exclusively for graphics.

In both versions, the programmer has the option of choosing between a 40-column or 64-column editor. The 64-column editor uses the bitmap mode of the computer to display characters. There is really only one difference in the 64-column editors of the two versions. The TI version takes advantage of an eight-row, 40- column window in text mode for the performance of all non-programming functions, such as program execution. This gives you a clearly defined Forth standard 16-line by 64-column screen. In Wycove Forth, however, the whole screen in in bitmap mode, with the top 16 lines delineated as the programming area. While commands typed outside the editor may be easier to see in the TI version, I think the Wycove version is superior. If you try to run bitmap drawing programs in the TI version you often run off the screen, as only the top two thirds are in bitmap mode. In the Wycove version, however, you may use the entire screen as your worksheet with ease. There are ways to get the TI version to allow you to use the bottom one-third of the screen for bitmap programs, but sometimes it is more trouble than it is worth.

The 40-column editors are different in the two versions, too. The TI version uses a 40-column window on a 64-column text screen with 16 lines. This allows 1,024 characters of text. The Wycove version, however, uses a 40-column by 24-line screen in the 40-column editor, giving you only 960 characters. The TI version is slightly superior. It is recommended that you check the resolution of your TV or monitor before deciding which editor to use, as the characters are very small in the 64-column version on a small TV.

In both versions of Forth, the programmer may use 256 redefinable characters, and 32 sprites. In both versions of Forth there are appropriate words, or commands, for controlling sprites. Graphically, both versions have a lot in common. They both seem to display text and graphics at the same speed, and their graphics commands are similar. Graphics programs written in either version may be used on the other version with few changes except command names.

There is only one area in which TI Forth really stands out above Wycove Forth. That is in disk storage capability. The Wycove version allows a maximum of 70 screens of data on a disk. The TI version utilizes all the disk storage available and gives the user a full 90 screens, a difference of more than 20 kilobytes! TI Forth also has many more commands for disk handling than Wycove Forth.

Overall, both versions of Forth perform equally well. Both also perform most operations at the same speed. I prefer some features over others. On the TI version I specifically like the screen color. The TI version operates in the same colors used by TI-Writer, white text on a dark blue background. I prefer this to the black on cyan used by Wycove Forth for displaying text. However, I prefer the 64-column editor of Wycove Forth.

Ease of Use: Obviously, the design of a computer language determines how easy it is to use. The more syntax, or the more stringent a language is about what it accepts, the more difficult it is to use. Difficulty is also determined by the number of commands the programmer must memorize. Forth has a great number of commands, a number which is limited only by the amount of external memory storage available. To the casual observer this would seem to indicate that Forth is difficult to use. However, a multitude of commands in Forth may be put together under one name to perform a specific function, much like a called subroutine. On further examination, the potential Forth programmer will find there are few more commands in Wycove's implementation of Forth than in TI Extended BASIC. In comparison, TI's own version of Forth has well over 400 commands and programming statements.

To the beginner Forth is going to seem very complex. It is designed around principles that the BASIC programmer needn't learn. A popular phrase among professional programmers is that "BASIC leads to brain damage." This is not only because BASIC is easy to use, but that is also condones, and even encourages, poor programming practices and unstructured code. What it really amounts to is that BASIC programmers often have a more difficult time learning other languages than non-BASIC programmers have. BASIC is an anomaly in the programming world. Naturally, Forth is not going to be easy to use except by the Forth programmer. Since both the Wycove and the TI version of Forth are well done and are relatively error-free (the initial TI Forth had a few bugs in it), Forth programmers will find that both are easy to use. And the Wycove version really stands out! The Wycove version can be used with either a disk drive or a cassette recorder. It may be loaded into a variety of cartridges, including TI Extended BASIC, Mini Memory and Editor/Assembler. Both the cassette and the diskette are included. I had never heard of a cassette-based Forth before. Surprisingly, the cassette version is very similar to the diskette version. The cassette version even has an advantage in that the user has available to him 1,999 screens of storage on a single tape! In contrast, the TI version can be used only with a disk drive and the Editor/Assembler cartridge.

Based on the number of commands, perhaps the TI version is more difficult to use, but no matter how esoteric the commands are, their ease of use depends on how well they are documented.

Documentation: In learning a programming language, documentation is crucial. It is absolutely imperative that every command and every programming statement is covered in the manuals accompanying the language. Often, these manuals turn out to be the major if not only source of information about the language. Other books on a particular language will sometimes enhance the user's knowledge of particular commands or constructs of a language, but nothing can replace the reference manual.

Wycove Systems took a different approach to writing its manual than that established by TI. Wycove's manual is a true aid to the first-time user in most respects. While the manual clearly states that the first-time user should consult such works as *Starting Forth* by Leo Brodie for in-depth information about Forth and its concepts, the manual still provides a wealth of information about the differences between standard Forth and the Wycove version. The Forth beginner will really appreciate the programming examples included in the manual. The easiest way to learn a language is to practice it.

Also unlike the manual accompanying TI Forth, the Wycove manual is written in a usually easy-to-read manner. The discussions of various subjects never get too technical. By contrast, the TI Forth manual reads like so much mush to the beginner.

I believe the Wycove Forth manual is an excellent piece of work. The only difficulty I had with it was in finding where it explained how to access some of the mode fundamental parts of Forth, such as the 64-column editor. In the Wycove version of Forth, I found it is necessary to type in the following to use the bitmap 64-column editor:

```
20 -LOAD BMEDITOR.
```

In comparison, to call up the 64 column editor with TI Forth it is necessary to type in:

```
-64SUPPORT
```

These commands are both rather short, if somewhat mysterious. The big difference between them is that the TI version of Forth makes its commands clear when Forth is first turned on. They are clearly displayed on the screen. In contrast the opening screen of Wycove Forth like that of BASIC, says plainly that the language is "on." Even the TI Forth manual, which is a very poor Forth tutorial, clearly explains what the commands do, if not what to do when the command is executed Nowhere was I able to locate in Wycove's manual how to enter the 64-column editor! Because I have had some experience in Forth, it wasn't hard to figure out how to run the Wycove 64-column editor. But pity the first-time user familiar only with the "friendliness" of BASIC.

Value: It is difficult to assign a value to a language since that depends more on what the programmer makes of it than anything inherent in the language itself. To the knowledgeable programmer it may be very valuable. It gives the programmer the ability to write programs with the power of Assembly language without having to learn Assembly language. To the beginning user, it is really worthless. Forth is definitely not for beginning programmers. It is best to say that the value of Forth depends on the programmer who is using it.

Conclusions: Though Forth is not for the beginner, its concepts and capabilities are often too esoteric for even advanced programmers. BASIC programmers, like me, may find it especially difficult to learn Forth. Pascal or Logo programmers will have difficulty, but much less than BASIC programmers. This is due in part to the fact that structured programming is the only programming possible in Forth. The BASIC programmer who becomes a Forth programmer will always long for the GOTO statement of BASIC.

Both Wycove and TI Forth are easy to use. In terms of "completeness," Wycove's implementation of sound and speech make it a winner. It's nice to be able to hear sound effects in Wycove Forth after writing programs in TI Forth all day. TI Forth is practically the "silent" movie of programming languages. The fact that Wycove Forth is also a "talkie" makes it stand out.

In regard to the manual, both are good though geared to different audiences. The beginner will be comfortable with the Wycove manual while the TI manual is best suited for the knowledgeable programmer. However, I believe Wycove's manual stands out because of its readability while the TI manual earns an honorable mention on the basis of its completeness.

In terms of value, Wycove Forth stands ahead of the TI version, particularly to the Forth beginner (which probably constitutes 99 percent of the market). The many programming examples in the manual and the ability to run out of cassette or diskette and any of three cartridges make it far more versatile than TI Forth.

In terms of performance, it is difficult to say which is superior. At best, it's a draw. Both versions have essentially the same instruction set, and both work equally fast. There are minor features in each which I prefer: the 64-column editor of the Wycove version and the 40-column editor of the TI version. Perhaps if the TI version had been completed — TI never finished it because the company dropped its home computer before the Forth project was ready to be marketed — it may have been a more powerful language than it is. After all, TI has far more resources than Wycove and they weren't working in the dark as much as the Wycove people were. As you know, much of the internal workings of the TI-99/4A is a mystery to virtually everyone except TI.

Overall, I prefer the Wycove version of Forth. It is consistent, well-documented and has many features not found in the TI version. Best of all, it is designed to be learned by the beginner. The people at Wycove went to great lengths to make Forth accessible to average users — there is even a complete list of every defined word available at the touch of a couple of keys — while with the TI version the user must constantly refer to the hard-to-read manual for instruction. Forth is a nice fast language.

1:8:21. Win some software

Part of the joy of programming is the tinkering one does to make a program or routine just a little bit better, or make it do just a little bit more than it originally was supposed to do.

Listed below is a rudimentary score-keeping program that comes from the Los Angeles 99ers Users Group. What we want to see is what readers can do with it to improve it as a score-keeping program. We ask that you use no more than 1,000 bytes.

We will accept versions written either in BASIC or Extended BASIC (only one entry per person) on either cassette, diskette or printout. We will return all media if return postage and packaging is included.

Include whatever documentation that is required for the program's use. The best BASIC and Extended BASIC versions will be published in a future edition of *MICROpendium*. Winners may select from the following programs, donated by the manufacturers. Indicate your first and second choice when you submit your entry.

Here are the prizes, all of which have been reviewed in previous issues of *MICROpendium*: On Gaming, C.A. Root Associates; Void, Kean Computing Inc.; Thief, Tomputer Software; Mad-Dog, Data/Ware Development Inc.; ASW Tactics II, DEJ Software; Monthly Budget$ Master, SA2 Software; Budget Master, TXMasters; Home Budget, DCH Software; and Escape from Balthazar, Inter-8 Enterprises.

```
100 REM ***SCORE KEEPER***
110 CALL CLEAR
120 INPUT "HOW MANY PLAYERS ?":X
130 FOR PLAYER=1 TO X
140 INPUT "NAME ":PL$(PLAYER)
150 INPUT "POINTS ":PTS(PLAYER)
160 PRINT
170 NEXT PLAYER
180 REM ***NOW ASK FOR PLAYER BY NUMBER
190 PRINT :::"ENTER 0 TO QUIT":::
195 INPUT "PLAYER #":N
200 PRINT "_____"
210 IF N=0 THEN 250
220 PRINT PL$(N),PTS(N)
230 PRINT :::
240 GOTO 195
250 END
```

1:8:22. Review: Mark XII Modem

Modem may be smart buy

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation A Value . . . . A Final Grade . . . . A	**Cost:** $319.95
	Manufacturer: Anchor Automation Inc., 6913 Valjean Ave., Van Nuys, CA 91406, (213) 997-6493
	Requirements: console, monitor or television, terminal emulator program, RS232 interface, telephone

Until recently, there was no compelling reason for a TI home computer user to purchase a 1200-baud modem. However, this has changed with the advent of a 1200-baud terminal emulator program for the TI. TE-1200 was reviewed in last month's *MICROpendium*.

Anchor Automation produces a line of modems, none of which, apparently, is designed to work off the shelf with the TI. There is a version of its Mark III which has been adapted to the TI, but the Mark XII, for example, isn't compatible right out of the box. But don't let that disturb you. All that is required to make it 100 percent compatible with the TI is some minor pin switching of the 25-pin ribbon cable. I brought the modem manual and RS232 manual to a local "computer doctor" and he did the modifications for $15. He built a double-ended connector for me. One end connects to the modem cable and the other end is plugged into the RS232 port. It would have been cheaper had I simply asked him to switch the pins in the modem cable itself. Of course, a do-it-yourselfer can do this for himself. (I do not recommend modifying the modem cable itself, since you take a chance at voiding the modem's two-year warranty.)

Performance: The Mark XII is a "smart" modem. That is, it contains a microprocessor and firmware to carry out various communication functions. According to the company, the firmware is compatible with the Smart 1200 modem manufactured by Hayes Microcomputer Products Inc. The Hayes modem is priced at about $450.

The Mark XII comes with a six-foot, modular telephone cable and a ll0-volt power adapter. Unlike the Mark III, the Mark XII cannot be operated off batteries. The modem measures six inches across, ten inches deep and 1.25 inches high.

The modem board is enclosed in a grey, hard plastic case. On the front of the case is an on-off switch and four indicator lights. One of the lights lets you know that the power is on and the modem is ready to operate. A second light goes on only when you are operating at high speed (1200 baud). A third light indicates when a remote carrier has been detected. The fourth light indicates that data are being transferred.

I suspect that most TI users who own modems have either the TI acoustic coupler or something like the Mark III. Neither of these is "smart" and neither can operate at transmission speeds greater than 300 baud.

The Mark XII offers the user a wide-range of functions not available with the aforementioned devices. Depending on the terminal emulator, of course, the Mark XII can be operated at speed ranging from 110 baud to 1200 baud. Data transmission at 1200 baud is roughly 3.5 times faster than data transmission at 300 baud. (At 300 baud, fewer than 40 characters are transmitted per second.)

But that's just one of the features offered by this modem. In addition to being able to send and receive data at up to 1200 baud, it allows the user to dial the phone via the keyboard. This is called "auto-dialing." If the line is busy, you will see the word "busy" appear on the screen. You can redial the number by simply hitting two keys. You can mix tone and pulse dialing, if you like, though I don't know why you would want to. You may also enter "pauses," which are necessary when using long-distance telephone services. Of course, you may manually dial the phone, too.

Complementing the auto-dial feature is the auto-answering feature. The modem can be set to answer after a specified number of rings (up to 255) or not to answer at all. When it does answer, the word "ring" appears on the screen.

The modem also provides for manual and automatic disconnect.

The user may choose to have result codes sent to the screen or a printer. Result codes serve to verify functions. They may be output as words or digits. "Ring," for example, is a result code in word form. It is also represented as the number 2.

The modem is fully programmable in terms of operating characteristics. Selection of baud rate, parity setting, etc. is done through terminal emulator software.

I've been using this modem for about two months. My Mark III is packed in its box and will probably remain on the shelf forever. The Mark XII operates equally well with TI's Terminal Emulator II cartridge and the TE-1200 software by Softmail Inc. Although I don't always use the 1200-baud capability of the modem, I have become accustomed to auto-dialing and re-dialing. I also find the indicator lights to be useful, particularly as a visual cue to problems that occur during data transmission. If the screen "freezes," for example, and the carrier signal light goes out, I know that I've been disconnected from the host system. A screen often appears to be frozen when using such telecommunications services as The Source and CompuServe. This is due to such factors as the number of users online at the time. The more users, the longer it takes the system to respond to your commands. Glancing at the indicator lights can reassure you that you are still online. (Actually, it may anger you since you are paying for the online time whether the system is responding to your commands or not.)

Ease of Use: Anyone who has ever used a modem will find no difficulty in using the Mark XII. Reassigning the pin locations is not a very difficult task for a knowledgeable user or technician.

Documentation: The modem comes with a very complete, 30-page manual. The table of contents is well done. For the most part, it is written for users who are familiar with telecommunications but it includes basic information about communicating via modems and a step-by-step tutorial on installing the modem. There is also a troubleshooting section.

Value: Those who are using their TIs in business, either to access data bases or to transmit data, would do well to look at a 1200-baud modem. Of course, having a 1200-baud modem doesn't by itself solve all the problems TI telecommunicators face. There is still the little problem of a 40-column screen that is incompatible with many university and corporate mainframes. Although a 1200-baud modem will allow you to go online with these systems (most do not support 300 baud), the screen output will be difficult to decipher if the host system does not support 40-column display.

This modem costs about three times what you'd pay for a "dumb" 300 baud modem. I know of "smart" 300-baud modems that are nearly in the price range of this one. Those who are considering the more expensive 300-baud modems may find it worth their while to look into this one. If nothing else, this modem gives you room to grow.

— JK

1:8:23. Review: 99/4 Auto Spell-Check

If yew kant spel, tri thiss

Review	
Report Card Performance . . . A Ease of Use . . . . B+ Documentation B+ Value . . . . B Final Grade . . . . A-	**Cost:**$49.95, plus $3 shipping (diskette)
	Manufacturer: Dragonslayer American Software Co., 2606 Ponderosa Dr., Omaha, NE 68123
	Requirements: console, monitor or television, disk drive and controller, TI-Writer or Editor/Assembler cartridge

Like any spelling checker program, the 99/4 Auto Spell-Check is designed for those who have trouble with spelling. No spelling checker can make the user a better speller, but it can help correct misspelled words before they become a regular feature of one's correspondence, reports or articles.

The program will work using the TI-Writer or Editor/Assembler cartridges. I used TI-Writer for this review.

Performance: This program is the only spelling checker that I am aware of that is designed to operate with the TI home computer. There are a number of things about it that I like. For example, the user may create any number of special dictionary files that he wishes, having the program access only those that he chooses to use. In other words, let's suppose that you write articles for a computer magazine. You could create a dictionary file that consists only of specialized computer terms and have the program use it to check spellings of these rather unusual words without having to include them in a dictionary consisting of more commonly used words. Each user-defined dictionary file may contain up to 2,000 words.

I also appreciate the fact that it distinguishes between upper-case and lower-case letters.

The program operates out of the utility function of TI-Writer. The 99/4 Auto Spell-Check comes on two disks and includes a pair of main dictionary files consisting of some 20,000 words. Also included is a "seed" program for creating user-defined dictionary files. Users with a double-sided disk drive may copy the program and dictionary files to a disk that includes the TI-Writer program files if desired, thus conveniently placing the entire word processing package on one disk.

The program is fully prompted. After selecting the utility option of the TI-Writer menu the program prompts the user for the name of the text file. The program then issues a prompt to load the first dictionary file. The program then compares all the words in the text file with the words included in the dictionary, going from A to Z. After finishing with the first dictionary file a prompt appears to load the second dictionary file. The program again compares words in the text file with the dictionary entries.

The time it takes to check the words depends entirely on the size of the text file. For example, it took seven

minutes 20 seconds for this article to be checked by the 20,000 word main dictionaries, plenty of time to have a cup of coffee and scan through the morning paper.

After finishing with the second dictionary file, the program prompts for user-defined dictionary files. There may be as many of these as the user wants to create.

After running through the dictionary files, the user may review all words that were not recognized by the program. The user may choose to accept a word as it is spelled, add the word to a user dictionary, correct the spelling of the word or view the word in context. These options are available for every unrecognized word.

This program allows the user to make significant corrections, not just replacing a letter or two. I know of some such programs that allow the user to overwrite letters but not increase the word size, which severely limits their usefulness. I find that many errors in spelling require the addition of missing letters to correct, which 99/4 Auto Spell-Cheek permits.

Users also have the option of stepping back to the beginning of the unrecognized word list. This allows you to double-cheek the words, which can be very handy.

Having gone through this procedure, the user is asked to enter a file name for the corrected text file. It is then written to disk. The user then has the option of having the unrecognized words added to the user-defined dictionary. The program automatically does this updating upon command.

If only minor corrections were required in the text, no additional work needs to be done. It stands corrected and is ready for printing. However, if you had to add a letter or two to various words, you are required to reformat the file via the TI-Writer editor mode for printing.

Prior to operating the program, you will have to remove escape control characters from the text file. Thomas W. Kirk, who wrote 99/4 Auto Spell-Cheek, has a suggestion which makes their removal and replacement a routine matter. He recommends simply substituting a pair of letters for the escape commands through the use of the TI-Writer editor and then re-inserting them by using the search and replace command of the editor after having run the text file through the spelling checker.

Ease of Use: I found no problem in using this program, though I managed to lock up the computer once or twice after entering the wrong information at various prompts. No damage resulted, however, either to the text file or anything else.

Documentation: 99/4 Auto Spell-Check comes with a 12-page manual that provides plenty of information about the program and its operations.

Value: $49.95 seems like a lot to spend for a spelling checker program, particularly in view of the fact that the word processor it operates with had a list price of $99.95 when it was produced. While this program provides the user with the most important functions of a good spelling checker, it lacks some of the more sophisticated features of similar programs for other computers. For example, it does not provide such information as the number of words, sentences or paragraphs in the text file. Nor, for that matter, does it provide a breakdown of how many times particular words are used in a text or a listing of the words used in the text.

However, those who are in need of a proofreading tool, or can use the backup spelling support that a spelling checker can provide, have nowhere else to turn. This program does what it is supposed to do, and does it well.

— JK

1:8:24. Review: QUICK-COPYer

Backing up your disks

Review	
Report Card Performance . . . A Ease of Use . . . . A Documentation B Value . . . . B Final Grade . . . . A-	**Cost:** $39.95, plus $2 shipping (diskette)
	Manufacturer: Quality 99 Software, 1884 Columbia Rd., Washington, D.C. 20009, (202) 667-3574
	Requirements: console, monitor or television, disk drive and controller; Extended BASIC, Mini Memory or Editor/Assembler cartridge (specify which when ordering)

QUICK-COPYer is a utility program that does only one thing, and does it very well.

As its name implies, this program is used to make backup copies of disks. And it does it much faster than TI's Disk Manager II cartridge. QUICK-COPYer was written by Oscar Farah.

Performance: QUICK-COPYer cannot be copied or listed nor can a disk catalog of its contents be run. The disk it comes on does not have a write notch. This review is based on the version that requires Extended BASIC. The entire program loads automatically into memory.

After loading the user is asked to indicate the disk drive number that will hold the master disk and the drive number that will hold the copy disk. With one drive, the user simply switches the copy disk with the master disk as he is prompted. That's all there is, as far as preliminaries go. From here on the only keys of use to the user are the **S** key, to start an operation, and the **Q** key, to stop.

Before detailing the results of the test I ran, a few explanations are in order. First, the copy disks must not have any other files on them, or the program will not work. Also, the copy disk will take on all the characteristics of the master disk. For example, if you initialize a double-sided disk using the Disk Manager II cartridge and then copy the contents of a single-sided disk using the QUICK-COPYer to the double-sided disk, it will become a single-sided disk too. Also, QUICK-COPYer has no provisions for copying single files. This program copies only entire disks.

The program uses a green screen when reading from the master disk and a red-orange screen when writing to the copy disk. I found this to be very helpful. Also, there is a little clock-like mechanism on the right side of the screen that spins around when a disk is being written to or read from.

Here are the test results, based on tests using double-sided disks:

Single Disk Drive Operation
(22 files consisting of 400 sectors)

Program	*Time*
QUICK-COPYer	6:25
Disk Manager II	14.15

Two Disk Drive Operation

Program	*Time*
QUICK-COPYer	4:25
Disk Manager II	6:25

As you can see, there is a significant difference between the speed of QUICK-COPYer and the disk copying utility provided by Disk Manager II, particularly when operating out of a single disk drive. (The results include the time it took to actually switch disks while using a single drive.)

Why the difference? TI's disk manager cartridge reads and writes files one at a time while QUICK-COPYer reads and writes batches of files at a time. This is an efficient way of doing things because the program is designed to fill the computer's expansion memory up to its capacity while the Disk Manager II cartridge doesn't even access the expansion memory. The Disk Manager II uses only the memory available in the console and then only as much of it as is necessary to hold the single file it loads at a time.

Ease of Use: QUICK-COPYer can be operated virtually without instruction. Using only one key to activate its functions leaves no room for confusion, and the use of different screen colors to signify different operations makes it almost foolproof.

Documentation: The program comes with a single page of instructions. Included are instructions for Mini Memory, Editor/Assembler and Extended BASIC versions.

Value: This program would seem to be of greatest benefit to those with a single disk drive. Also, I found it to be a time-saver when used with multiple drives, particularly when making backups of several disks. Those who regularly make backup copies, or those who would like to if it didn't take so long using the TI Disk Manager cartridge, will find this program to be a great time-saver. Although the $39.95 price tag seems a bit steep, only the user can decide if the time it saves him is worth it.

— JK

Vendor's response

Thank you for the excellent review and "grades" of QUICK-COPYer, however we would like to mention a few points that were overlooked.

The review neglected to stress the absolute necessity of backing up a disk after every change to it. Although disks are very reliable, they are not immune to dust, smoke particles, hair, air pollution, power surges, brownouts, wear, etc. Just when you least expect it, your most critical disk will suddenly come up with "Disk not initialized." At that point, you would be willing to pay any amount of money to have a backup disk available! (Believe me, I speak from experience!) There is an old saying, "Back it up NOW, or be sorry LATER)" Truer words were never spoken.

Although many people realize that fact, they still fail to make backups after every change, due to the lengthy and cumbersome procedure involved. It is precisely this problem that QUICK-COPYer addresses. Instead of swapping a disk 30 to 40 times to get a backup, QUICK-COPYer allows you to backup a disk in three passes or less! It is now so fast and easy to backup a disk, that a person is much less likely to suffer the loss of critical data and many hours of hard work, i.e. TI-Writer files, Multiplan files, Mail List files, PRK files, etc.

Note also that the figures in the review show that QUICK-COPYer with one 'drive is as fast as Disk Manager with two drives, 6:25 each! (The Mini Memory version is even faster.)

Thus by buying QUICK-COPYer instead of a second disk drive, a person can save over $200.

In addition, for those people with two drives, the test shows that QUICK-COPYer is almost twice as fast as Disk Manager, and it has much less wear and tear on the drive.

Larry Hughes, QUALITY 99 SOFTWARE

1:8:25. Review: Wizard's Dominion

Choose your fantasy

Review	
Report Card Performance . . . A Ease of Use . . . . B Documentation A Value . . . . B Final Grade . . . . B+	**Cost:** $19.95 (tape), $21.95 (diskette)
	Manufacturer: American Software Design & Distribution Co., P.O. Box 46, Cottage Grove, MN 55016, (612)459-0557
	Requirements: console, monitor or television, cassette recorder or disk drive and disk controller, Extended BASIC cartridge

Wizard's Dominion is a one player fantasy-adventure that first appeared in I982. It was among the first adventure games written for the TI home computer to incorporate graphics. The game is based on Dungeons and Dragons-type games, which require players to adopt a "personality."

The object of the adventure is to advance through a network of corridors in search of gold and the Wizard's Chamber. Each level comes complete with a Voritka Ogre whom you must invariably slay to reach the Wizard's Chamber and the next level. Gold can be used to purchase weapons and other supplies at each level while the Wizard's Chamber serves as the passageway to the next level.

The view of the corridors is simulated in three dimensions. The map spell provides a two-dimensional representation of the entire level. Movement is done through the keyboard, with a choice of moving right, left or forward. After each move the screen is "reassembled" to represent the new position with the perspective changing at each move.

Performance: After choosing one of the four identities offered — The Wizard's Apprentice, The Evil Wizard, The Hero or The Evil Prince — the player must decide what weapons and other accouterments to acquire before entering the labyrinthine dominion. Choices here include a helmet, magic armor, shield, lightning bolt and magic sword among others. Perhaps the most important, however, is the map, a magic spell which gives you a bird's-eye view of the corridors and your location in it.

Finding the gold is generally not very difficult, but doing battle with the Voritka Ogre is a task that requires the proper armament and a strategy by which to use it. The victor is determined by probability — based on the type of weapon used and the type of attack. The ogre is represented by an ugly red critter on the screen that pops up very suddenly when you happen upon him. Battles can end with your character or the ogre being killed, or in a draw. A draw is of no use to you, however, since you cannot advance past the ogre while he is alive.

Ease of Use: There is no such thing as an easy adventure game. And this one is no exception. It takes a while to learn how things work — particularly the magic spells — and your initial explorations of the dominion may prove less than successful. It took me about an hour to get the hang of things and then it was a matter of defeating the ogre and collecting the gold. A seven-year-old I know got caught up in the fantasy aspect of the game and seemed to enjoy playing it, though he never got beyond the first or second level. All entry is through the keyboard. I was not able to crash the program despite my best efforts.

Because the game is written in Extended BASIC there is a delay between moves as the screen is redrawn.

Documentation: The game is well-documented. Included is a manual that sets the stage for the fantasy game by briefly retelling the story of the Wizard's Dominion and outlines the various elements of the game in a well-organized manner. Also included are charts which help determine the probability of success in battle based on the type of weapon used and the type of attack the ogre launches.

Value: Drawing a conclusion about this game is difficult. For one thing, I am not familiar with many graphic adventure games. One that I am familiar with, Return to Pirate's Isle, offers little basis for comparison. I found that children in the age group from eight to early teens to be the most interested in this game. They were, for the most part, fascinated by the role playing. Some who played it, in fact, liked it so much that they have since taken up the Dungeons and Dragons games manufactured by TSR Hobbies.

As with any form of entertainment, the ultimate test of value is whether you get enough satisfaction out of it to make it worth the cost. I have no complaints.

— JK

1:8:28. Newsbytes

New TI AVDP chip

The release of a new video display processor by Texas Instruments, the TMS9228, may be of some interest to TI-99/4A users. The Advanced Video Display Processor can address 16, 32 or 64 kilobytes of random access memory and offers five graphics and two text modes. The text modes are 40 columns by 24 lines and 80 columns by 24 lines.

The graphics modes include 8×8 blocks, 8×1 blocks and 4×2 blocks at a 256×192 resolution, and an 8×1 block at 512×192 resolution. There is also a bitmap mode at 256×210 resolution.

It is believed that with minor modification the AVDP may have use as a replacement for the TMS9918A VDP used in the 99/4A console.

Software updates

Texas Instruments is providing software enhancements for the TI-Writer and Microsoft Multiplan programs to TI user groups. The TI-Writer updates provide true lower-case letters with descenders in the edit mode. Improved formatter files eliminate the automatic form feed and provide a choice of two printer defaults for those who operate out of a serial port.

The Multiplan updates include file replacements that speed up the operation of the program to a small degree while providing an auto-repeat capability when moving the cursor around the screen.

MICROpendium will provide free copies of these files to readers who are not able to obtain them through a user group. Send a blank, formatted diskette with a self-addressed stamped mailer to *MICROpendium*, P.O. Box 1343, Round Rock, TX 78680. Allow several weeks for delivery. *MICROpendium* will not be responsible for any diskettes that are mailed without adequate return postage. Do not send cash or checks to cover postage.

Also, by the time you read this, TI may have released the Advanced Debugger program for the Editor/Assembler cartridge to user groups. The program was developed by Navarone Industries but the company and TI apparently could not come to terms on a contract to produce and sell it. TI apparently wanted too much for the distribution rights.

The Extended BASIC cartridge is becoming a rare bird but negotiations are said to be under way between TI and a couple of other companies over production and distribution rights to the cartridge. One of the companies involved is believed to be a Japanese firm. Many third-party manufacturers regard XBASIC to be crucial to the survival of the TI market.

HCM changes

Home Computer Magazine, formerly *99er Magazine*, has announced that it will no longer accept advertising. Speculation about what this means abounds.

According to a letter sent to advertisers, and signed by publisher Gary Kaplan, Emerald Valley Publishing, which produces *HCM*, will be publishing a separate *Home Computer Digest* nine times per year. This digest, which will carry advertising, will be mailed to domestic subscribers of *HCM*, according to Kaplan. The digest, as it appeared in a previous *HCM* edition, is about one half the size of a magazine page. Kaplan indicated that it would focus primarily on the TI market.

According to Kaplan's letter, "We want *Home Computer Magazine* to stand out and be recognized as the absolute best in the field. Removal of ad material provides us with the editorial and artistic freedom to produce a truly unique magazine that will set the standard for quality, integrity and readability for the entire industry."

The digest is due to be published in September. Apparently, *HCM* will continue to be published but without advertising while advertising will be included in the digest, which Kaplan says will be mailed to domestic subscribers of *HCM*. The number of pages to be included in the digest is not known, though Kaplan said the 32-page edition published in March "is representative of the size and style . . . except, of course, for the substitution of advertising for a portion of the editorial material."

Update on Atari

The Atarisoft line of products, which includes game cartridges for the TI-99/4A, is now under review after a change of management at Atari. Atari Corp. was purchased last month by former Commodore boss Jack Tramiel.

Atarisoft, which is the subsidiary of Atari Corp. that produces software for non-Atari computers, markets game cartridges for a number of computers. Among the titles are Donkey Kong, Pole Position and Defender.

According to a company spokesperson, the Atarisoft products for TI are still in the inventory and the current products will continue to be produced. She says that management has said that "the new Atari will be supporting all Atari products."

Book prices drop

Tex-Comp has taken over the distribution of all TI books by Datamost Publishing and is reducing the prices substantially.

According to Jerry Price of Tex-Comp, *Kids and the TI*, originally published at $19.95, will sell for $4.95; *Games TI Plays*, published at $14.95, will sell for $9.95, including 32 games on the customer's choice of a cassette or two diskettes; *Elementary TI*, published at $14.95, will sell for $3.95; and *Computer Playground*, published at $9.95, will sell for $1.95.

Newsbytes is a column of general information for TI-99/4A 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.

1:8:29. User Notes

TE- 1200 control

Our review of the TE-1200 terminal emulator program last month indicated that it was capable of double-spacing printouts only. Not true. If you're using a parallel printer, when prompted for the device name prior to dumping data, enter PIO.LF just as you would when using the TI-Writer formatter and you'll get single-spaced printouts. You can do a similar thing if using the RS232 port, too.

Beanstalk update

Our first edition carried a generally favorable review of the Beanstalk Adventure, marketed by Tex-Comp. The review downgraded the text adventure because of its propensity to crash when certain word combinations are entered. Well, according to Tex-Comp, these problems have been corrected and the program no longer crashes when unusual word combinations are entered.

Mark XII pins

Very few modems are made to work with the TI-99/4A without some modification to the locations of the RS232 connector pins. Users should be able to determine the necessary changes by comparing the pin designations included with RS232 cards interfaces and the modems. Concerning the Anchor Automation Mark XII reviewed in this issue, the following changes should be made to make the modem compatible with the TI: Link TI pin 2 to Mark XII pin 3 and TI pin 3 to Mark XII pin 2. Switch pins 6 and 20 and make sure pins I and 7 are connected. Both are grounds. When all else fails, read the manual.

It's simple

Charles E. Roberts of Springfield, Missouri, wrote:

"At the last meeting of the Users Group here in Springfield, I mentioned that I used my printer while writing a program in BASIC. Some knew what I had been working on and knew I needed every bit of the basic RAM I could get. Not one of the members I talked to knew how to do this without losing 2K by having the PEB turned on, so I assume most other users do not know how to either. It's simple. Do not turn on the PEB until after you power-up the computer. Although you cannot use the disk drive you can address the RS232 without any loss of RAM."

UG for handicapped

A TI-99/4A user in Florida has started a users group for the blind and handicapped. The group is called Handi/9ers. For more information, write Jim Digan, 625 Englewood Rd., Apt. 5, Englewood, FL 33533.

Print it big

Jim Peterson, of Tigercub Software, writes: "Your articles on the blind users (July) were excellent!. You perform a valuable service by publishing articles of this kind.

"Tigercub Software has two games, Lost Plane and Submarine Hunt, which are based on matching tones. I will be glad to send them to any blind user who sends me a cassette or diskette.

"I have written the following elementary word processor in order to be able to write letters to those with very poor eyesight in enlarged, double-struck emphasized print in double-spaced lines."

Bear in mind that lines 130-132 define the printing parameters and that they may not be the same for all Printers. For example, the C. Itoh Prowriter does not have "emphasized" characters. Prowriter users would use CHR$(14) instead of CHR$ (87) for, enlarged print in line 130; CHR$(33) in line 131 for bold face; and CHR$(78) in line 132 for pica pitch.

```
100 CALL CLEAR
110 REM ***ELEMENTARY WORD  ELEMENTARY WORD PROCESSOR TO PRINT ENLARGED PRINT IN
DOUBLE0SPACED LINES, FOR THOSE WITH LIMITED EYESIGHT***
120 OPEN #1:"PIO"
130 PRINT #1:CHR$(27);CHR$(87);CHR$(1)
131 PRINT #1:CHR$(27);CHR$(71)
132 PRINT #1:CHR$(27);CHR$(69)
140 PRINT #1:"TYPE MESSAGE. NO COMMAS!"
141 PRINT #1:" "
142 PRINT #1:"ENTER AGAIN WHEN FINISHED"
170 DIM W$(50),B$(250)
180 X=X+1
190 INPUT W$(X)
200 W$(X)=W$(X)&" "
210 IF W$(X)=" " THEN 230
220 GOTO 180
230 Z=1
240 FOR J=1 TO X-1
250 A$=SEG$(W$(J),1,POS(W$(J)," ",1))
260 L$=B$(Z)&A$
270 IF LEN(L$)<41 THEN 290
280 Z=Z+1
290 L$=""
300 B$(Z)=B$(Z)&A$
310 IF POS(W$(J)," ",2)=0 THEN 340
320 W$(J)=SEG$(W$(J),POS(W$(J)," ",1)+1,LEN(W$(J)))
330 GOTO 250
340 NEXT J
350 FOR J=1 TO 2
360 PRINT #1:CHR$(27);CHR$(87);CHR$(1)
370 PRINT #1:B$(J)
380 NEXT J
```

Nowhere to hide

Losing control is one thing, but confusing it with **FCTN** is quite another. But that's what happened in last month's MICROpendium. We published an article about escape codes for TI-Writer but inadvertently referred to **FCTN U** as the means of entering the program's special character mode. Of course, as you probably figured out for yourself, the special character mode is accessed via **CTRL U**. So, when the article refers to **FCTN U** read **CTRL U** and everything will work out.

Rounding off

Many teachers find computers are useful in a number of ways: they make grade keeping efficient, and the machines can be used as teaching tools. Fritz L. Mauritz, of Wilmington, California, offers a routine that rounds off numbers when using Terminal Emulator II.

He writes: "In writing and using programs for math, electronics and physics classes, end results need to be rounded off to various numbers of digits. Here is a little program that can be added to any program that calculates mathematical results but need to be rounded off, especially when more than 2-3 results are to be printed in columns on the screen. (I realize Extended BASIC, with Print Using, can round off but I like to use Terminal Emulator II with a speech synthesizer to pronounce math, electronics and physics terms not available through Extended BASIC.)

```
100 REM ***PROGRAM TO ROUND OFF NUMBERS USING TEII
110 DEF ROUND=INT(R*10^D+.5)/10^D
130 REM **INSERT PROGRAM LINES
190 INPUT W
200 D=2 !**NUMBER OF DIGITS AFTER DECIMAL
210 R=W!**W IS VARIABLE TO BE ROUNDED OFF
220 W=ROUND!**NUMBER TO BE ROUNDED
225 PRINT W
230 REM ***INSERT MORE PROGRAM LINES
290 INPUT Y
300 REM ***ROUNDS SECOND NUMBER***
310 D=1
320 R=Y
330 Y=ROUND
340 PRINT Y
350 REM INSERT PROGRAM LINES
```

Postal helper

The following program comes from the Cleveland Area 99/4A Users Group and is a translation of a program written for the IBM PC jr. The program calculates the amount of postage needed to mail a letter based on the type of paper used, the number of sheets and the type of envelope. The program runs in BASIC or Extended BASIC.

```
10 CALL CLEAR
20 PRINT TAB(8);"POSTAL SCALE"
```

```
30 PRINT
40 FOR D=1 TO 1000
50 NEXT D
60 CALL CLEAR
70 PRINT TAB(8);"BOND WEIGHT"
80 PRINT TAB(5);"1. - 16 # PAPER"
90 PRINT TAB(5);"2. - 20 # PAPER"
100 INPUT "<ENTER>1 OR 2-":BOND
110 IF (BOND<1)+(BOND>2) THEN 60
120 IF BOND=1 THEN 150
130 WT=.16
140 GOTO 160
150 WT=.128
160 CALL CLEAR
170 PRINT TAB(5);"HOW MANY SHEETS MAILED"
180 INPUT N
190 WT=N*WT
200 CALL CLEAR
210 PRINT TAB(8);"MAILER SIZE"
220 PRINT TAB(5);"1. BUSINESS SIZE"
230 PRINT TAB(5);"2. MANILA ENVELOPE"
240 INPUT "<ENTER>1 OR 2":ENV
250 IF (ENV<1)+(ENV>2) THEN 200
260 CALL CLEAR
270 IF ENV=1 THEN 300
280 EW=1
290 GOTO 310
300 EW=.16
310 WT=WT+EW
320 IF WT=INT(WT) THEN 340
330 WT=INT(WT)+1
340 ST=((WT-1)*.17)+.2
350 PRINT TAB(5);"POSTAGE DUE";ST
360 PRINT "PRESS 'C' FOR ANOTHER"
370 PRINT "CALCULATION OR 'Q' TO QUIT"
380 INPUT A$
390 IF A$="C" THEN 10
400 END
```

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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1:9:3. 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 pangs 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 TI-99/4A.

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 Tl 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.

— JK

1:9:4. 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-Stefan 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 TI-99/4A 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 of 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 TI-99/4A 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 TI-99/4A 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 the 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 TI-99/4A. 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 TI-99/4A 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 **FCTN 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 having 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 TI-99/4A. 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 nor 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 $13 \times 12 \times 4$ DEC Part #RXI80AR. This unit can be ordered by calling (617) 532-2323 or writing Electronic Supermarket, l19r 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.

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. Mail Feedback to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

1:9:8. 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 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."

Hatter 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 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 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."

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."

1:9:10. 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 costa 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 TI-99/4A, 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 **FCTN 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 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 can be read bu 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.

1:9:14. Tachyon offers 32K stand-alone

Tachyon Systems is offering a 32-kilobyte stand-alone unit that attaches directly to the side of the TI-99/4A 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.

1:9:16. Foundation improves 80-column card

Foundation Computing, which was on the verge of unveiling an 80-column card for the TI-99/4A 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 S0-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 S0-column version of the Companion word processor and would offer an 80-column display for 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 red, green, and blue video signals) as opposed to a composite monitor which has one video input. RGB color monitors are generally more expensive than 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.

1:9:17. CorComp reorganizes again

CorComp 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.

1:9:17. 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 products, 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.

1:9:18. 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 i00 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 it's 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.

1:9:18. Graphics pad developed for TI

Super Sketch is the name of a new graphics pad which is compatible with the TI-99/4A. 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.

1:9:20. Review: ZORK I

Let your imagination go

Review	
Report Card	**Cost:** $39.95 (diskette)
Performance ... A Ease of Use .... A Documentation A Value .... A Final Grade .... A	**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)

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 *InvisaClues* 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. *InvisaClues* are sold separately for each game and cost about $8 each. Because of the complexity of this puzzle-filled game, using a hint 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 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 re-save 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, 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 no 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

1:9:22. Review: Killer Caterpillar

Better than Centipede

By CHRIS BOBBITT

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

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 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 bitmap graphics mode of the computer, which incidently prohibits its use on the older TI-99/4 computer. The bitmap mode allows the maximum graphics potential of the computer to be realized, with up to 16 colors for each 8×8 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 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 than may choose to play a one or two player game, and may choose from two levels of difficulty. In the two-player game, the players 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 the 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.

1:9:23. 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.

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 24 × 40 format is much superior to the 16 × 64 format, which was supported in our original release of Wycove Forth. The only shortcoming of the 24 × 40 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 bitmap 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.

1:9:24. Review: Defender

Are you fast enough?

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

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.

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, Swarmers, 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. You 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 releases a group of Swarmers. Swarmers are tiny bombs that can best be likened to pieces of shrapnel from a hand grenade. Swarmers 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

1:9:28. 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 TI-99/4A 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 TI-99/4A.

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 TI-99/4A Computer Faire sponsored by the Chicago TI-99/4A 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 TI-99/4A 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 TI-99/4A 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.

1:9:29. 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 [1984].

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 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 (12288,0,0,0,0,0,0,0,252) 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 "WWWWWWWW"
Small Airplane:	"VVVVVVVV" or "yyyyyyyy"
Machine Gun:	"JJJJJJJJJJ"
Sewing Machine:	"XXXXXXXX"

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=O THEN 6060
6030 CALL KEY(3,KKK,SSS)
6040 IF SSS=O 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/VI28 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? ": O$
120 INPUT "DSK.# & FILENAME
    FOR NEW D/V80 FILE? :N$
130 OPEN #1:O$,DISPLAY ,VARIABLE 80
140 OPEN #2:N$,DISPLAY ,VARIABLE 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 GOT0 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 nearer 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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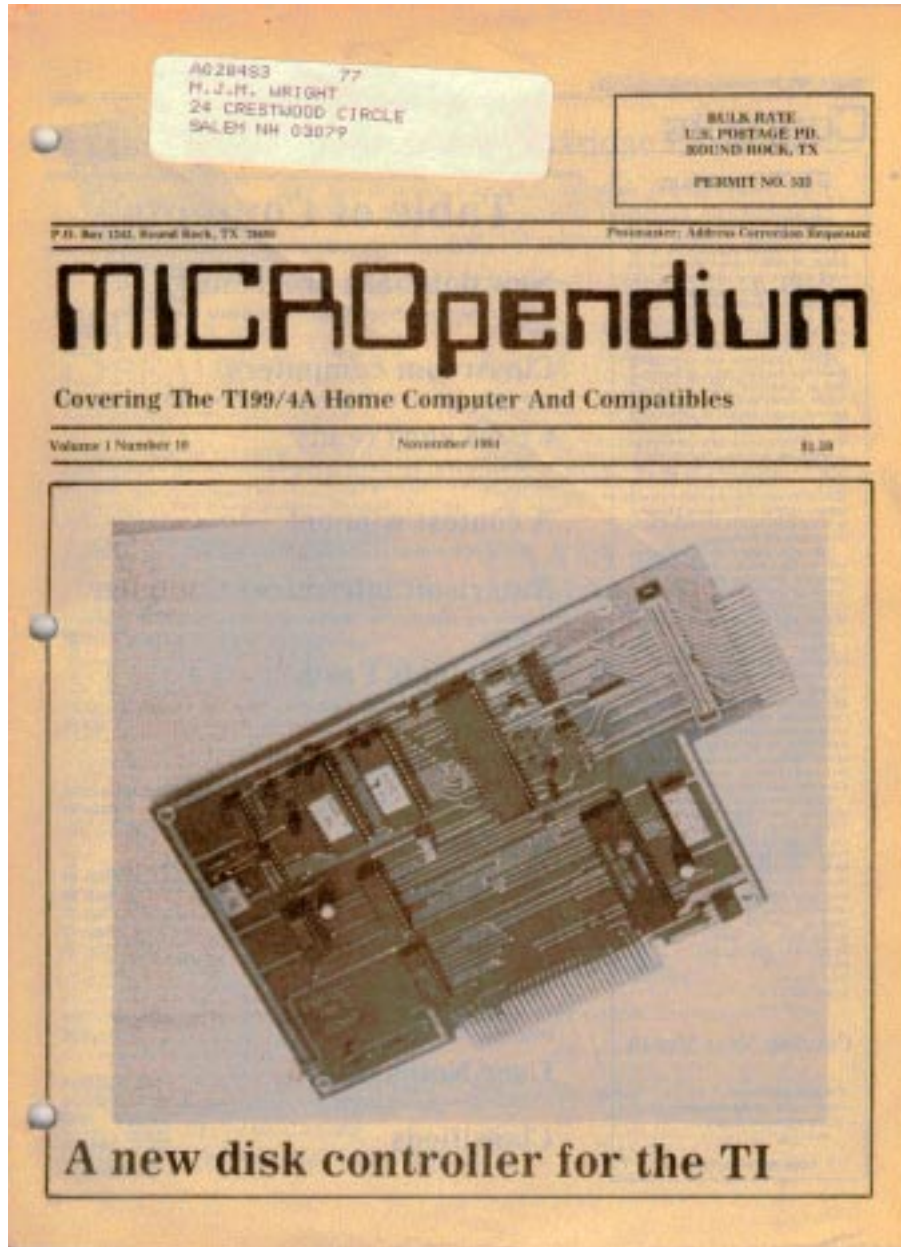
1:10:4. Comments

Every month has its surprises when it comes to covering the TI-99/4A. One of them is the anticipated marketing of a second disk controller card for the Peripheral Expansion Box that can handle double-density diskettes. This one is from Myarc Inc. and is supposed to come in the same sturdy enclosure that TI used for its peripheral expansion cards. It is designed to access up to four drives and is expected to come with the TI Disk Manager II cartridge and a cable. This issue carries a lengthy assessment of CorComp's disk controller card, which was released several months ago.

In a more general vein, who would have thought last year when TI announced that it was leaving the home computer market that there would be as much hardware and software support as there is today? At this point, the only critical element in the TI system that is not available from third-party sources is the TI-99/4A console itself.

Software development is in the midst of a rapid expansion. As an example, six months ago TI users had only one disk-copying utility to choose from. Today there are probably a dozen or more. Four months ago there was only one 1200-baud terminal emulator program, now there are several. And the list can easily be lengthened for other products, hardware and software. More importantly to the consumer, as competition increases in the marketplace, quality is going up and prices are coming down.

Although I can't give much in the way of details, there may be another TI-99/4A compatible computer coming out in the future (and rumors of a TI-99/4A being assembled in Argentina continue to be heard). CorComp Inc had plans of marketing a new computer, dubbed the Phoenix, but a time frame on that project is indefinite at best. This other computer is being developed, I understand, in the U.S. The only information I have at this time is that it is supposed to be many times faster than the 99/4A and completely compatible with the PEB.

Foundation Computing is shipping its 128K memory expansion card for the PEB with a DSR (device service routine) chip that lets users access three blocks of 32K as a RAM disk. This is in addition to the 32K that is available when the system is turned on. The accessing is done directly through the keyboard. The chip adds about $30 to the cost of the card and I recommend it. We will be reviewing the card in the near future. Suffice it for now to note that one can use the three memory banks to store one file or program in each and recall them in much the same way one loads a program from disk, only faster. It works well with TI-Writer files and BASIC programs.

We hope to have a review of the Foundation 80-column card, too, as soon as we can get one. As of mid-October, Foundation was still modifying it.

And let's not forget that the Chicago TI Users Group will be holding its second annual TI Faire from 10 a.m. to 4 p.m. Nov. 10. The guest speaker will be Don Bynum, former head of TI's home computer division. His topic will be "Life After Death for the 99/4A." The official theme of the Faire is "Still Goin' Strong! "

The group expects up to 2,000 visitors and will admit anyone who belongs to a registered TI user group free (a membership card of some kind is required). General admission is $2. As of mid-October, some 16 vendors had signed up to display software and hardware, according to Dave Wakely of the Chicago UG. He indicates that some manufacturers have expressed interest in attending and "they may have some important announcements of new products." There will also be presentations on a variety of subjects, door prizes and arcade game contests. The Faire will be held at the College Center Building of Triton College, River Grove. River Grove is west of Chicago. Anyone who wants to learn more about the Faire may contact the group through its electronic bulletin board, (312) 848-3669, or via the TI sections of The Source or CompuServe.

There's been some interest expressed by readers who are interested in obtaining copies of Super Bugger, the debugger program released to user groups by TI. We have a review of it in this issue, as well as a piece that may be of some help to those who are having trouble using it. We are trying to obtain a copy and when we do we will make it available to readers on the same basis that we have made the Multiplan and TI-Writer software enhancements available. Although we didn't intentionally set out to provide a "freeware" service, we seem to be moving in that direction.

That's all for now.

— JK

1:10:6. Feedback

User preference

I'll offer my opinions on the apparently settled controversy about publishing software protection devices and keys.

I've given some thought to the matter as a small-scale software developer, but my feelings on the subject are largely those of a software consumer. I own no pirated software and would buy none. The Companion (word processor) program I used to write this, however, is in one sense a pirate version. I had never been much into "hacking," but I got so tired of the forced choice of white as a foreground color on Companion that I finally got out my Disk-Fixer cartridge and unlocked one of the two disks I owned (I had bought an authorized back-up) and unprotected the disk and the program just so I could write in a couple of CALL LOAD statements to give me my personal favorite color combination: green against grey. While I was at it, I copied the program onto a disk which held a lot of other useful utilities, so I wouldn't have to swap disks when the writing urge came over me. The point is that effort was a pain, and I would have been grateful to have learned how to do it all from some magazine or newsletter, and have been spared the pain. Now I know that if the information necessary to "unprotect" Companion were published then a few people would probably mercilessly pirate the program; and I know that legal remedies to software piracy are difficult to secure. I question, however, whether publishing standards ought to be set always with the worst readers' morals in mind. Do you deny the greater choice of color combinations or any similar modification of a program to a user who hasn't the knowledge to do it for himself (and is too honest to buy one of the pirate versions that are out there anyway) simply in order to make yourselves as publishers feel a little more righteous?

I don't know the answer to that question.

Richard Minutillo, Roslindale, Massachusetts

Ed: To answer your question, righteous we are not. Our decision not to publish the protection keys was based largely on reader opinions. Of course, we would like to publish what we (and a lot of other users) know, but remain concerned about the consequences. We know of more than one vendor who tells us of per sons who purchase pirated copies of their software who send them requests for documentation so that they may use the programs. One vendor, who is an active member of a user group, says he is aware that several dozen of the group's members have copies of his program though he actually sold only two to persons living in that city. Perhaps all of the copies were provided free as a courtesy between individuals, but the fact remains that the vendor suffered the loss of many potential sales. And there is no question that this sort of thing is going on all over, all the time. But what we know of unprotecting software has to do mostly with programs written in Extended BASIC. Most of the new programs are being written in Assembly language to run out of expansion memory and utilize some very sophisticated protection techniques. Had we the information, would it be fair of us to publish methods to unprotect these new protection devices, too? Where does one draw the line? You see, we continue to question ourselves on the matter and have yet to come up with satisfactory answers.

More orphans

In addition to your coverage of the TI-99/4A, would it be possible to devote some attention to the other of the TI "orphans," namely the CC-40. The CC-40 is virtually ignored by other publications which claim to support TI products. In my opinion, this is a versatile and vastly under-rated machine. It would appear that TI's support of the CC-40, both in terms of hardware and software, is non-existent. TI's response to questions about the future of the CC-40 seem vague and uninformed. The biggest problem lies in the lack of mass storage capability. TI had proposed a "Wafertape" drive as a mass storage medium, however, it was never made available and no alternative method of storage has been proposed or developed. At one time there was proposed a "Hexbus" adapter for the 99/4A which would have enabled the CC-40 to have had limited compatibility. I would also be interested in any information on the 99/2 and the 99/8.

Michael Sciascia, Piano, Texas

Ed: We would consider items submitted by readers concerning the compact computer CC-40. The CC-40 was abandoned by TI at the same time the 99/4A was abandoned, the difference being that the CC-40 had only just made its debut and thus was more promise than reality. The 99/2 was TI's attempt to enter the very low-end of the computer market against the VIC 20. TI subsequently slashed the price of the 99/4A and thus undercut the 99/2, making it useless as a marketing effort. The 99/8 was supposed to be the successor to the 99/4A and was to be unveiled in mid-1983. However, TI kept it under wraps and only a limited number of the machines was produced, mostly for testing purposes. Most of these were scooped up by TI employees when TI left the home computer market.

Different view

I don't feel the TE-1200 deserves the high grade you gave it in your review (August). I only have used it in the 300-baud mode to date, so can't address its 1200 baud performance. Its unfortunate implementation of page review, with its flickering lines and reformatting is very annoying at Extended BASIC rather than Assembly speed. It also has the annoying habit of freezing up after a lot of continuous text is received. I don't encounter this on The Source or CompuServe, but texts there don't generally fill 24 40-column lines. Locally, we have a teletext service which does send full pages. I've found that after about 20 lines, the cursor just stops until the rest of the message is sent, then catches up, although so quickly that the text can't be read "on the fly." I don't trust the file transfer option on the TE-1200 either after several problems; and, if it's an important download, I always return to Terminal Emulator II. I have seen ads for at least two other 1200-baud emulators soon to be available: and look forward to (hopefully) improved performance.

Dwight Klettke, Editor (SLaVes), Salt Lake and Valley 99er Users Group, Salt Lake City, Utah

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. Mail Feedback to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

1:10:8. Not 1 but 2 database managers

Acorn 99 to debut

Oak Tree Systems, 3922 Valentine Rd., Whitmore Lake, MI 48189, has just released its Acorn 99 database system for the TI99/4A. The system is designed for programmers and non-programmers alike, according to the company. The system comes on two disks and requires one disk drive, 32K memory expansion and Extended BASIC. The cost is $59.95.

The system allows users to determine item types and sizes, number of items, record sizes and number of records. Up to four types of related records can be stored in a single database. Users may also specify range and value checking to ensure the correctness of data entered into the database.

The system allows programmers to access up to three databases simultaneously using Extended BASIC programs. The database subsystem can be inserted into programs and a pre-processor will automatically insert required statements and subroutines into XBASIC programs written by users. Critical functions are written in Assembly language. The system includes a subset of the company's 40-column Display Enhancement Package.

The company also plans to introduce an Expanded Pre-Processor that will generate Extended BASIC statements to produce custom menus, screens and reports without programming.

1:10:8. Navarone issues DBM

Navarone Industries has introduced a database system on a cartridge. The program carries the rather generic name Data Base Management. Included in the cartridge are three program segments: entry, sort and report. The package includes a number of files on diskette. The system sells for $69.95.

The Navarone database system allows users to create records consisting of up to 25 fields and 255 bytes. The system can handle up to 32,000 records.

The system includes a database setup function for designing entry screen formats and setting data parameters. The entry program uses the screen and setup file for entering data. This segment provides such file maintenance operations as Find, Display, Change, Add and Delete.

The sort segment of the program is used to sort files using up to six nested sort keys. The sort size is limited only by disk space. The program may be used with a hard disk, according to the company.

The report segment of the program is used to design reports for printing or screen viewing. This highly flexible program allows users to design reports in virtually any format using database files. The system requires a disk drive and memory expansion. A printer and printer interface is optional. The system comes with a 36-page manual.

The company is also introducing several new programs, including Speed Reading ($49.95), Homework Helper ($49.95) and Console Writer ($49.95). All are on cartridge.

For more information, contact Navarone Industries at 510 Lawrence Expressway #800, Sunnyvale, CA 94086, or call (408) 981-2932.

1:10:10. Computer Lit.

By LAURA BURNS

"Computer literacy" may be one of the major catch-phrases of the 1980s.

Indeed, many a TI-99/4A was purchased at least in part for its supposed advantage in helping introduce young persons to the world of the computer.

Computers are to be found in the classroom, too, but what to do with them and whether they are being used to their full advantage is a subject of much controversy in educational circles.

The role of the computer in the classroom seems to vary around the country.

Public schools in Minnesota, for instance, have an "information technology" requirement. School districts must offer information technology from the kindergarten through 12th grade levels to receive their 70 percent funding from the state, according to Gilbert Valdez, manager of the technology and curriculum integration department of the Minnesota Department of Education.

"Computer literacy," he says, is a term the Minnesota Department of Education as too narrow.

"We don't intend to produce programmers," he says, adding, however, that many students do take elective programming courses. Information technology is integrated into the curriculum in many ways, he says.

"There's a very good application for a data base in social studies," he says. Word processing, likewise, would enter into composition courses, he notes. The trend now is to search through a database rather than a card catalog in a library, for instance, he says.

About 18,000 computers are in Minnesota classrooms, according to Valdez, but the state is also "very heavy" into other kinds of technology, he says, such as media production and four kinds of two-way televisions.

"If the computer is going to be useful in education, it's going to have to be tied in with other forms of technology," he points out.

Minnesota seeks to make the content areas of various subjects more interesting through the use of technology, while showing technology applications at the same time, he says.

Pristen Bird, instructional computing consultant of the Educational Technology Office, Florida Department of Education, says that legislation was passed in Florida in 1983 to establish minimum student performance standards in computer literacy. Students will have to meet these standards — now in the process of being developed statewide — along with standards in other basic subjects in order to graduate from high school. Test items are being developed and tested for a final review in which each school district has one vote, scheduled for October. Approval of the minimum standards is scheduled for early 1985 and their implementation at a later date.

The Florida program, she says, basically does not include computer programming, keyboard skills or the history of computers. Instead, students will be expected to:

1.   Have a basic understanding of the operation of equipment.

2.   Be able to operate a computer for instructional purposes.

3.   Understand the function of the basic parts of the computer.

4.   Recognize the impact of computer technology on society and the need for its ethical use.

5.   Understand the capabilities and applications of various computers and computer systems.

6.   Understand the process of programming.

Pressure to institute the requirement, Bird notes, came both from the top down, for reasons of economics, and also from the grass roots, from students and parents. She added that it is also is very motivating for teachers.

Some problem may exist, she concedes, between "haves and have-nots," students with from three to five years experience with a computer at home versus students whose first experience might literally be in the school system. For the latter, she says, there might be ways of providing additional support such as equipment loan programs or more exposure to the computer at school.

She adds that she has heard the argument advanced that 25 years ago there might have been an issue of equity regarding access to television.

"I don't know how much analogy there is," she says. "The computer is not as entertaining."

Since "haves and have-nots also exist among school districts, Florida also allocated $10 million for hardware and software for schoool districts, the amounts awarded to each district based on student enrollment, Bird says.

A more preliminary approach is taking place in Arizona, where the Department of Education provides purchasing information and help for districts in software evaluation.

Chris Castillo, of the Arizona Department of Education, says that there is no computer requirement in Arizona public schools, although almost every school district has microcomputers. She says that some schools are implementing computer education in all grade levels and all subjects, while other districts may use computers only for the gifted, special education students or Title I-Chapter I students. Some districts use them only at the secondary level, she notes.

Some high schools offer vocational classes in computer programming and word processing, she says. The Arizona State Board of Education confirms that there is no legislation proposed currently to require computers or adopt computer textbooks in that state.

The Texas Legislature, in a special session this summer, passed a comprehensive educational reform bill, adopting the recommendations of a special gubernatorial task force headed by computer magnate H. Ross Perot.

Computer literacy at the junior high level is part of the package. Textbooks at this level are expected to be in the classroom by 1986 because of time needed for proposals to go out for them, explains Keith Mitchell of the Texas Education Agency.

The lack of textbooks, he says, is "one reason we worked very hard to get a curriculum guide out to teachers."

He notes that "excellent textbooks" are out but that most are at a college or high school reading level. Texas Education Agency officials suggest that teachers keep some of them on the shelf of computer classrooms.

Statewide goals for the one semester junior high school course have been set by the Texas Computer Education Association and include:

1.   To understand how a computer works.

2.   To understand how computer technology evolved.

3.   To explore the uses of computers in today's society.

4.   To project ideas of future capabilities of computers,

5.   To explore applications such as word processing, data bases an spreadsheet accounting.

6.   To program in BASIC and Logo.

7.   To discuss social implications, including computer crime.

8.   To explore career possibilities.

Yet, even when goals are unified in some states, methodology may still differ from classroom to classroom as in every other subject.

Karen Jones, who teaches computer literacy at Chisholm Trail Middle School in Round Rock, Texas, notes, for instance, that some teachers "save" programming for the end of the semester in order to help classroom discipline. She, however, integrates programming throughout the semester. She notes that programming is difficult to teach and that there is a "big debate" as to how much programming should be used for computer literacy.

Jones, a former board member and former secretary of the Texas Computer Education Association, is an enthusiastic proponent of computer literacy as a required course in public schools.

"There's nothing in this society not touched by computers," she says, noting that even writers and artists will use them increasingly for word processing and graphics capabilities. Some academics have feared that technological courses of this nature may take away from traditional subject areas in the humanities, but she points out that, in Texas, computer literacy has been added to the curriculum as an additional subject, rather than integrating it as part of existing subject areas.

She notes that other criticism has been directed at the idea of a student working at a machine rather than relating to other persons. However, Jones says she has seen shy students becoming leaders and achieving personal goals.

"I've been real impressed when they come up with solutions or procedures and kids come up to them and ask for help," says Jones, who has also taught computer courses at the high school level.

Having a computer at home can have good or bad effects on a student.

"Kids get into games and that's all they want to do," she says. "They can burn out on games and burn out on the computer. They can teach themselves bad programming. Some are hard to convince they don't know everything."

At school, she teaches on the TRS80. She notes that students with a different brand of computer at home, such as the TI-99/4A, are better off because they can see how a program works on a different computer and get a different view. A problem with computers at the elementary level are teachers "who don't want to mess with computers" and teachers "who think they know computer technology and don't." However, she adds, there are some self-taught teachers who are doing an excellent job. Jones says she gets to school at 7:45 a.m. and "two or three kids will be waiting for my key." Students will stay after school to work on the computers.

She notes that her students are not allowed to copy programs on any of the school equipment. A programmer for the TI-99/4A and Apple herself, she says, "A lot of these kids don't see that what they're doing is theft. Most of them just want to take a game home and play it."

1:10:14. No job advantage

So you live in a state, or a school system, without any overall goals or objectives for its computer courses or the way computers are used in the classroom. Is this cause to worry?

Probably not.

Campus Voice, a magazine distributed nationally on college and university campuses, recently interviewed employers and recent college graduates on the subject of computer literacy. It found that computer skills did not help persons get jobs except in such fields as programming and data analysis. Although many other jobs require use of a computer, they do not require advanced technical knowledge, and the training necessary can be acquired on the job.

This being the case, are computer literacy courses perhaps a frill, a waste of time?

Not according to Karen Jones, who teaches computer literacy at a middle school in Round Rock, Texas.

Computer courses aid the students in developing logical reasoning, inductive and deductive skills, she says.

"It's never really been proven you can learn reasoning skills," she says, "but it sharpens the reasoning skills they have."

1:10:16. Morning Star's CP/M card being shipped out now

Morning Star Software, 4325 SW 109 Ave., Beaverton, OR 97005, says there's been a lot of interest expressed in the company's CP/M card for the TI-99/4A over the past year. However, until now, the company has not been shipping the cards, nor has it been accepting payments from potential purchasers.

The card sells for $595 and is designed to be used in the TI Peripheral Expansion Box. Those who have responded to advertisements the company has published over the past year have received brochures describing the card and software. Scott Swenson, owner of Morning Star, says that those who have inquired about the card are currently being notified of its availability.

The card uses CP/M software in the Osborne I format (single-sided, single-density). The card will write files to double-sided diskettes using the TI disk controller. However, the card does not support double-density formatting. Swenson indicated that his company would like to offer double-density capability in the future.

The card uses an Intel 8085, 8-bit microprocessor. Available software includes Personal Pearl database, a CBASIC interpreter, Super Writer word processor and a cornprehensive series of business software called Business Master Plus. All are available at extra cost from Morning Star. The card supports a range of languages, from Pascal to Fortran to ADA.

Swenson notes that the card is not optimized for word processing, noting that it runs in graphics mode for text. He says the card can run WordStar.

The company is working on a terminal emulator to work with the Hayes Smartmodem. This would allow users to access CP/M software over electronic bulletin board services.

1:10:18. Virtuosos sought in new contest

Response to the first *MICROpendium* Software Improvement Contest picked up a lot in September, and that's why we're starting the second contest. Prizes are $50 for first place and $25 for second place.

The program for this contest appears in the User Notes section of this issue. It is published under the headline "Making music." The program turns the keyboard into an "organ."

Because the program is written in BASIC, we're limiting all entries to console BASIC. The program must not be longer than 1,500 bytes. We will award first and second place prizes on this one. The winning entry will be published in the January issue of *MICROpendium*. Improvements may vary, ranging from the use of graphics to implementation of "pedals," etc. A big help to those who play the "organ" might be a way of visually identifying what tones go with which keys.

We ask that all entries be submitted on disk or cassette to facilitate the judging. Having to input the entries for the first contest took up a lot of time. We will return all entries, of course, provided that sufficient postage is included.

Mail entries to *MICROpendium* Software Contest, P.O. Box 1343, Round Rock, TX 78680. All entries must be postmarked no later than Dec. 10 [, 1984]. Include any documentation necessary to operate the program.

1:10:18. Winger wins first challenge

Kent Winger of Ogden, Utah, is the winner of our software improvement contest.

The contest involved rewriting and improving a score-keeping program using one kilobyte of RAM or less. Winger's entry is written for Extended BASIC and allows the entry of the names of up to nine players. Scores are updated instantly when posted. The leader after each round of play is also displayed without disrupting the scoring sequence.

Winger said he kept the number of rounds at 22 in order to conserve memory.

```
100 REM *SCORE KEEPER*
110 REM *MICROPENDIUM*
120 REM *KENT WINGER*
130 REM *4162 PORTER AVE*
140 REM OGDEN, UT. 84403*
150 DIM SCORE(9,22)
160 FOR C=2 TO 14 :: CALL C
OLOR(C,16,2):: NEXT C :: CA
LL SCREEN(2):: CALL COLOR(0
,16,2)
170 CALL CLEAR :: DISPLAY A
T(14,7):"HOW MANY PLAYERS?"
 :: DISPLAY AT(16,11):"(MAX
. 9)"
180 ACCEPT AT(18,16)BEEP SI
ZE(1)VALIDATE(DIGIT):PL
190 FOR DELAY=1 TO 100 :: N
EXT DELAY :: CALL CLEAR
200 DISPLAY AT(1,3):"PLAYER
 NAMING SECTION" :: LN=PL*2
210 FOR Y=2 TO LN STEP 2
220 DISPLAY AT(Y+2,4):"PLAY
ER #";Y/2 :: NEXT Y
230 FOR Y=2 TO LN STEP 2
240 Z=Y/2
250 ACCEPT AT(Y+2,17)BEEP V
ALIDATE(UALPHA):PLAYER$(Z)
260 NEXT Y :: FOR DELAY=1 T
O 100 :: NEXT DELAY
270 CALL CLEAR :: DISPLAY A
T(1,4):"SCORING SECTION & U
PDATE"
280 FOR Y=2 TO LN STEP 2
290 Z=Y/2
300 DISPLAY AT(Y+2,1):Z;"";
PLAYER$(Z):: DISPLAY AT(Y+2
,14):SCORET(Z):: NEXT Y ::
HAND=HAND+1
310 FOR Y=2 TO LN STEP 2
320 Z=Y/2
330 ACCEPT AT(Y+2,22)BEEP:S
```

```
CORE(Z,HAND)
340 SCORET(Z)=SCORE(Z,HAND)
+SCORET(Z):: DISPLAY AT(Y+2
,14)SIZE(6):SCORET(Z)
350 NEXT Y :: FOR DELAY=1 T
O 100 :: NEXT DELAY
360 FOR CT=1 TO PL :: LE=MA
X(LE,SCORET(CT)):: NEXT CT
370 FOR CT=1 TO PL
380 IF LE=SCORET(CT)THEN 40
0
390 NEXT CT
400 CALL CLEAR :: DISPLAY A
T(12,1):"LEADER..";PLAYER$(
CT);" ....";SCORET(CT)
410 DISPLAY AT(24,1):"'ENTE
R'(SCORE) 'R'(HANDS)"
420 CALL KEY(0,K,S):: IF S=
0 THEN 420
430 IF K=82 THEN 450
440 GOTO 270
450 CALL CLEAR :: DISPLAY A
T(1,7):"INDIVIDUAL HANDS" :
: DISPLAY AT(2,1):"WHAT PLA
YER WOULD YOU LIKE?"
460 ACCEPT AT(3,15)BEEP VAL
IDATE(DIGIT)SIZE(1):P
470 IF P>PL THEN 460
480 CALL CLEAR :: DISPLAY A
T(1,1):P;" ";PLAYER$(P);" H
ANDS SCORED"
490 FOR CT=1 TO HAND
500 DISPLAY AT(CT+1,1):"HAN
D #";CT;" ";SCORE(P,CT):: N
EXT CT
510 DISPLAY AT(24,1):"'ENTE
R'(SCORE) 'R'(HANDS)"
520 CALL KEY(0,K,S):: IF S=
0 THEN 520
530 IF K=82 THEN 450
540 GOTO 270
```

1:10:20. Amerisoft introduces Compiler 99

Amerisoft International, P.O. Box 2168, Acworth, GA 30101, is launching an aggressive campaign to provide products for the TI home computer market.

According to company official Boyd Cone, "We're trying to satisfy the market that is there. We're producing all those things that Ti should have done. "

The company is releasing a number of new programs, including a BASIC compiler, a program called Master Painter that is supposed to greatly reduce the time it takes to incorporate graphics in BASIC and Extended BASIC programs; Speedgraph 99, a graphing package; and Emulator Express, a terminal emulator that operates at 300 or 1200 baud.

Compiler 99 converts BASIC programs into machine code, according to Amerisoft. A BASIC program is loaded into memory and the user simply enters the output device and filename and the compiler does the rest. Cone says the only restrictions the program has have to do with the use of DEF and SUB statements. He indicated that users can insert these statements into their programs after compiling. The program operates out of the Editor/Assembler cartridge. Suggested retail price is $99.95. The company is offering the compiler at $89.95 as an introductory price.

3D World is a three-dimensional programming aid that provides users control over color, shapes and sizes of objects. Users may use the program to define objects, rotate the screen, move the screen forward for an expanded view, move it backwards for a reduced view, or sideways. A joystick is used in a mouse-like fashion to create pictures. With the use of an Epson formatted 8-bit printer, graphics may be printed in magnified form on paper.

The program requires Extended BASIC. The introductory price is $34.95. The regular price is $39.95.

Master Painter allows the user to create, edit, change colors and define objects. A joystick is used to operate the program out of Extended BASIC. Images may be save to a storage device or dumped to a printer. The program lets users save in DATA format, allowing the DATA statements to be read by BASIC programs. The introductory price is $34.95. The suggested retail price is $39.95.

Speedgraph 99 is a graphing package written in 9900 assembler that runs out of Extended BASIC or Editor/Assembler. The company says it will complete plots or graphs in seconds. The program does polar plots, linear plots, bar graphing, sine-wave curves and other graphing tasks. The program includes a high-speed, assembler-based print utility to allow output to be dumped to a dot-addressable printer. Printing is done in double-wide, double-height format. The price is $24.95.

Emulator Express is completely compatible with Terminal Emulator II protocols, including speech. It permits automatic selection of baud rate (300 or 1200), allows for 32K of buffering, and has controlled screen scrolling. The price is $39.95.

All of the above programs require an expansion memory and disk drive.

The company is also expected to be marketing a disk controller card produced by Myarc Inc. The card is designed for use in the TI Peripheral Expansion Box and will control up to four floppy disk drives. The controller is capable of formatting double-density, double-sided diskettes.

According to Cone, some 2,000 bytes of memory in the controller has yet to be defined. The company is turning to TI owners to learn what functions they would like to see included as part of the firmware. A disk controller card marketed by CorComp Inc. offers a number of assembly language subprogram utilities that are accessible through BASIC or Extended BASIC programs.

1:10:22. TI assessed $12 million

Texas Instruments Inc. agreed to pay $12 million to settle a class action suit which claimed that company officers misled investors by not disclosing unfavorable information that led to TI's forecast of a major loss in its home computer business last year. The agreement was reached in early October.

The suit, brought by the Council on Social Work Education Inc, named TI chairman Mark Sheppherd Jr., chief executive officer J. Fred Bucy, controller Marvin Lane and Jim Fischer, former executive vice president.

The suit alleged that the men knew but failed to tell potential investors that sales of the TI-99/4A were flagging and that profit margins were cut because of price-cutting. TI announced June 10, 1983, that it would lose up to $100 million on its home computer business.

The settlement was filed in the U.S. District Court in the Northern District of Texas. Court approval is still required. A hearing is planned for Jan. 18, 1985.

A TI spokesman said the defendants denied the allegations in the complaint and that the settlement was reached to avoid the expense of litigation and "the diversion of management time."

Under the settlement, the $12 million will be distributed to an unknown number of investors in TI stock, put and call options between March 1 and June 10, 1983.

TI stock plummeted some $50 per share within two days of the company's announcement of its anticipated losses, from $157.75 per share to $107 per share.

1:10:22. How fast is Forth?

By HECTOR SANTOS

The two reasons most often given for using Forth are its speed of execution and the economy in its utilization of memory. We will examine its speed compared to console BASIC and Extended BASIC using a benchmark program suggested in the Wycove Forth manual. The program solves the following problem:

A board showing a four-digit house number falls and breaks in the middle, leaving two numbers of two digits each. Someone remarks that it must be a lucky number because if you add the two two-digit numbers together and square the result, you get the original four-digit house number. List all the lucky four-digit numbers.

BASIC Program

```
100 N=1000
110 FOR X=10 TO 99
120 FOR Y=0 TO 99
130 IF (X+Y)*(X+Y)<>N THEN 150
140 PRINT N;
150 N=N+1
160 NEXT Y
170 NEXT X
```

Forth Program

```
: HOUSE#1 1000
  100 10 DO
     100 0 DO
        J I + DUP * OVER = IF DUP . ENDIF
     I+ LOOP
  LOOP DROP ;
```

Console BASIC takes 209.4 seconds to run, Extended BASIC 219.6 seconds, TI Forth 7.2 seconds, and Wycove Forth 4.9 seconds. It is apparent that Extended BASIC is not always faster than console BASIC as most people believe. Both versions of Forth are fast!

One curious thing is that if you replace $(X+Y) * (X+Y)$ by $(X+Y)-2$ in the BASIC program, the run times change. Console BASIC now takes 555.6 seconds (very slow!) and Extended BASIC 244.8 seconds. Extended BASIC runs faster than console BASIC now, although both run slower than the original program. Apparently, console BASIC has a very inefficient algorithm for exponential functions.

Why does Forth run so fast? A big factor is its use of integer, instead of floating-pointing arithmetic. Pascal takes advantage of the speed of integer arithmetic by letting you declare your variables as either integer or floating-point. Poor BASIC has to use floating- point in all its computations. Another product available for the TI-99/4A that has integer arithmetic capability is the SST Expanded BASIC Compiler. It claims to run more than 45 times faster than regular BASIC.

A few days after I ran the benchmark tests, I picked up from the bookstore a copy of *Home Computer Magazine* (the old *99'er*). In the Letters section, reader Woodrow Wilson presented a more efficient program to solve the house numbers program. It is a beautiful and elegant solution. I urge the mathematically-minded among you to follow its logic to fully appreciate its conciseness. The new solution takes only 68 loops compared to 9,000 for the original.

BASIC Program

```
100 XHI=INT(SQR(9999))
110 XLO=INT(SQR(1000)))+1
120 FOR X= XLO TO XHI
130 Y=Y*X
140 Z=INT(Y/100)
150 IF (Y-Z*99)<>X THEN 170
160 PRINT Y;
170 NEXT X
```

The new solution takes only 4.8 seconds to run in console BASIC and 3.6 seconds in Extended BASIC. Does this mean that BASIC is faster than Forth? No, because the equivalent Forth program is:

```
: HOUSE#2    100 32 DO
                 I DUP 100 */ 99 * I DUP * SWAP -
                 I = IF I DUP * . ENDIF
             LOOP ;
```

The program executes in a split-second, 0.6second in TI Forth and "too fast to measure" in Wycove Forth. This shows one thing about benchmark programs. When using them to compare anything, make sure they are equivalent and use the same logic. Otherwise, you could be comparing apples and oranges.

1:10:24. Review: Transstar 120S

A printer for your home

By JIM WRIGHT

Review	
Report Card	**Cost:** $550 (sugg. retail)
Performance . . . B Ease of Use . . . . A Documentation A	**Manufacturer:** Transtar, 2100 116th Ave. NE, Box C-96975, Bellevue, WA 98009
Value . . . . A Final Grade . . . . A	**Requirements:** console, monitor or television, printer interface and cable

A printer is high on almost every computer user's list of "have to have" items. Word processing — probably the number one "serious" computer activity — demands a printer, and hard copy is also useful, if not necessary, for such things as programming and debugging, database and spreadsheet applications, and even some games. Vivitar, a Japanese firm with a deserved reputation for quality camera lenses at attractive prices, has recognized this large market and joined the list of peripheral manufacturers. Their Transtar family of letter-quality printers is relatively new but worth considering.

Performance: The Transtar 120S is an RS232 serial daisy wheel printer that Vivitar calls "portable." This is somewhat misleading. The 120 weighs 19 pounds and can be carried around if you choose to do so, but unless you also carry your computer, disk drive, and assorted cables and paraphernalia, there seems to be little point in the exercise. I prefer calling this machine a "home printer," a term that connotes some of the 120's characteristics: relatively quiet operation, trim she and attractive styling. The existence of an office-grade sibling, the 130S, makes the "home" designation even more appropriate.

The 120S ("S" is for serial; a Centronics (parallel) version, the 120P, is also available) is plug-compatible with the TI-99/4A. A standard RS232 cable, such as Radio Shack's #26-1408 or equivalent, is all you need to get started.

Configuring your Transtar is no problem. The clear, readable manual explains the various DIP switch settings quite well. Actually, most of the factory (default) settings are appropriate for the 99/4A and TI-Writer, but you will want to set the parity to odd and word length to 7 bits. The only difficult setting — changing the handshaking protocol — requires no attention, since the default, DTR (data terminal ready), is correct.

The 120S can be set for baud rates of from 300 to 9600 and TI-Writer will cooperate, using the "RS232.BA= n" device name format for any setting other than 300 baud. I use 1200 baud, the factory setting, but this is fairly immaterial. This machine has a 1.79K buffer, and your console will be tied up during printing until the last batch of 1,790 characters is transferred, no matter how fast each bufferful is sent. Of course, if you have a spooling buffer, then the faster transfer rates may come in handy.

The Transtar prints 4 characters per second, putting it in the low speed range, even for letter-quality printers. However, this is still about twice as fast as even accomplished typists can work. Too, any letter-quality printer that operates significantly faster than the 120S will carry a pretty awesome price tag.

There are a number of software switch options available with the Transtar, most of which can be activated by standard TI-Writer Text Formatter commands. They are also available in programs you write, and the manual gives a good sample program in BASIC for using these switches. Some useful escape sequence commands that can be transliterated and inserted in your text with TI-Writer include one that activates bidirectional printing, which should have been a hardware switchoption; two that give half-line feeds up or down for subscripts and superscripts; and commands to select line feed pitch in increments of 1/8 inch.

The control panel on the 120S contains four push-button switches and three indicator lights. The Autoload switch causes the machine to load single sheets or fanfold paper to one of four DIP switch-selected positions: first printable line or 1, 1 1/2 or 2 inches down. Eject does just that with single sheets, or it serves as a form feed with continuous paper. There is also a Line Feed button; held down for two seconds, it becomes a continuous feed control. The Pause/Continue control allows you to stop printing for whatever reason and later resume where you left off.

The indicator lights are Power On, Alert and Print On. The Print On lamp reflects the status of the Pause/Continue button. The Alert light responds to any one of three sensors in the 120S: ribbon jam, cover open or ribbon cartridge empty. Any of these conditions stops the printer and lights up Alert. Incidentally, if you raise the cover, the print-head moves over to the center of the platen for easy access to the print wheel and ribbon cartridge. Closing the cover and pressing the Continue button restarts your printing job where it was interrupted.

I haven't had my 120S long enough to judge its durability, but Vivitar claims a mean time between failures (MTBF) of 20 million actions. That's a lot of printing, and their six-month parts and labor warranty on the 120S shows a certain amount of faith in the machine's reliability.

The Transtar comes standard with a Courier 10 print wheel and an 80,000-character mylar, single-strike ribbon. Transtar has an assortment of other type styles and pitches available, including script, or you can use any Silver-Reed EX-55 typewriter wheel. Likewise, Vivitar can supply a 600,000-character cloth ribbon for draft printing, or you can use Silver-Reed EX-55 cartridges. Also, Olivetti ET series ribbons fit the 120S, so re-supplying it should be no problem.

This printer is friction-fed, but a bidirectional tractor attachment is available. Expect to pay about $150 for it.

Overall, the Transtar 120S has proven to be an excellent buy. Suggested retail is $550, but it runs around $325 at discount. That's pretty close to last year's dot matrix prices and certainly in the low end of the letter-quality spectrum. I would have preferred a faster machine with hardware switchable bidirectional printing but, at the price, I wouldn't expect to do any better anywhere.

1:10:25. Review: 9900 Disk Controller Card

A card for all reasons

Review	
Report Card	**Cost:** $169.95 (PEB card)
Performance ... A Ease of Use .... A Documentation A	**Manufacturer:** CorComp Inc., 1255 N. Tustin Ave., Anaheim, CA 92807
Value .... A Final Grade .... A	**Requirements:** console, monitor or television, TI Peripheral Expansion Box, disk drive, cable, memory expansion, printer optional

The TI-99/4A has come a long way over the past several years. Among the major landmarks of its development one must count the introduction of the Peripheral Expansion Box in the spring of 1982 and now the introduction of a disk controller card for the PEB that is capable of formatting double-density, double-sided diskettes.

CorComp Inc. first announced its intention to produce a disk contnoller card for the TI last winter. In, January a company spokesman was very confident that the card and other devices would be ready for the market by mid-spring, However, in late February, the company under went a change of management tnd the predicted release of the card and other peripherals was delayed. The card wasn't ready for the marketplace by spring, though prototypes were being tested.

By late spring the company said the card was finally ready and that all that needed to be completed was the printing of the manual. The next word was that it would be ready for distribution by late June. Then. finally, by late July, the company was ready to ship the cards to dealers. And, for the first time, PEB owners had access to the first third-party disk controller card for the TI. (Myarc Inc. has been marketing an expansion box that includes a double-density disk controller, 32K of expansion memory and RS232 interface since last spring, and CorComp expects to have a similar combination of features available in its own small expansion system before the end of the year.)

However, it seems safe to say that the majority of TI owners with disk drives also own the TI Peripheral Expansion Box. And for them the new disk controller card provides an exciting option that includes the only disk-based disk management system available for the TI. Those with an expansion memory may use CorComp's own disk manager disk. Those without expansion memory may still take advantage of the CorComp card by using TI's Disk Manager II cartridge. The CorComp card allows DMII to initialize double-density diskettes. DMII may also be used with memory expansions, though the CorComp disk manager program is faster and in many ways more efficient than DMII.

Performance: The CorComp 9900 Disk Controller Card looks much like TI's peripheral expansion cards. However, it is considerably lighter (12.5 ounces) and the enclosure is not nearly as sturdy as the one used on TI cards. As a result, a bit more care is necessary when inserting the CorComp disk controller into the PEB than when inserting a TI-manufactured card.

It must be noted at this point that CorComp has produced two disk controller cards, one that worked and one that didn't. The original version, many copies of which were still being shipped by vendors in September, was fraught with problems, ranging from inadequate initialization to read-write errors. The company subsequently corrected the problems inherent in the first card and is now distributing what is called Version 2.2. This is the version this review is based on. For the record, CorComp sent three of the original disk controller cards to *MICROpendium*, none of which worked properly. Only one of the Version 2.2 cards was sent, and it has performed flawlessly.

Additionally, I used a single and dual-drive systems in reviewing the disk controller and disk manager. Both drives are designed for double-sided, double-density diskettes. The TI single-sided disk drive is not capable of double-density formatting. The drives used for this review were manufactured by Control Data Corp. and by Tandon Magnetics.

The CorComp card is an improvement over the TI card in several ways. The obvious improvement is in its double-density formatting capability. This essentially doubles the storage space available on what heretofore were single-density diskettes. Most single- and double-sided diskettes one finds in computer stores are capable of double-density formatting. The CorComp card is able to control up to four disk drives, compared to three by the TI disk controller.

With the card in place, the first thing the user notices is the new title screen. Replacing the familiar TI title screen is a menu that has the CorComp disk manager program as the first selection, followed by BASIC. Then, if there is a cartridge loaded into the computer, the third selection will be the name of the cartridge program. There is also a prompt which allows you to access the cartridge indirectly by pressing the space bar. This second manner of accessing cartridges was provided for use with Terminal Emulator II and other cartridges that contain their own powerup routines. I didn't find this necessary with any of the cartridges or programs I used.

I tried out a number of cartridges with the CorComp card and all worked perfectly. In fact, I found none, including non-TI cartridges such as Disk Fixer by Navarone Industries and game cartridges from Atarisoft and other sources, that did not work properly with the card. Although there may be more programs that won't load properly with the CorComp card, I ran into only one, Floppy-Copy by The Softspot. However, this program has since been modified to operate with both the CorComp and TI disk controller cards. I also could not get the original disk controller card to operate with Foundation Computing's 128K memory card. However, there seems to be no such problem with Version 2.2. Ironically, according to CorComp, the CorComp disk controller is not completely compatible with early versions of the company's RS232 card. I found no compatibility problems using TI's RS232 card nor TI's 32K memory card.

The CorComp disk manager, which requires a memory expansion to operate, is a very interesting piece of software. It can be loaded into expansion memory without the use of a TI cartridge. It loads very quickly for a 98-sector program. It offers a main menu that includes four options:

     1. File Utilities
     2. Disk Utilities
     3. Disk Tests
     4. Manager Configuration.

The first thing you will want to do after loading the manager (and reading the manual, of course) is to select option 4. This brings you to a very busy sereen that allows you to configure default values for up to four disk drives, determine printer output settings and set the screen and background colors. For each drive, the user determines the following characteristics: the number of tracks per side (1-40), the number of read/write sides (1 or 2) and the recording density (single or double). You may also set the from-to default settings for copy functions and background and foreground colors. You may then go to a second screen to set the single-density and double-density interlace. Also, you may choose to enable or disable the "turbo" function. This function allows the controller to speed up copying procedures by turning off the verify after write command. These configurations may be saved to a disk, along with the manager program, for future use.

One of the problems with the original card was the fact that copies of the disk manager program could not be loaded successfully. The manager is meant to be copied, to any disk. However, this problem has also been rectified with Version 2.2.

Even so, I continued to have problems initializing disks using the CorComp disk manager. Following initialization, the disk manager indicated that hundreds of sectors had been used, which was clearly erroneous. This happened to at least 50 percent of the diskettes I initialized. Finally I reinitialized the disks using DMII, and in some cases found that the readouts on DMII also gave erroneous figures on disk space used. I ran the disks through the destructive disk test sequence and managed to clear the disk. Then I initialized the disks again using DMII and everything worked out properly. (I also tried the initialization routine from Floppy-Copy and it seemed to correct the problems associated with disks initialized using the CorComp disk manager but in much less time than it took using DMII.) I do not know why this problem exists. As best as I could tell, the program failed to verify all sectors and those not verified were recorded as having been used.

The manager configuration allows the user to set default settings for disk and file utility operations. The user may override these defaults prior to executing any operation.

After configuring the manager, you have much the same menu choices as offered by Disk Manager II. The File Utilities segment lets you copy, rename, delete or move a file from one disk to another or change the protection characteristics of a file. Also offered as a file utility is the option of loading and running Assembly files.

I much prefer using the CorComp File Utilities to those available on DMII. CorComp did a fine job in designing a program that is not only easy to use but far more convenient for the user. Having selected the file utility, you identify the drive number and the program loads the disk catalog onto the screen.

This catalog differs from the DMII catalog in several ways. For one thing, it does not scroll. It displays up to 18 files at a time in a page format. In addition to showing the file name, size, type of file and protection status, it also has a command field at the far left. It is here that you determine the type of activity to perform on any file.

For example, if you want to copy a file you simply type in the letter "C" in the command field of each file that you want copied. Or, suppose you want to copy some of the files and delete others. You enter a "C" for those you want to copy and a "D" for those you want to delete. (Because the disk manager program takes up virtually all of expansion memory, the file copying utility is able to copy only about 34 sectors per pass.)

Suppose, too, you want to rename a file at the same time. Simply move the cursor to the file name and change it. Suppose you want to temporarily change the protection status as well. Simply move the cursor to'the protection line and type in a "U" for unprotect, "P" for protect or "T" for temporary. "T" allows you to temporarily unprotect a protected file in order to rename it. After the renaming command has been executed, the "T" becomes a "P."

Okay, having decided the number of things you want to do, you can page over to the next catalog screen, if there are more than 18 files on the disk. Having come to the end, you are prompted to execute the commands. Entering a "Y" will start the file utility operations that you've selected. You are returned to the first file utility screen and may watch the names of the files appear at the top of the screen as the operations are executed. Also reported are the number of sectors in the files. When the last operation has been completed, you may return to the main menu by pressing **FCTN 5**. Pressing **FCTN 4 (CLEAR)** returns you to the select option field. You may also use **FCTN 9 (BACK)** in the same way as **FCTN 4**. **FCTN 6 (PROC'D)** is used to execute commands. This is familiar stuff to DMII users.

The File Utilities menu also offers the user the option of loading and running assembly language Display/Variable files without the use of the TI Editor/Assembler cartridge.

The Disk Utilities menu offers the user the following four options:

1. Catalog
2. Copy Disk
3. Rename
4. Initialize.

The Catalog option displays diskette files alphabetically, with room for 18 per screen. The user may page forward and backward through the catalog, just as he may do with the File Utilities catalog.

The major difference between the Disk Utilities catalog and the File Utilities catalog is the absence of the command line in the Disk Utilities catalog. The catalog includes file names, file size and the protection status. Also displayed are the disk name, the number of files on the disk, the number of sectors that have been used and the number of sectors remaining free, the current catalog page number and the total number of pages in the catalog. All of this is included on the File Utilities catalog as well.

Copying disks is simply a matter of identifying the source drive and inputting the number of read/write sides and density (if different from the defaults) and the destination drive and its defaults. Unlike DMII, the CorComp disk manager does a sector by sector copy of a disk, thereby overwriting the destination disk. As long as the turbo function is not switched on, all sectors are verified.

Diskettes are renamed in much the same way as files are renamed via the File Utilities menu.

When it works properly, the CorComp disk manager program initializes diskettes in much the same way as DMII. The user is prompted for the drive number, the number of tracks, the density and the number of sides. The user is also prompted as to whether to copy the disk manager program to the diskette. Prior to actually starting the formatting procedure, the program prompts the user as to whether to continue with the process. If the response is in the affirmative, the program begins the process. Sector numbers appear on the screen as the program initializes the disk, in much the same way as they appear on the DMII initializing screen.

The Disk Tests option on the main menu provides the user with much the same procedures as the DMII diskette test options. One has the choice of non-destructive (read only) or destructive (write and read) testing, whether to log results, etc.

The manager offers easy access to printer via a screen dump that may be used at virtually any time. Screens can be sent to a printer simply by pressing **FCTN 0**.

The disk manager diskette also includes a number of subprogram utilities that can be called from BASIC and Extended BASIC programs. Among them are:

MPEEK — for reading values and characters from CPU memory.
MPOKE — for writing values and characters to CPU memory.
VPEEK — for reading values and characters from VDP memory.
VPOKE — for writing values and characters to VDP memory.
WRTRG — for writing vaues to the video registers.
MOVEM — for moving blocks of memory around.
EXEC — for executing Assembly language programs by address.
MGR — for loading and running the CC 9900 Disk Manager program.
DELETE "LD-CMDS" — for loading the new commands to link names into low memory expansion using Extended BASIC.

Actual use of these subprograms is well-documented in the manual that comes with the disk controller.

Also included are files called FORTH and SAVEFORTH that can be copied to the TI Forth disk. This file allows users to load and run TI Forth from the CorComp disk manager without using the Editor/Assembler cartridge.

Ease of Use: Since the CorComp 9900 disk controller card is fully compatible with DMII, users needn't even use the CorComp disk manager diskette if they choose not to. However, I suspect that anyone who purchases the disk controller will find the CorComp disk manager program an improvement over DMII in all but one area (initialization) and will take the time to learn how it works. Essentially, this means you'll have to read the 26 pages devoted to the disk manager in the manual, and experiment. The CorComp disk manager is so similar in operation to the TI disk manager that anyone accustomed to the one will find no trouble in adjusting to the other.

Corcomp designed its card so that users could match its operation to the characteristics of their disk drives. One does this by adjusting head step times. This is easy to do with the CorComp card. The user simply removes the four screws that hold the card enclosure together and pulls the two sides apart. A box containing eight DIP switches is located on the card itself. By following instructions provided in the manual, the user may reset the switch settings for each drive from 3 milliseconds to 15 milliseconds. The switches are set at 10 milliseconds at the factory. I used the factory settings in reviewing the card as adjustments did not seem to be necessary.

Documentation: The disk controller comes with a 90-page manual printed on 8½ × 11-inch paper. Though unbound, it is designed for placement in a three-ring binder. The manual includes much of the information that comes with the TI disk controller manual, including how to use OPEN, CLOSE, INPUT, PRINT and other statements. The section which describes the use of the disk manager program is quite detailed and easy to follow. The section about the "Tool Shed Utilities" that come with the program provides a programming example for each utility. Appendixes include the definitions of error codes, system map, VDP memory map and VDP registers.

Value: Version 2.2 is, as far as I could tell, well worth the price. The disk manager software, for those with memory expansions, is very handy for all but one purpose.

In packaging the card, CorComp has made the decision that anyone who buys it already has a TI disk controller and TI disk manager software. I draw this conclusion because the CorComp card does not come with either the TI disk manager or a cable to connect the card to an internal disk drive. This seems logical in so far as there seems no reason for anyone to have purchased the TI PEB without also having purchased a disk drive and disk controller card.

There were a number of objections I held against the first CorComp disk controller. In addition to those already indicated, there is the fact that the edge connector for external drives was not compatible with the TI external drive cable. This, as well as all other objections I had, was corrected with the release of Version 2.2.

Even so, I feel it is necessary to point out that this review ought to be considered to be about two subjects: the Corcomp card and the CorComp disk manager software. I have no reservations about the card itself and view the disk manager with its "Tool Shed Utilities," Forth loader and disk and file management utilities to be a very nice bonus to users. It is something one doesn't need, but it is very nice to have.

How much confidence do I have in this card? Having reviewed it, I bought one for myself. At this point I'm getting ready to transfer most of *MICROpendium*'s data files to double-density diskettes, including our circulation lists. If something goes wrong with our mailing list it would take months to get it all corrected. But I'm not worried.

— JK

1:10:27. Changing head-step time boosts manager performance

Elsewhere in this review, you'll find reference to a problem encountered when initializing diskettes using the CorComp disk manager program. The problem has to do with inaccurate sector counts when formatting double-density diskettes. Essentially, the program seems to skip over several hundred sectors during the process.

This problem can be corrected, permanently, by modifying the head-step time settings

Although the card is set for a head-step time of 10 milliseconds at the factory, users may modify the step time for any drive by adjusting eight DIP switches located inside the card's enclosure. The manual describes how to open the enclosure, Setting all switches in the "off" position results in a head-step time of 15 milliseconds for all four drives. The result of this is that the initializing problem is corrected.

MICROpendium just learned of this at presstime and was unable to change the information in the review.

TEXAS INSTRUMENTS
HOME COMPUTER

1:10:31. Review: Super Bugger

Gift horse evaluated

By **HOWARD H. ARNOLD**

Review	
Report Card Performance . . . A Ease of Use . . . . B– Documentation C– Value . . . . A+ Final Grade . . . . A–	**Cost:** Free through TI Users Group
	Manufacturer: Navarone Industries
	Requirements: Console, monitor, disk, memory expansion, Editor/Assembler, Mini Memory or Extended BASIC

Super Bugger is an improved version of TI Debugger. It was developed by Navarone Industries, apparently with the intention of a commercial release, either independently or through Texas Instruments. The free release of the program through TI user groups is indeed a bonanza for anyone doing serious Assembly language programming.

Though we've been warned time and again not to look gift horses in the mouth, we'll nonetheless do just that. In the process of that critical look, we've discovered a few tips that may make the product more useful, and help to extend its application.

Performance: The program comes on a single disk, occupying 201 sectors; 99 of these sectors are used for a "help" file, the only documentation provided (at least to our users' group). This help file can be printed with TI-Writer, and occupies seven pages. The program itself is provided in two forms: one suitable for loading with BASIC or Extended BASIC; the other loadable only from Editor/Assembler (or, as I discovered, from Mini Memory).

The BASIC version of the program, identified on the disk as "SBUG," occupies 97 sectors of the disk. The Editor/Assembler version, in condensed format, is identified as "SBUGC" and occupies only 45 sectors. As you would expect, the condensed version loads in less than half the time that the SBUG version does. It also contains a number of desirable features not available from BASIC.

The performance of Super Bugger is everything one could expect from a sophisticated debugging program. The improvements over the TI Debugger include an excellent disassembler, which generates Assembly language code from any machine language program co-resident in memory. The only feature I might wish for in this utility is an ASCII interpretation of code, to make the location and identification of text and message blocks a bit easier. The presence of unaccountable assembler code or directives is thus the only clue to these areas. Small matter — the provision of disassembled code is a GREAT help, not only in examining your own programs but in looking at other's code, and even at programs in ROM.

Another improvement over TI Debugger is the ability to single-step through a program. After any step it is easy to examine all registers with the single command <W>. The program instruction executed at each step is displayed on the screen, next to the memory address. In addition, the effective jump address is shown for each jump instruction (even conditional jumps, whether or not executed).

A memory dump to a hard copy device is also provided. It is also possible to toggle the hard copy device on or off with the single letter command <L>, with the screen being the default listing device when the hard copy device is toggled off.

As stated earlier, although the instructions did not make it clear, it is possible to load the condensed version of the program using either Mini Memory or Editor/Assembler. It is desirable to use this version when possible, since it not only loads more quickly but also provides some features not available in the BASIC version. For example, a bit-mapped screen option is provided in the SBUGC version.

Ease of Use: The documentation provided in the help file suggests that the user become familiar with TI Debugger and its documentation prior to using Super Bugger. This is a very fine suggestion! In fact, you'll be in quite a bit of trouble if you don't. Even loading the program initially will be quite a challenge. Although both sets of documentation imply that the programs can be loaded from console BASIC, this is true only if a command module containing the LOAD and LINK subprograms is present. Mini Memory has these programs, as does Extended BASIC.

After you load the program with the CALL LOAD command from either BASIC, your screen will be blank. The documentation suggests that you enter <U> immediately in order to begin using the program. Wrong! Instead, use <N>, which gets you a prompt for selecting your hard-copy device. From here on, everything seems to work.

It's not all that clear how to set up the program counter and workspace registers before beginning single-step operation, however, or exactly how to go about identifying the program area to be disassembled. A little experimentation will no doubt get you there.

Documentation: Here's where the gift-horse has the gravest defect. TI's own Debugger documentation isn't the greatest, and the seven-page help file on this disk adds very little. My long-standing need was for aid in debugging, disassembling and documenting Mini Memory programs. SBUG does it well, but there's no clue in the documents.

Here's how:

● Load SBUGC from the Load and Run option on the Mini Memory screen (DSK1.SBUGC).

● Go to the Easy-Bug screen of Mini Memory and <L>oad the program to be debugged from tape.

● Without leaving Easy-Bug, <E>xecute the SBUGC program, which is loaded at memory location A000 (Command <E> A000).

This takes you to the starting screen of Super Bugger. Now you can proceed to dump, disassemble or single-step to your heart's content. By the way, to single-step, you need to set the Workspace Pointer, using option <R> to W = 70B8. The program counter also must be so, again using <R> to P=7D00 (or whatever entry point you may have used in Mini Memory.

Value: How can you beat free? Seriously, I'd gladly buy the program at a typical $50 utility program price, especially if it had a well-written manual with a full explanation of loading procedures, an index and some example sessions. As it is, I highly recommend the program to anyone who has an occasion to debug even the most rudimentary Assembly language programs. It's worth the learning pains just to make it possible to quickly document a line-by-line assembled Mini Memory program.

1:10:32. A quick fix for S-Bug bug

By TOM KNIGHT

When TI finally released Super Bugger it had a "bug" in that it is supposed to be able to disassemble or dump memory to a disk and will not properly do this. (In my opinion, this was a TI-induced bug.)

I have been working on this problem and have found a solution that, so far, seems to work fine.

With no other program in memory, "S-Bug" loads from >A000 to >B96A and I will be referencing memory with this assumption.

Memory Location	Contains	Change To
A15A	3F20	101F
B2DE	7F00	0FFF
B2F2	3F99	1009
B32A	7F20	101F
B342	7F05	1005
B356	7F00	0FFF
B366	3F09	1009
B37A	7F00	0FFF
B382	3F09	1009

These locations are all references to either the PAB or the data buffer which is used by DSRLNK which, by the way, is included in Super Bugger as are the other utilities used by the program. It is completely stand-alone. All of the utilities are very similar to the ones that come with the Editor/Assembler cartridge.

There are three ways to make these changes:

1. Each time you load the program you can make the changes while the program is running.
2. The regular version (uncompressed) can be changed using the "Editor" or with TI-Writer. Be sure that on each line that you change you also change the "checksum" flag to an 8 (it is normally a 7).
3. To change the compressed version you need Disk Fixer or something similar. You actually change the disk information. If you are familiar with the use of Disk Fixer you should have no problem, otherwise it could get very hairy.

These is one other way to have these changes incorporated and that is to send me your disk with Super Bugger on it. Include a mailer to send it back in, enough postage and $2. I will then copy both updated versions of the program on the disk and the help file and return the disk. If you do not have Super Bugger but would like to have it, send a blank disk, a return mailer and postage and $5 and I will do the same thing.

Ed: Knight can be reached at 7266 Bunion Dr., Jacksonville, FL 32222.

1:10:33. Review: Floppy-Copy

You'll flip over this

Review	
Report Card Performance ...　A Ease of Use ....　A Documentation　B Value ....　A Final Grade ....　A	**Cost:** $25 (diskette) plus $2.50 shipping and handling
	Manufacturer: The Softspot, P.O. Box 8786, Silver Spring, MD 20907
	Requirements: console, monitor or television, disk drive and controller, expansion memory, Editor/Assembler, Extended BASIC or Mini Memory cartridge

Floppy-Copy is a disk copying utility and more. It allows the user not only to copy disks, but to initialize disks as well. As an added bonus, the program includes a very fast disk catalog program.

Floppy-Copy is the first multi-function disk copying utility I am aware of. It is written entirely in Assembly language.

Performance: Floppy-Copy provides the user with three important functions found on the TI Disk Manager II cartridge. It allows the user to initialize diskettes, ranging from single- to double-density and from single- to double-sided; allows the user to copy the same variety of disks; and provides the user with a very fast disk catalog utility that is very useful in making sure what is on a disk before as well as after copying.

All three of these capabilities are loaded into the computer memory simultaneously. All instructions for use of Floppy-Copy are included on the disk. The instructions consist of four segments that are accessible prior to entering the menu for the three utility programs. Each segment is loaded individually. Although the instructions are quite complete, and there is some advantage to having them on disk, I found that while using the utilities I wanted to refer to the instructions but was unable to do so. The instructions cannot be accessed after entering the utility menu except by reloading the program.

The initialization utility operates much faster than the Disk Manager II initialization utility. It creates a header that is compatible with Disk Manager II. Unlike the initialization of DMII however, the initialization feature of Floppy-Copy does not verify sectors for errors. Initializing a double-sided, double-density diskette with Floppy-Copy took about 35 seconds.

The catalog feature will show the disk catalog for any drive selected. It scrolls onto the screen much faster than any other disk catalog utility I have seen. It is several times faster than the DMII catalog utility.

The catalog can be stopped at any point simply by pressing any key. It can be restarted by pressing any key, also. Once started, the catalog must run to its conclusion, though it takes little time regardless of the number of files on the diskette.

Of the three functions available on Floppy-Copy, the disk copying utility is the most useful, followed by the cataloging feature. I find it convenient to review a disk catalog before making copies just to make sure that I am not overwriting files I want to keep.

The disk-copying utility copies up to 138 sectors per pass. It offers the user the choice of proportional or non-proportional copying. Proportional copying copies only sectors that are used. Non-proportional copying copies all sectors, whether used or not. Copying a double-sided disk that has about 350 sectors of programs on it is considerably faster in the proportional mode than the non-proportional mode. Like similar disk utilities, Floppy-Copy completely overwrites any files that may reside on the destination disk.

All functions are fully prompted in Floppy-Copy, with defaults that match the DMII defaults in most cases.

Floppy-Copy verifies data on write.

The disk copying utility of Floppy-Copy provides the user with a progress report of sorts when it is operating. The screen includes four ball-shaped objects which expand and contract while the copying is being done. There are also readouts that report the number of the current pass, the number of the drive being written to, the number of sectors remaining to be copied, the number of sectors read and the number of sectors copied.

Whenever a disk is copied, the destination disk takes on all of the characteristics of the master disk, regardless of how it was initialized. In other words, if the destination disk was initalized as a single-sided disk and the source disk is double-density, the destination disk will become double-sided. Also, the destination disk will take on the name of the source disk.

As a benchmark, Floppy-Copy copied a double-sided, single-density diskette consisting of 641 used sectors in five passes. It took about four minutes, 20 seconds.

Ease of Use: Floppy-Copy is easy to use. I like the fact that it is fully-prompted and that for each prompt there is a default. Also, whatever responses the user makes to the prompts will remain in effect until they are changed or you exit the program. Thus, if you are copying a number of disks from disk drive one to disk drive two the responses you entered initially become defaults for subsequent operations. Of course, these defaults may be changed at will. Those with multiple drives will appreciate the fact that a disk can be copied to more than one drive at the same time.

Documentation: I like the fact that the documentation is included on the program disk. One doesn't have to worry about losing the manual that way. However, not being able to refer to the instructions after entering the program menu is frustrating. The only way to get back to the documentation is to **QUIT** and reload Floppy-Copy, which becomes tiresome very quickly, particularly to the first-time user. I would like to have seen some way of dumping the instructions to a printer, or, just as well, to have had a printed copy of the instructions included with the program disk. Many software developers claim that hard-copy documentation raises the price of software, but I feel that at the least, dot-matrix printouts should be available. These are not very expensive to produce, as anyone with a printer knows.

Floppy-Copy comes with a one-page leaflet describing how to load the program using Mini Memory, Extended BASIC or Editor/Assembler.

Value: This program is priced well for what it does. The original version of the program would not operate with the CorComp disk controller card and The Softspot almost immediately modified the program so that it would. This says a lot for The Softspot. The fact that the program will operate out of any of the three TI cartridges is very convenient for users.

Although those who purchase this program will most likely do so for the disk copying utility, they will find the catalog and initialization utilities to be worthwhile functions, too. And I don't think anyone will complain about the price.

— JK

1:10:34. Review: Data Base-X

Keeping track of things

Review	
Report Card Performance . . .　A Ease of Use . . . .　A Documentation　B+ Value . . . .　B Final Grade . . . .　A–	**Cost:** $29.95 (diskette)
	Manufacturer: Western-Ware Inc., P.O. Box 53043, Lubbock, TX 79453, (806)745-6127
	Requirements: console, monitor or television, Extended BASIC cartridge, disk drive and controller, expansion memory and printer optional

Data Base-X provides users with an easy to use list-making and data organizing tool that can also print mailing labels in alphabetical or ZIP code order.

The program includes many of the features found in TI's Personal Record Keeping cartridge, such as statistical analysis, but without its memory limitations.

Performance: Data Base-X allows the user to create up to five files per diskette consisting of up to 10 categories each. Each category may consist of up to 28 characters each. The program may be used with two disk drives. The program will sort up to 100 records or perform statistical calculations on 200 samples without an expansion memory. With an expansion memory the program can sort up to 1,200 records and perform statistical calculations on up to 1,000 samples. Memory expansion is not utilized in any other way, however. Since the program uses relative files, file sizes depend on the storage capacity of the diskette.

Unlike the PRK cartridge, Data Base-X does not perform any arithmetic on data between different categories.

The program includes a number of sections, each of which is loaded when a particular function is desired. Those with a single disk drive will find themselves switching disks quite often, since files cannot be written to the program disk. In dual disk operation the program disk is kept in one drive and the file disk remains in the second drive.

Program segments include:

● Library: used to initialize file diskettes. This portion of the program also calculates the percentage of disk space used. Printer protocols are also entered here.

● File routines: used to create and delete files and to list files.

- Sort and display: used to select records based on up to three category values or by a range of numeric values within one category and displays same to screen.

- Sort and print: same as above except that records are output to a printer.

- Print labels: used to sort names based on range, category match (up to 3), numeric sort or alphabetical sort, and to print labels.

- Statistics: calculates mean, median, range and standard deviation of selected numeric samples from data file or manual input.

- Update records: used to change or inspect selected records.

- Delete records: used to delete selected records.

In many ways, the operation of this program is most similar to Database 500 by the International 99/4 Users-Group. The biggest advantage of Data Base-X over DB 500 is that data input is much faster. Also, the IUG will sell its programs to members only, while Data Base-X is readily available to anyone.

In addition to allowing faster input of data than Database 500, Data Base-X also displays user-defined prompts for each category during input so that the user doesn't ha to remember what data goes where.

However, I regard Database 500 to be a more sophisticated file management program, particularly in terms of its printing routines. With Data Base-X the user has no formatting options except for the printing of mailing labels. The label printing program lets the user select tab settings for single-wide labels. Of course, Database 500 requires a memory expansion.

Data Base-X offers the use the option of scanning a group of records to locate a particular entry in the Record Update mode. This is done by entering a specific value for the first category of any record. In other words, if the first category is for the first name of a person, say, Don, the user enters the name Don and the program responds by displaying Don's record. All entries with the first name of Don would be accessible simply by pressing one key to continue the search. Each entry will appear, one screen at a time. Once the correct record is located, the user may then change the data in any category or make no changes, as he sees fit.

Records may also be scanned through the Sort and Display mode. The user may input a numeric range of values or specific values for up to three categories. As with the Record Update mode, the user may page through the records that match the sort values. The sort routine used by this program does not create permanent subfiles that must be resorted every time new data is added.

Ease of Use: Data Base-X is a very easy to learn file manager. All screens are fully prompted. Intermediary screens are used to remind those using single disk drive systems which disk to place in the drive. (These screens are dropped when using two drives.) Most of the command input is based on CALL KEY routines so that it is not necessary to hit the **ENTER** key to execute commands. The program also uses tones to signal certain program operations. Screen color is also used as a visual cue.

Documentation: The program, which comes on one disk, includes a 17-page manual. It takes the user through the program on a step-by-step basis. It is a convenient size and bound.

Value: The simplicity of this program recommends it to users who have specific file management needs. Its weakness is in its lack of formatting capabilities for printouts. I would say that the program is ideally suited for those who would like to maintain a mailing list.

— JK

1:10:36. Newsbytes

Unprotected copier

Contrary to the trend, KnowWare, Box 53674, Lubbock, TX 79453, is marketing a disk-copying program without protecting it. Called Turbo Copy, the program sells for $21.95. A company spokesman said, "We're just trying to see if we can get it out on the market. We thought it was a little hypocritical to protect a program from copying that is used to copy other programs."

According to the company, the program can copy a diskette and verify the data on the copy diskette.

Software contest

Quality 99 Software is conducting a contest for purchasers of its recently released Draw 'n Plot program. First prize is $100 worth of the company's software. Second and third prizes are $75 and $50 worth of software. Entrants must be registered owners of the program. Entrants are required to submit printouts of pictures drawn using the program. Entrants should include their name, address and phone number with entries. Entries must be postmarked by Jan. 31. Entries may be used in future company promotions. Winners will be announced. Feb. 28. Winners will be required to submit a diskette with the winning drawing on a disk file.

For more information, contact the company at 1884 Columbia Rd. #500, Washington, D.C. 20009. Cost of the program is $41.95

Screen printer

Data Flex Software, 4420E 100N, Marion, IN 46952, has introduced an Assembly language screen dump utility called DFX-Print. The program loads from XBASIC, Editor/Assembler or Mini Memory and requires a disk system, dot-matrix printer and printer interface.

The program is loaded into the expansion memory and may be run out of BASIC or XBASIC programs by pressing a **FCTN** key. When the key is pressed, the screen is duplicated exactly on the printer. The program will also print the screen to a disk file that can be dumped later to a printer. Through the use of a load interrupt, the program will also print screens from such TI cartridges as Tax Investment Record Keeping, Video Chess and others. Instructions on how to wire the load interrupt are included.

There is also a version of DFX-Print for Mini Memory that operates out of a cassette recorder. However, the load interrupt is not supported in this version.

The program is priced at $24.95 for the disk version, $19.95 for the cassette version. The program comes with a limited, seven-day money back guarantee.

Programs wanted

J&KH Software is offering users of its Super Extended BASIC (SXB) program to turn their investment into cash. The company is looking for programs that use the SXB routines. The company intends to offer a low-priced version of SXB next spring which will not include documentation expect how to load it. This version will be used to operate programs that contain SXB subroutines.

The company offers fixed royalties for each program that is sold, professional packaging, advertising and distribution channels in the U.S. and Australia. The company says programs should use a substantial number of SXB subroutines, be user-friendly, and be implemented in a professional manner. Program ideas should be submitted in advance.

For more information, contact Jim Hollender, J&KH Software, 2820 S. Abingdon St., Arlington, VA 22206.

Surprise, surprise

Richard M. Jolles, general manager of Intellestar, announced last month that he had decided to get out of the software business. The company had been marketing a number of games and educational programs, but with little success, according to Jolles. As part of his going-out-of-business plans, he offered to provide copies of all of his programs to TI user groups. The charge is $100 for groups of 100 or fewer members and $150 for larger groups. The groups would also have the right to reproduce all of the programs to distribute to all members.

Jolles thought that would be the end of it. But then the fall computer catalogs started to come out and, to his surprise, Intellestar software was listed in them. Jolles said it wasn't until after he announced his plans to go out of business that he learned about the catalogs and it wasn't until they were already in the mail that the distributors called him to establish pricing policies.

According to Jolles, a teacher in the Washington, D.C. area, anyone who orders any of the programs be assured of receiving it. In fact, he recently ordered a new supply of diskettes to allow him to fill orders.

Name change

Challenger Software International has changed its name to CSI Design Group. The company markets a number of programs for the TI-99/4A, including Gravity Master and Spy's Demise. The company will continue to market products for the TI, according to Ken Dibble, vice president. The company is located in St. Louis, Missouri.

Newsbytes is a column of general information for T199/4A 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.0. Box 1343, Round Rock, TX 78680.

1:10:37. User Notes

Starting over

We're not sure why anyone would want to use this command to re-enter Extended BASIC, but what the heck. This tip comes from the Central Iowa 99/4A Users Group of Des Moines. According to the Iowans, the following code will get you out of Extended BASIC and will immediately begin to search for a program called LOAD on disk drive one. If there is no program named LOAD the cursor will return to the Extended BASIC screen. (An expansion memory is required.) Hues what you enter:

```
CALL INIT
CALL LOAD(-31962,255).
```

As far as we can tell, it works.

Lower-case letters

As you know, the difference between a lower-case and upper-case letter in TI BASIC or Extended BASIC is a matter of scale. Everything is in upper-case. TI uses small-scale upper-case letters to serve as lowercase letters.

The following listing comes from the Johnson Space Center Users Group of Houston, Texas. The data statements redefine the lower-case letters, though not with true descenders. (Perhaps with a little time you could create DATA statements that would produce true descenders.) We'll let you decide how to use the statements in your programs. We found it rather easy via a GOSUB and this listing to improve the appearance of a number of programs.

```
100 INPUT A$
110 REM GOSUB 5010
5010 DATA 00000038043C443C
5020 DATA 0040407844444478
5030 DATA 0000003C4040403C
5040 DATA 0004043C4444443C
5050 DATA 000000384478403C
5060 DATA 0018242020702020
5070 DATA 0000304838082810
5080 DATA 0040404078444444
5090 DATA 0010001010101010
5100 DATA 0004000404042418
5110 DATA 0040485060504848
5120 DATA 0010101010101010
5130 DATA 0000002854444444
5140 DATA 0000007844444444
5150 DATA 0000003844444438
5160 DATA 0000704870404040
5170 DATA 00001C241C040404
5180 DATA 0000005864404040
5190 DATA 0000003C40380478
```

```
5200 DATA 0000207020202418
5210 DATA 0000004444444438
5220 DATA 0000004444442810
5230 DATA 0000004444546C44
5240 DATA 0000004428102844
5250 DATA 0000442418102040
5260 DATA 0000007C0810207C
5300 RESTORE 5010
5310 FOR I=97 TO 122
5311 READ A$
5312 CALL CHAR(I,A$)
5313 NEXT I
5320 REM RETURN
5325 GOTO 100
```

Special treatment

Do you want to get special treatment when sending recording media via U.S. mail? One way to do it is to label any diskettes or cassettes you send with this warning: "Contains Computer Disks — Do Not X-Ray." According to postal authorities, anything labeled in this way is stamped by hand. "It doesn't go through any equipment or anything," a supervisor in the U.S. Post Office in Austin, Texas, says. He indicated that this procedure is standard nationwide.

The postal service does not routinely X-ray mail, anyway. And neither do most shippers. But the warning lets those who handle the mail know that the contents need a little TLC.

Forth info

The Milwaukee Area Users Group is serving as coordinator for TI Forth users. For more information, write to Forth National Information Center, 1007 N. 71 St, Wauwatosa, WI 53213. The group is supposed to have information about modifying TI Forth for use with double-sided diskettes, as well as other information of interest to Forth users.

Making music

The following BASIC program comes from the Summit Users Group of Ohio. It was originally called Mini Organ and was created by J. Canning.

```
100 OPTION BASE 0
110 DIM NOTE(20)
120 FOR A=0 TO 20
130 READ NOTE(A)
140 NEXT A
150 DATA 40000,220,247,262,
294,330,349,392,440,494,523
,587,659,698,784,880,988,10
47,1175,1319,1397
160 CALL KEY(1,K1,S)
```

```
170 CALL KEY(2,K2,S)
180 K1=K1+l
190 K2=K2+1
200 CALL SOUND(-1000,NOTE(K
1),0,NOTE(K2),0)
210 GOTO 160
```

Matter of policy

Computer insurance is something that few users probably think about. If you use your computer for hobby purposes only, then your computer equipment may well be covered by your homeowner or renter's insurance policy However, if you use a computer for any business purpose, and it's a matter of business if you try to take a tax deduction for part or all of your equipment, then the standard insurance policies may not apply.

Using a computer for business purposes means you will probably have to pay for a separate policy or obtain a rider that will allow the equipment to be included with your existing policies. In either case, you will probably be paying a higher premium for coverage. Only you and your insurance agent will know what needs to be done.

Then there are companies which provide only computer insurance. The extent of coverage varies, but some policies issued by these companies may cover everything from electrical surges to the standard disasters caused by earth, wind and fire. Some even cover software. To locate these companies, refer to the Yellow Pages of your local telephone directory. Or contact your state insurance board. They would have information on how to contact such companies. Then, there are a number of insurance agents advertising their services on electronic bulletin boards and telecommunications services.

However, the kind of insurance most computer users could use is probably unavailable anywhere. It's doubtful anyone provides coverage against obsolescence.

Credit due

Last month we published a program that redefined the cursor into the shape of the state of Texas. We attributed the program to a user group in Ohio. It has since come to our attention that the author of the program is T.L. Atkinson of Dartmouth, Nova Scotia.

Bad regulator

Michael Christianson, of Pekin, Illinois, writes of a problem that may be familiar to other TI users: "Problems with the internal disk drive (of the Peripheral Expansion Box) may be due to a bad 12-volt voltage regulator in the peripheral box power supply mother board. I have replaced several of these and have informed TI of a potential problem. If you follow the TI recommendations for the process of elimination you may be out a lot of money after returning disk drive, disk controller and, finally, peripheral box for repairs. The voltage at the 4 pin power plug should be measured across the outer and inner pins in sets of 1 outer pin, 1 inner pin. One set will read approximately 12VDC, the other 5VDC. Also, one is a negative supply while the other is positive, so polarity should be observed."
Those who lack the expertise to make their own repairs may want to bring their equipment to a local computer doctor, with this information. This may help him isolate the problem and get you back into operation with a minimum of time and expense.

Easy underline

The Penn Ohio 99/4A Home Computer Users Group knows of an easy way to produce solid lines in programs using the **FCTN U** character. All it takes is the entering of a single program line at the beginning of a program and when the program. When **FCTN U** characters appear in the program while it is running, they will be in the form of a solid line, rather than an underline consisting of a series of long dashes.

Enter CALL CHAR (95,"00FF") and you'll have an easy to do underline. The Ohioans note of course, is 14. [sic]

Say what

The Penn Ohio 99/4A Computer Users Group (they've got a number of good ideas) has a solution to a problem that may have befuddled a number of Extended BASIC users who have the speech synthesizer. The Extended BASIC manual lists several pages of words and phrases in an appendix that can be accessed via Extended BASIC. However, as you may know, the speech synthesizer merely spells out the phrases when entered in the standard CALL SAY format. Again, it's the Buckeyes to the rescue.

When entering a CALL SAY for, say, TEXAS INSTRUMENTS, you need to enter it thusly:

```
CALL SAY("#TEXAS INSTRUMENTS#')
```

Note the use of the pound signs. In the context of a sentence, enter it like this:

```
CALL SAY("I AM THE #TEXAS INSTRUMENTS# HOME COMPUTER")
```

The multi-phrase problem is the result of the software looking for each of the words separately rather than looking for them as a single phrase.

More "freeware"

Readers may ignore part of what was written in the final paragraph of this month's Comments column. *MICROpendium* has obtained a copy of Super Bugger and will make it available free to readers. Our offer to supply free copies of Microsoft Multiplan and TI-Writer file enhancements also continues. For more information about these, refer to previous issues of *MICROpendium*. Those wanting to receive all enhancements will need to send a formatted, double-sided diskette or two single-sided diskettes. Those wishing enhancements for one or two of the three programs need send only a formatted, single-sided diskette.

Enclose a self-addressed, stamped return mailer with your diskette. Mail to *MICROpendium*, P.O. Box 1343, Round Rock, TX 78680. Allow about two weeks for delivery.

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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1:11:4. Comments

Why is it so late?

This is our second consecutive 40-page issue, which is the size we were aiming at last January when we mailed our first edition of 24 pages. But there is a price to be paid for 40 pages. You see, it takes about a week longer to put a 44-page edition together than it does to put a 32-page edition together. We're still doing this at night and on weekends.

This hasn't caused much of a problem for subscribers who have the magazine mailed to them via first class mail (or air mail for those in Europe, Australia and elsewhere). It does create a problem for the bulk of our subscribers whose copies are sent via domestic third-class mail. Because it takes longer to produce, the magazine gets mailed later in the month. This results in erratic delivery dates. With a 24-page magazine, we print and mail it about the 15th of the month. A 40-page magazine, however, may not get mailed until the fourth week of a month. The November edition, for example, was mailed Oct. 30, which is late even for us.

It can take as long as five weeks via third-class delivery for the magazine to reach you after we've delivered it to our local post office. We have been told that our October edition, mailed in late September, was not delivered to one Washington, D.C., subscriber until Oct. 30. However, that same subscriber received his July edition within a week of its mailing.

Which is why those who pay a little extra for first class delivery are getting their money's worth, because the magazine is being delivered within three or four days of mailing. I haven't heard a lot from readers about our larger issues, but we hope to sustain it in the coming year. Right now, 40 pages is the maximum we can do without increasing our postage costs significantly. The next plateau is 48 pages, which we will attempt if and when the magazine is able to provide either the editor or me with full-time work. It simply cannot be done on a part-time basis. Also, we are going to be increasing our subscription price to $15 a year.

We're going to start this new rate with the February 1985 edition (Vol. 2, No. 1). However, for now you may extend your subscription for a year at the $12 rate if you like. To do so, simply send us a check for $12 and a facsimile of your mailing label to us and we will extend the subscription. If you are currently receiving the magazine via third class mail but decide to have your extended subscription delivered via first-class mail, simply add $3.50 to the $12 and we will see to it that it is done. Texas residents must add 5.125 percent sales tax.

We're continuing our "freeware" offer, but have institutionalized it a bit. Elsewhere you will find information about what we have to offer and how to get it. In addition to the TI-Writer and Multiplan file updates and Super Bugger, we are offering TI-Forth. However, there will be a charge for Forth because of the extensive documentation, some 232 pages in all. (At this point we are missing one page, and will wait to receive it before reproducing the manual. It's Page 3 of Chapter 4 for anyone who would like to help us out.) The system disk will include Forth, Forth screens and Forth demonstration programs. We will include these on two single-sided diskettes. This all depends on a minimum of 100 orders, however, so we'll hold your check until we've got 100 and then we'll send everything out. By the way, we obtained Forth from the Los Angeles 99ers Users Group, which has a very active Forth membership.

THE BIG SELLOUT

Now is the time for all TI users to decide what cartridges they want to have and to buy them. The word from several sources is that Christmas 1984 will be the last time we'll see the TI-produced cartridges in stores. Prices are down, too. The major chains are expected to stock the cartridges for the season and then push everything that remains out the door come January.

TI LICENSING AND WARRANTIES

Although you may see a number of TI cartridges being produced by third parties under license from TI, do not expect TI to provide a warranty on the products. TI warranties cover only TI-produced products. Companies that negotiate for the production rights to selected cartridges will be responsible for any warranty of the product.

— JK

1:11:6. Feedback

Answers sought

Your publication certainly is useful, the letters, the reviews, the "political" type articles and especially the advertisements. I have several questions that I have never seen explained in my past two years of reading everything that I can find on the TI. They seem so fundamental I can not understand why no one has written on them.

First, from all the technical articles and notes that seem directed at assembly programmers and alluded to with the SIZE command in Extended BASIC, it seems that the RAM memory is accessible to different languages. The situation is compounded with the 32K. It seems that accessing this in a BASIC program is not altogether complete. Could you give an explanation clarifying all this that won't fly over this BASIC programmer's head?

The second question is on the same topic. In using string variables and arrays, just how much memory is allotted for each string? For instance, it seems that a big chunk of memory is set aside for each string variable or array member no matter how big or small it is. To conserve memory, does it make sense to concatenate a bunch of short strings together and save them as a single longer string? An example would be a mailing list program. I have one that saves the first name, the last name, the street, the city, etc., all as separate strings. Even with 32K memory added, the program holds only 100 names. If I rewrote this concatenating all these strings together for each person, using SEG$ functions to split it apart as needed, would the program have more room?

Frank Krautter, Sec/treas, Penn Ohio Users Group, Youngstown, Ohio

ED: Briefly, the expansion memory cannot be accessed without the use of a cartridge such as Extended BASIC, TI-Writer, Editor/Assembler, etc. Even so, the available memory is not all directly accessible. About 24K of a 32K expansion memory is available as RAM, while the remainder is available through be use of Assembly language code. As for the second question, concatenating strings would save some room, but the longer the program the less room will be available in RAM for data files, even with expansion memory. Designing a program to read and write relative files would greatly increase the number of files you could write because they are stored on the disk and called up only upon command. Sequential files are somewhat easier to use but must be loaded entirely into memory at the same time, thus severely limiting the number of individual records that can be entered.

Forth and TI-Writer

I sent off for a few software items at good prices and may be led back to playing with Forth again after reading the Wycove articles. (I was one of the original Wycove I purchasers and "played" with it before I ever got TI Forth from a users group.) Later I got the Version 4 (?) TI Forth from Tex-Comp and the Wycove II with the enhancements I'd suggested be included by analogy with TI Forth. They did an excellent job. Miller's Graphics newsletters have had a pretty good series on TI forth and starting up.

As an early TI-Writer fan, I was pleased to see a defense of it. It also works well with the upgraded (i.e., PSRX) 128K Foundation card and is a much maligned piece of software and GROM. I would point out that TI-Writer does chain files and print them (unlike the "Companion" reviewer erroneously stated). All one has to do is create a file that is simply a series of .IFs (include files) for each file and in printing they will be printed sequentially, as, for example, chapters of a book. (See the TI-Writer manual, page 109, for an example.) The beauty of TI-Writer is that, aside from the fact it's run as two pieces of software, it is always full of little tricks to someone willing to . . . try out the obscure (or even clear text) capabilities. If only it would sort lists as L. Smith's word processor Magictouch (authored and closely distributed at TI-Dallas just as October 1983's axe fell, and never published) does.

Remember . . . we bought the last Peripheral Expansion Boxes, etc., from employee sales and the cable cards were S/N 200,000, while my first PEB card was a 50,000 S/N range. Perhapes there are over 200,000 well-filled PEBs out here. We need and will support advertisers with $$$.

Yes, Virginia, Commodore is a joke, but it does have REAL production support and software support. Its disk system is late stone age in speed and the only thing more clumsy is Adam's disappearing (or is it disappearing Adam's?) tape system.

Ron Castleton, Richardson, Texas

On piracy

Having recently received and read your October issue, I would like to congratulate you on what was your best journalistic effort yet — on software "pirating." It was thorough and insightful and provided us "average" 99ers (i.e., non-professional programmers) with "insiders" views of the situation.

My own opinion on the matter is that the programmer has every right to "protect" his/her creation in any way he/she chooses, but I have the right to copy it if I can find a way to do so (at least for my own personal use) — but I do NOT have the right, legally or morally, to distribute the copy for personal gain or profit. In fact , I now REFUSE to buy any software that I can't copy because:

a)   I enjoy tailoring the software so that it makes fullest use of all of my system's capabilities (after all, I DO have all of this hardware sitting around);

b)   Many if not most software distributors use cheap diskettes in order to keep costs down — good for their earnings but bad for the purchaser, of course;

c)   I refuse to pay $5 or more for an official replacement when I can get top-quality blank diskettes (single-sided) for less than $2 now; and

d)   by the time my program disk wears out the author and/or distributor may have done so also!

Steve Casman, Danbury, Connecticut

Bad name

After looking through your August issue I tried using the "useful stuff' and I got a "Bad Name" error. These are the steps I took:

1.   Load BASIC program from disk
2.   Entered CALL LOAD(-31888,0)
3.   Got error "Bad Name"

Could you possibly explain what I am doing wrong. I would appreciate any ideas or solutions as I hate to continue to turn off the P-box and use tape unless there is no other way.

Douglas Gilliatt, Roswell, Georgia

ED: We tried it in BASIC and got the same BAD NAME message. Of course, this is due to the fact that a CALL LOAD can only be executed with a memory expansion which cannot be accessed through console BASIC. Both Extended BASIC and a memory expansion are required to execute CALL LOADs.

Graphic suggestion

I particularly like your reviews of utility programs and would like to see more. One of the more interesting applications of such utilities is in the area of high-resolution graphics. I hope that in a future issue you will devote some time to this very interesting and important area of utility programming.

James Dancer, Indianapolis, Indiana

Bunk, bunk, bunk!

I'm getting tired of these crybabies sobbing on all our shoulders about all those MEAN and NASTY pirates out there stealing their software. If they don't like it THEN DO SOMETHING ABOUT IT! In the software marketing game, developers are expected to stay a step ahead of the pirates. If they can't, then they should get a hacker who really knows how to program to help. This is part of their job, and there will always be a better protection scheme to devise and a hacker who wants to break it. The cycle continues ad infinitum.

There is no "ultimate protection" for ANY computer, much less the 99. This is the route taken by John Brown, who had the only decent protection put on TI software. Very few people have been able to completely break it, and he has now come out with an even better system that, to my knowledge, has not been broken yet. Mr. Brown obviously takes a great deal of pride in his work and takes the time to protect

it properly. If he provided a backup disk as part of the package as you suggested, I would have no reason to try to break his protection. For those "software developers" relying on the proprietary protections that TI provided, I have a deaf ear to their screams of "foul." The majority of stuff like this is junk anyway, and if they're capable of writing a good program, they should be capable of protecting it. Or better yet, take Jim Peterson's of Tigercub or Gene Harter's of Not-Polyoptics view that good, cheap, even unprotected software will sell well. As for the idea that there are 10 pirated programs for every one that's bought, I say BUNK! And to the claim that there are programmers leaving the TI in droves out of fear of piracy, DOUBLE BUNK! Let them get out into the real world of Apple, Commodore and IBM, and they'll think they have been thrown to the wolves, On this point, Earl Hall is dead wrong about Apple users being consumers only. There are more experienced hackers, much more elaborate protection schemes and vastly more pirated software on the Apple than any other machine. If you don't agree, just get on one of the many Apple pirate BBSs around. In that arena, you play with pros, and developers are constantly having to come out with new protection schemes to stay ahead of the pirates. Even the naive "consumer" can get into the game with the many software and hardware protection breaking kits commercially available. So the TI programmers should be thanking their lucky stars that they are in such a sheltered environment.

I must make one last rebuttal to Earl's statement that "In another six months it will be all over." TRIPLE BUNK!!! That's EXACTLY what "they" said a year ago when TI left the market, and things have never been so good for the 99! Evidence this by the software released in '84 that surpasses anything B.T.I. (Before TI), as well as the growth of BBSs and CompuServe TISIG which didn't exist a year ago but now has members numbering in the thousands. LONG LIVE THE 99!

Curt Purdy, Phoenix City, Alabama

Light show

I have a comment on the CR Remover program which was shown in the User Notes section of the October issue of *MICROpendium*. After having "sophisticated" it with some DISPLAY ATs and options for two disk drives, I decided to try it out. I have the TE-200 which has sector 0022 altered to save downloads as DISPLAY/VARIABLE 80 format instead of 128, and also has the screen color changed to the same as Tl-Writer. After logging off The Source with a downloaded file of user messages (from the TI POST) I tried the CR Remover program with some rather strange results.

The program would run for about 10 seconds when suddenly it would crash and the screen would go into an impromptu light show reminiscent of the Fillmore East! I at first thought it might have something to do with one of the POSTs that I downloaded in which a user described a method of getting the computer to go into a very colorful but bizarre light show. But knowing that this could not be the problem due to the fact that POST was a text file, I tried other solutions. It finally came down to this: I found that if the first line of the file to be "CR-Removed" contains only a carriage return and line feed symbol, that the program would always crash. If I deleted that first line, re-saved the file and then ran the remover program, everything would then work fine. I intend eventually to rewrite the program to take care of this condition, but for now I thought you might like to be aware of the problem in case other subscribers had a similar problem. Maybe Mr. Purdy, the original author, has a fix for this.

Mark A. Keeler, Danbury, Connecticut

ED: We have had no problem using this carriage return remover. Perhaps the changes you made to it had an unexpected effect.

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

1:11:10. At the Faire

Nearly 1,500 turn out for exhibition in Chicago dedicated to the "orphan" computer

By DAVID WAKELY

Place:	**Chicago**
Subject:	**TI-99/4A**
Attendance:	**1,500**
Exhibitiors:	**21**
Highlights:	**Plenty**

On Nov. 10, the Chicago TI-99/4A Users Group held its second annual 99/4A Computer Faire at Triton College in River Grove, Illinois. Months of preparation for the Faire culminated when the doors opened at 10 a.m. and visitors were admitted to the large exhibit room which held displays by 21 vendors. In addition to being issued door prize tickets, fairegoers were given free shopping bags with the message "Still Goin' Strong at the 2nd Chicago TI-99/4A Users Group Computer Faire, Nov. 10, 1984" printed on the side.

While most of the, vendors of TI and third party software and hardware were from the Chicago area, tables were also taken by companies from Michigan, Nebraska, Ohio and Texas. From a list gleaned from various magazines which cover the 99/4A, the Chicago group had mailed vendor applications to just over 100 companies which could be identified as carrying TI-compatible products. Former Chicago group president and Faire coordinator Sam Pincus said that the group was pleased with the 20 percent response rate.

A full house
Nearly 1,500 persons attended the second annual 99/4A Computer Faire near Chicago. Pictured is the main exhibit floor and displays of some of the 21 exhibitors.

In a sense, preparations for the Faire could be said to have begun last year, when the group had put on the first such event. As it happened, the infamous "Black Friday," the day Texas Instruments announced it was dropping the 99/4A computer, had occurred just two weeks prior to the first Faire. As a result of that, the group was somewhat surprised when just over 1,000 persons, or about three times the number who belonged to the Chicago group at that time, attended the Faire and proceeded to strip vendor displays clean of TI software.

Hence, by the time of the second Faire, TI owners had been "orphans" for a year, and the need for a display of "TI power" seemed in order to once again demonstrate the fierce loyalty for which the TI user is known. Through aggressive advertising both in Chicago and over The Source and CompuServe, the Chicago group began drawing attention to the Faire, and TI users from all over began making inquiries as to the location of the site, Triton College. Several local motels were booked up on the evening before the Faire, and by the end of Saturday just under 1,500 persons were estimated to have passed through the doors.

While about 90 percent of the membership of the Chicago 99/4A Users Group attended the Faire, visitors also came from other states. TI users from all over stopped by the Chicago group booth to say hello. Ed York from the Cin-Day Users Group checked up on our group newsletter; Chris Goodman from the DC group seemed to be enjoying the proceedings; and a small group from Coraopolis, Pennsylvania, stopped to say thanks for the directions to the college from O'Hare Field. The Chicago group booth was busy all day. Winners of three door prize drawings picked up their software packages. Hundreds of free copies of *MICROpendium* were given away, a top quality Zenith color monitor was awarded to a lucky winner and two arcade game contests drew small crowds of supporters for their favorite "gamers."

All fairegoers experienced a demonstration that the TI Home Computer is indeed quite alive for those who have stayed active and involved. The Chicago TI Users's Group held a series of tutorial presentations during the day to show the continuing versatility and usefulness of the 99/4A. Seaborn Smith, whose TI-Forth programs and newsletter column are becoming known to other TI groups, gave an interesting and well-attended introduction to this quite flexible program language. These tutorials were held in a separate room which could seat about 250, and which was usually filled for each presentations.

Between presentations, Faire attendees could observe TI myths of both the past and the future. At the Softmail Inc booth, for example, was displayed the near-legendary TI-99/8. Don Bynum, former head of TI's Home Computer Division, stated that only 250 "8s" had been built, all of them going either to the design team, TI executives or the production line employees. The TI 99/8 was indeed the home computer hobbiest's dream. According to Bynum, the 99/8 featured 64K of CPU RAM and 16K of VDP RAM, compared to the 99/4A's 256 bytes of CPU RAM (also known as "scratch-pad" RAM) and 16K of VDP. This never-released computer also featured a built-in p-Code system and a 10 MHz TMS9995 CPU. The built-in BASIC was compatible with Extended BASIC and contained additional commands such as "LINE," "DRAW" and "FILL" for easy graphics generation. When booted up, the TI 99/8 offered several option screens, including choices of p-Code, BASIC or whatever module was plugged into the vertical cartridge port. In design, the 99/8 was reminiscent of the beige 99/4A consoles, yet was both wider and deeper, and featured a full "Selectric" style keyboard layout. One of the option screens also offered both "FAST" and "SLOW" (the 99/4A 3 MHz) processor speeds, and did so before other choices. Hence, at one point a TI Invaders cartridge was selected in FAST mode with hilarious results less reminiscent of an invasion than of a blitzkrieg.

An elaborate, and obviously bitmapped graphics demonstration ran on the TI-99/8 most of the day, and was later revealed as a 180-line BASIC program. When questioned as to why TI never brought the 99/8 to market, Bynum stated that some TI executives doubted that the public would be interested in a home computer with a suggested retail price of $600. He also stated that he considers the possibility that TI will release the design to someone else as "practically nil," noting that TI would probably not want to see someone else make money on a product they never saw fit to market. On the other hand, during his guest talk late in the day Bynum exhibited a guarded optimism about the future of the 99/4A.

Other vendor booths featured either still available TI software, or new and sophisticated application packages for the 99/4A, ranging from graphic adventure games to useful system utilities. Unisource Electronics, by special arrangement with CorComp Inc., showed off the new 9900 Micro-Expansion system, a unit about the size of two speech synthesizers but packing the power of a "loaded" peripheral expansion box, with a double-density disk controller, RS232 and 32K memory all built in.
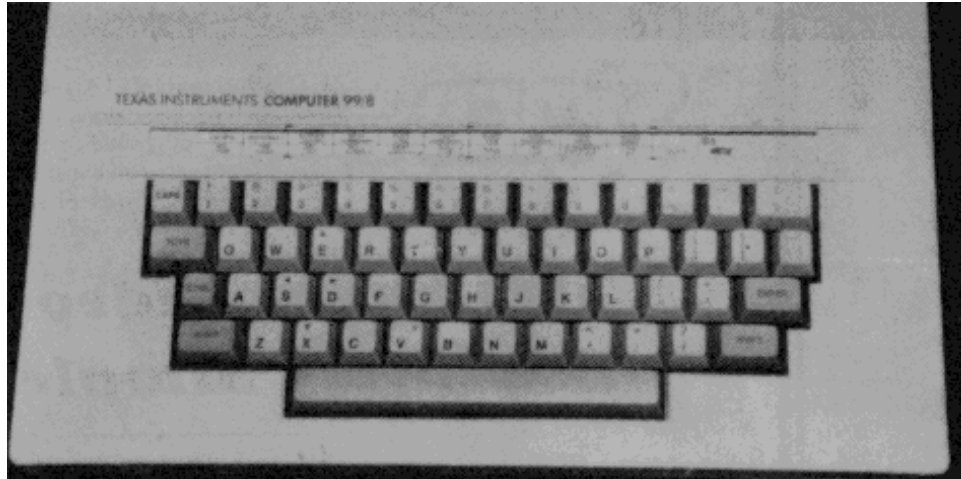
The one that got away
Pictured above is the TI-99/8 Home Computer. Only 250 of the 64K RAM machines were produced before Texas Instruments made the decision to leave the home computer market. The machine features a built-in p-Code system, 64K of CPU RAM and 16K of VDP RAM. Program modules are loaded vertically into the top of the machine. Photos courtesy of Dave Wakely)
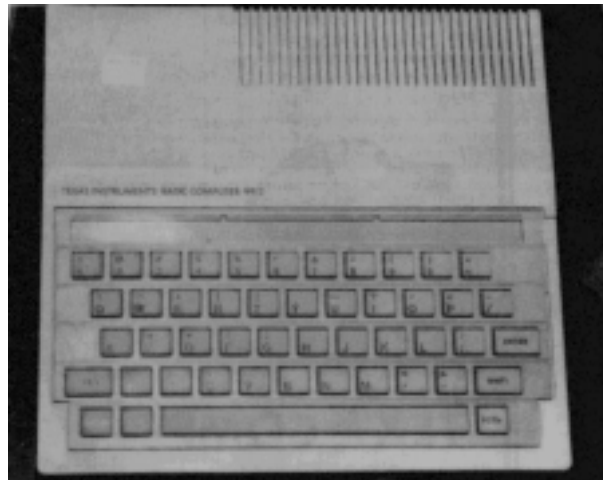
The little TI
The TI-99/2 was designed to serve the low-end of the home computer market. Like its big brother, the 99/8, the machine never made it to dealer shelves. Even if TI had remained in the home computer business, however, this machine would probably have never been released since by November of 1983 prices for the 99/4A had eroded so much that the 99/2 would have been competing directly with the 99/4A.

Between trips around the vendor tables, TI users could take in some of the other tutorials, such as Sam Pincus' presentation on control codes and TI-Writer, or Len Rovner's introduction to Microsoft Multiplan. Traffic was heavy all day between the main room and the vendor area. During the keynote speech to the largest audience of the day, Bynum, now the driving force behind Softmail Inc. and Texas Peripherals, stated unequivocally that 2.4 million 99/4A units were sold, making it by far the largest selling computer of any kind. The two concerns he reported were the belief that recently up to 1,000 99/4As per day were estimated to be "going into closets," and the rampant epidemic of software piracy. Of the latter, he stated his belief that these so-called "pirates" are actually criminals who are rapidly destroying the third-party marketplace. The possible outcome of this, according to Byniim, could be "less and less qualRy software appearing for the 99/4A as programmers see their profits disappear.

On a more positive note, Bynum noted some excellent resources for the TI user, including the International Users-Group, *MICROpendium* and especially the new TEXNET service on The Source (of which Bynum is the TI Sysop). This new TEXNET will feature an online TI magazine, information about TI user groups, TI news and an active software exchange. In fact, Bynum noted that, despite the few upgrades to TEXNET over the past year, the TI program exchange is still the Number 3 database on The Source in terms of use. TEXNET will also feature credit-card purchasing of new, inexpensive ($4.95-$9.95), downloadable software, and Bynum stated that programmers will be offered 20 percent royalties for their work if selected for inclusion in this service.

The Source subscribers who have dropped their membership may be reinstated by contacting The Source and giving the appropriate credit card number.

Bynum fielded questions on the future of TI's support for the 99/4A. He noted that with other consumer products TI has given up to five years of exchange service, and, while making occasional disparaging or humorous comments about TI's marketing philosophy, he described their corporate integrity as "incredible."

(*Note*: The talk with question-and-answer session was more than 90 minutes long, and user groups or other interested parties may obtain a VHS-format tape of the session by sending $25 to the Chicago TI 99/4A User's Group, P.O. Box 578341. Chicago, 11, 60657.

And what of the future for the TI user and TI user groups? Was there any indication that there would still be interest in the 99/4A in, say, another year? The Chicago group signed up more than 40 new 1985 members at the Faire, and, when asked if another such event could possibly be in the plans for next year, Chicago group president Dave Wakely commented, "You bet, and next year we go for TWO days! "

Ed: Wakely is an officer in the Chicago 99/4A Users Group which hosted the Faire.

1:11:16. Software contest entries due Dec. 20

The deadline to enter the most recent *MICROpendium* Software Improvement Contest was initially set for Dec. 10, but because delivery of the November edition was delayed, the deadline has been changed to Dec. 20.

The following "organ" simulator program will be used as the basis for the contest. Readers are asked to improve the program, in BASIC only, using no more than 1,500 bytes. First prize is $50 and second prize is $25. The winning entry will be published in a future issue of *MICROpendium*.

Improvements may range from the use of graphics to the implementation of "pedals," etc. Use your imagination. Entries must be submitted on tape or diskette. Entries will be returned provided that sufficient return postage is included.

Mail entries to *MICROpendium* Contest, P.O. Box 1343, Round Rock, TX 78680. Entries must be postmarked no later than Dec. 20 to be considered.

```
100 OPTION BASE 0
110 DIM NOTE(20)
120 FOR A=0 TO 20
130 READ NOTE(A)
140 NEXT A
150 DATA 40000,220,247,262,
294,330,349,392,440,494,523
,587,659,698,784,880,988,10
47,1175,1319,1397
160 CALL KEY(1,K1,S)
170 CALL KEY(2,K2,S)
180 K1=K1+l
190 K2=K2+1
200 CALL SOUND(-1000,NOTE(K
1),0,NOTE(K2),0)
210 GOTO 160
```

1:11:18. Black Friday

Reports of the demise of the TI home computer still premature

Only secondarily does this refer to the 1939 stock market crash. To the truly dedicated TI-99/4A user, it's the day in November 1983 when TI announced that this computer would be produced no more.

Responses to the pullout at the time varied from anger and despair to euphoria.

Jackirae Sagouspe of CorComp, recalls that that company had just introduced its first card for the TI Peripheral Expansion Box, a 32K memory expansion card, and got a good response from consumers.

Because of their market position, there was a kind of "mania" in reaction to TI's announcement, "'a gold rush type of excitement," she says.

Since then, she says, "the dust has settled," and evaluations have been made as to how long-lasting and how strong the TI market continues to be and how best to serve it. She adds that CorComp is strongly dedicated to the TI and its user base. She notes that the longevity in the market in size and numbers is impressive.

"Until you get the phone calls and letters" she gays, it is difficult to conceptualize the "strong emotion out there."

She notes a "tremendous response from the European market," citing West Germany, Holland and France. TI "did an excellent job in reaching the European market," she says. As a result, Sagouspe, says, CorComp has distributors and dealers in seven countries.

Lou Phillips of Myarc says that Black Friday was "quite a shock," especially as Myarc had a lot of money invested in TI-compatible technology and had various agreements with TI.

However, he adds, the company is "doing just as well if not better" as when the 99/4A was being produced and sees that "for the coming year the TI market is still going strong for us."

He notes that "we helped TI develop a lot of new products."

Myarc produces the WDS/100 Winchester Disk and Controller System, and the MPES/50 mini-peripheral expansion system, complete with 32K expansion memory, RS232 serial and parallel interfaces, floppy disk controller and disk drive.

"That was a year ago and we still talk about it," says Gene Harter of Not-Polyoptics. "I really didn't know what would happen. I called everybody I knew in the business and told them. They seemed to be optimistic. It took all that weekend but by Monday I felt a lot better."

He notes, "The market's holding up. I didn't expect that the market would hold up like this. It's like a car — an Edsel or a Cord — that ceases being sold, and the people that buy parts for the car. I can't remember anything like this in business."

He adds, "People have made a lot of bad decisions in the computer business because it's a new kind of product. TI made a lot of mistakes because there was no pattern. Somebody has to make all the mistakes first and somebody else comes along and learns from the mistakes."

Jerry Price of Tex-Comp, a mail order company which supplies TI-compatible products says that Black Friday was not a surprise because of evidence that TI was "winding down" in peripherals.

When it occurred, he says, "we immediately geared up. The mass merchandisers were getting out like rats and a handful of us saw a market for a good product."

With marginal distributors and mass merchandisers out of the market, he notes, business was better the year after TI got out. He notes that this is an advantage to consumers in that dealers such as Tex-Comp, Unisource and Tenex know the computer they are dealing with and are "really making an effort to keep things going. It's almost better this way. People who are really serious know where they can go."

It has been a surprise, however, as to how much a demand there has been for everything, he says.

Price notes that "the biggest problem we have is scrambling to keep hard-to-get software in stock. Extended BASIC is very scarce."

And what of the future? CorComp's Sagouspe says "I wish I had a crystal ball."

She notes that although the TI market will wind down, persons are passing their systems to other people so that there is now a "second generation of TI users."

CorComp will be directing its attention toward education and schools where TI units are in place.

"Hardware is very important in school systems and we are still working on it," she says, adding that they are working on packaging software utilities for the education market as well.

Phillips declined to specify, but said, "Watch for Myarc to be doing a lot of neat things in the coming year."

"I read a letter from Charles LaFara of the International Users-Group and his idea is that the user base is eroding rapidly," says Harter of Not-Polyoptics. "It's true that TI cartridges themselves are becoming scarce but our stuff's still around. I've seen users become more sophisticated. They've expanded their system. People who bought for $50 — that's where the user base will be disintegrating."

However, he adds, "There isn't the good buy in computers any more. The person with an expanded TI will stick with them, and should stick with them."

He continues, "As far as what's happened in the last year, I think we've all gone through a feeling of being betrayed and cut off to a feeling we can survive without them, which also, of course, is something completely new, that we can keep this thing going without a company to back us up or without a major magazine. It's like the spirit of the hackers reborn. "

Tex-Comp's Price sees a gradual decline in the TI base, with a "fraternity of dedicated owners and users" remaining. "At this point I don't see a replacement computer but I could be surprised," he says. "There will be continued accessories and software coming out. We probably will spend a lot more time beating the bushes to find products."

Noting that last year more new products were developed after TI got out than when they were dominating the market, he foresees "for software developers at least a good year if they direct toward quality."

He sees a future especially for extensions of modules that will be disappearing, "Forthcoming disk programs to take you further along. "

1:11:19. Circuitous paths

By LAURA BURNS

Computing being a relatively new field, the roads into it are diverse ones.

Consider the persons interviewed in our accompanying article.

Jackirae Sagouspe spent 10 years in the field of education. She left in order to find greater scope for her entrepreneurial ideas and worked in marketing and administrative positions.

She was employed by it management consulting firm working for CorComp Inc. and began working for the firm itself as marketing director. She later moved to the position of general manager and is now president.

Lou Phillips joined Texas Instruments in 1973 after receiving his master's degree in electrical engineering and computer science.

When he joined TI, he recalls, the consumer group was part of the semiconductor group and calculators "were brand new."

The Datamath calculator cost more than $100. He worked on the chip which enabled the same calculator to sell for $10 a year later.

He received an MBA in the meantime and went to New York City where he worked in applying computer technology to business. He worked with Chase Manhattan in placing home banking on the Apple.

Entry into the peripheral business occurred when TI announced its peripheral expansion box. Phillips has been president of Myarc since August 1982.

"My partner and I went to the University of Virginia together and learned computers on the computer there, " Gene Harter of Not-Polyoptics says. "Years later we ended up together. He wanted to buy a computer for $1,000 in 1980, which was cheap then. It was a choice between the Apple and the TI. He liked the 16 colors of the TI and its sound synthesizer. I had always wanted to write games for computers. So we sort of got together and became one of the first software producers. "

TI enclosed a pamphlet from Not-Polyoptics in each computer they sent out and TI's supply company bought their software.

"When our name was in every computer sold, we got a head start, " he says.

Jerry Price, vice president and general manager of Tex-Comp, is a graduate engineer and attorney, who has been a patent attorney with corporations.

In the mid-1970s he was in a family manufacturing business in Los Angeles. He purchased the TI computer and wrote fluid dynamics software for selecting fluid devices. Persons to whom he supplied this software asked for other software.

"We began ordering and selling professional software," he says.

Later, he says, they started carrying the entire TI line.

"We were one of the leaders," he says, recalling that at the October 1982 TI-Fest they introduced ProStick II and the Anchor Mark III modem.

Tex-Comp has been an independent firm since April 1983 with four warehouses and a warehouse outlet store in the San Fernando Valley. It is a regional depository for TI products.

1:11:21. Another view

TI Forth vs. Wycove Forth

ED: This analysis of Forth is being published in the interest of increasing the reader's appreciation of Forth. A review of Wycove Forth appeared in the September issue of *MICROpendium*.

By HECTOR SANTOS

Those of us who have had a chance to experiment and play with TI Forth have probably been polarized into two groups: those who like it very much and those who hate it with passion. Nobody who has attempted to learn the language can remain indifferent to it. Forth, which is both a language and an operating system, is almost like a religion to some. To the rest, it is a weird language whose code is unreadable except to its writer. To those who have decided to stay with us and stick with Forth, read on.

There is another version of Forth available for the TI-99/4A. It is called Wycove Forth and has been around for over a year. The current release is Version 2.0. It is available from Wycove Systems Ltd., P.O. Box 499, Dartmouth, Nova Scotia, B2Y 3Y8 Canada and costs $50. How is it different from TI Forth and which one is better?

The first difference is that in Wycove Forth, you can use Editor/Assembler, Mini Memory or Extended BASIC as the host module. You may also boot up the system from either disk or cassette (both are provided). I cannot imagine anyone running Forth, with its virtual memory system, on a cassette recorder. It is too cumbersome. However, it can be done and those who do not have a disk system can run Forth if they are willing to put up with the inconveniences resulting from using a cassette recorder.

I imagine an accomplished Assembly language programmer can write a loader program for TI Forth so that it will also load from either the Mini Memory or Extended BASIC modules. With the proper loader program, it may also load from tape. The Wycove Forth loader is written in Extended BASIC but has some machine code (non-printing) imbedded in it.

Compatibility screens (58 and 59) are provided in Wycove Forth. These allow you to use most of the words straight out of *Starting Forth* by Leo Brodie. Since these screens have already been compiled and made part of the kernel, you do not need to load them. They were probably listed so that you can see the source code and know what *Starting Forth* words are available. You can easily make similar screens for TI Forth by using the information provided in *Appendix C* of the TI Forth manual.

After TI Forth is booted up, you are shown a menu listing additional utilities that you may want to load. In Wycove Forth you are not given such a menu. You will have to remember which screens to load (or look in the manual) if you want to add other utilities to the Forth kernel. Naturally, you can write your own screen so that a menu will show automatically after booting.

Wycove Forth has screens 65 and 66 for implementing sound and screens 48 to 54 for speech. These screens obviously took a lot of effort to write and are very useful. You can also learn a lot about the internal structure of the TI-99/4A by studying these screens. You will have to provide your own sound and speech screens in TI Forth since none are provided.

When writing programs, it is usually more convenient to use decimal numbers for quantities and hexadecimal numbers for addresses and graphics. In most Forth systems, the number base (hex, decimal, octal, etc.) has to be declared. It starts at a default setting and stays the same until a new base is entered. Shifting from one base to another can cause problems, especially if the shift was not intended. This is the main reason you see R->BASE at the start and BASE->R at the end of most screens.

An unintended switch may occur if the system aborts compilation in the middle of a screen. It may stop because of a bug, an undefined word, or some other reason. I have had this happen to me on a few occasions. Once, I was trying to load screen 51. Every time I entered 51 LOAD, it seemed that I was loading something else. It turned out that I was in hex and whenever I entered 51 LOAD, I was actually loading screen 81 (51 hex = 81 decimal).

Wycove Forth has an interesting feature that lets you forget about keeping track of your number base. It allows you to enter hexadecimal numbers directly. A ">" preceding a number tells the system it is a hexadecimal number, regardless of what base is in effect. You may, therefore, stay in the default base (decimal) all the time and use a ">" to enter hexadecimal numbers. A "22" will be a decimal 22 and a ">22" will be the same as a decimal 34. Of course, you may still switch bases at any time.

Another difference between the two systems is in their editors. Both Wycove Forth and TI Forth have 40 and 64-column modes. A good monitor, preferably monochrome, is mandatory when using the 64-column mode. A color TV is practically useless and even an inexpensive color monitor may not do very well.

In the 40-column mode, TI Forth gives you the standard Forth screen of 16 lines by 64 columns. Sixty-four columns are accommodated by providing a window that shifts between the left and right halves of the screen. Line and column numbers are visible at all times. Almost all the features that you need to manipulate characters or lines are provided. It is a joy to use and is one of the best Forth editors around.

Wycove Forth basically provides the same editing features in its 40-column editor as TI Forth. However, screens are implemented as 24 lines by 40 columns, the usual implementation in computers with 40-column displays. You can only get 960 bytes per screen, losing 64 bytes of the 1024 that a screen can have. This does not bother me as much as the fact that line and column numbers are not shown in the edit mode.

In the 64-column mode, TI Forth wins handily. It has exactly the same features provided in the 40-column mode. Wycove Forth's 64-column editor has a very limited capability.

Up to this point, all the differences we have discussed were of such a nature that they could be equalized, minimized or even overlooked. The rest of this article will be devoted to the biggest difference between Wycove and TI Forth — their use of the disk system.

```
This is the 64-column editor of TI Forth. It is divided
into two parts. The upper part has a black background
with white text. The lower portion is blue with white text.
The lower screen utilizes the normal 32-column mode.
_




SCR #75



```

I must apologize to those who are not technically inclined and also to those who do not care about the inner workings of the disk system. I realize that it is not necessary to understand the internal workings of the computer to be a good programmer. However, I have no choice but to go through all these to properly discuss this last and most crucial difference between the two systems. In this article, I use screens to mean both blocks and screens because it has become common usage. Technically, screens should only refer to blocks that contain source code.

It is first necessary to understand how the TI-99/4A Disk Operating System (DOS) works. This is the DOS you are most familiar with — BASIC, the Disk Manager, and many other modules use it. Let us take a single-sided, single-density (SSSD) disk containing 360 (>0168) sectors to explain the disk organization. To keep things simple, let us further assume that our disk has no fractured files (split into non-consecutive parts of the disk), has a total number of files less than 32, and uses not more than 326 sectors for actual file data. The majority of disks would fit this category.

The first sector (>0000) is the disk header and contains the following information: disk name, total number of sectors on the disk, number of sectors per track, density, and a bitmap showing what sectors have been used and what are available.

Skipping past the second sector for now, the next 32 sectors (>0002 to >0021) contain file headers. As each new file is entered, a sector assigned consecutively from >0002 is allotted for directory information. This directory information consists of the following: file name, file type (program, DIS/VAR 80, INT/VAR 254, etc.) and write protection code, file size, starting sector address, relative address of last sector in file, etc.

The rest of the disk, sectors) >0022 to >0167, contain file data. Note that a file occupies on the disk the number of sectors of actual data plus one sector for the directory. Now, back to the second sector (>0001). This sector shows the order in which sectors >0002 to >0021 fit in an alphabetical sort of their filenames.

All of the above information is needed for housekeeping and tracking of files. When we access a disk file, the system refers to the directory to find out where to go to read the data. When we want to write a new disk file, the system checks the disk header for available sectors that can be used. When we delete a file, only its header is erased. The disk header is updated but the file data are retained in their original locations. However, since the system can no longer tell where they are, it assumes that they are gone and the originally occupied sectors can now be written over.

Let us get back on track with how the two versions of Forth use the disk system. Wycove Forth relies entirely on TI DOS for its disk access. It needs the disk header and the directory to be able to LIST, EDIT, LOAD, BLOCK, or FLUSH (SAVE-BUFFERS) screens. Screens are implemented as relative files of 1024 bytes (plus 4 bytes for screen number, etc.). The screens have to be pointed to by the directory. TI Forth is more like a "pure" Forth system. Screens are accessed strictly by their location on the disk, i.e., screen 0 is sectors >0000 to >0003, screen 1 is sectors >0004 to >0007, etc.

The TI Forth system disk is a hybrid disk. It has a disk header, the alphabetical order list and file headers. It can, therefore, be accessed by BASIC and the Disk Manager module. The reason the headers are needed is that TI Forth is booted up through the Editor/Assembler module. The E/A module needs to know where "FORTH" is (it is on sectors >0022 to >0026). "FORTH" is a loader program that loads "FORTHSAVE," the actual Forth kernel which is on sectors >0027 to >0119. "SYS-SCRNS," the TI Forth screens, does not really need a file header. It was provided so that the whole disk can be copied by using the Disk Manager. After Forth is booted up, the system has no need for the original DOS anymore.

An interesting disk that illustrates this is the Forth Demo Disk. It has a disk header and file headers for FORTH and FORTH-SAVE. However, the program screens do not have a file header. This disk, therefore, can only be copied in Forth, Pascal or Assembly language. Anyone who tries to make a copy using the Disk Manager module will find that only FORTH and FORTH-SAVE can be copied.

Wycove Forth has a very powerful word, SAVE-SYSTEM, for adding words to its kernel. You simply define the new words you want to add and SAVE-SYSTEM will take care of it. You may customize the kernel so that it includes words that you often use.

In TI Forth, customizing is accomplished in a different manner. The kernel cannot be changed easily. You have to define your new words and BSAVE the compiled words onto screens that you specify. This saves the compiled words on your disk in internal format. You may then BLOAD these screens from screen 3, the screen that is loaded automatically by the booting process. This saves the interpretation steps and is only slightly slower than the Wycove Forth method.

Since only the "SCREENS" file is available for access in Wycove Forth, there is no chance that you will inadvertently change the kernel by erasing or writing over it. This is a possibility in TI Forth and is the price you pay for having the contents of the SCREENS file. The screens, in TI Forth cover the contents of the whole disk. There is one thing about the Wycove Forth screens that puzzles me. I cannot find screen 0. Numbering starts with 1, a very unForthlike way.

It is apparent that Wycove Forth, in its original form, cannot copy a whole disk. It does not have a word for such a task nor does it have one for initializing disks. TI Forth has these capabilities and also a word, DISK-HEAD, to make its disk compatible with BASIC and the Disk Manager module. Using DISK-HEAD gives you a hybrid disk, with one file called "SCREENS" covering the entire disk except for two sectors. This is analogous to the Zero command in the p-System.

Which Forth is better? This is the point where most writers start equivocating. I am tempted to do the same because they are both good. On simple looping benchmarks, Wycove Forth is faster (see November *MICROpendium*). It has sound and speech words and can operate using only a cassette recorder. It also has a unique method for entering hexadecimal numbers directly. However, unless one of the above is a detennining factor for you, you are better off with TI Forth. It has one of the best Forth editors in existence and uses the disk system in a more flexible manner. Its deficiencies, when compared to Wycove Forth, can be overcome by writing additional screens. Best of all, it is in public domain and costs very little. You may also write programs using the language for commercial distribution without having to pay licensing fees. It cannot help but be the dominant version of Forth for the TI-99/4A.

Who is Wycove Forth for, then? Wycove Forth is for the individual who wants to explore a different implementation of Forth. He can learn a lot from the screens supplied on the disk for functions such as speech, sound, peripheral access, etc. He will probably take some of the unique ideas from Wycove Forth and incorporate them in his own customized version of TI Forth.

1:11:25. First impressions of CP/ M

By JOHN KOLOEN

CP/M is a disk-operating system that has enjoyed wide popularity over the years. With the advent of other operating systems, however, CP/M never became the universal business system that was once thought to be its destiny. This is largely because IBM and Apple did not adopt it as the operating system for their microcomputers. Of course, CP/M is available as an option on Apple and IBM machines, not to mention a large number of other brands. It is now even available for the TI home computer as a card for the peripheral expansion box. Morning Star Software, 4325 SW 109 Ave., Beaverton, OR 97005, began shipping its CP/M card. It was preceded by a year's worth of advertising during which time the company took no orders from prospective buyers. Instead, the company sent those who responded to its ads a packet of information on the yet-to-be-completed card and available software.

MICROpendium has been working with the card for about a month, using it with the Personal Pearl database program. Actually, the database "program" comes on 12 single-sided diskettes. A business program on 21 disks is also available.

The CP/M (Control Program for Microprocessors) card looks like any TI peripheral expansion box card. Internally, however, it is like no other TI card. The heart of the card is an Intel 8085 microprocessor, an eight-bit chip that essentially gives the TI a new identity and personality. By plugging in the card and selecting the CP/M option from the main menu, users leave the world of Texas Instruments behind.

Note at this point that the card is compatible with the TI disk controller and the CorComp Inc. disk controller, according to company president Scott Swensen. It also requires a memory expansion. The Morning Star card uses software written in the Osborne I format. Osborne is single-sided, single-density. Any disk used with the CP/M card must be formatted (initialized) by the card in the Osborne I format using CP/M. Essentially, this limits users to 90 kilobytes of storage per disk.

At first glance this may seem to be of step backward for TI users, who have worked their way up from single-sided, single-density drives to double-sided, double-density drives. Prior to the release of Disk Manager II, 90K was the standard TI disk capacity. Whether this is a limitation depends on the user and the type of software being used. Personal Pearl, for example, can be used to create database files written on multiple diskettes.

CP/M, of course, is the creation of Digital Research. The CP/M program loads from a disk that is supplied with the card. The system boots itself by selecting the CP/M option from the main title screen. The system disk includes a number of commands, including those used for such common disk operations as displaying a disk directory, changing file names and saving files. Each of these functions is loaded from the system disk when required. The disk includes an assembler program, an editor program and a debugging program, among others. These programs are largely of use to those who program in assembly language. Morning Star says BASIC and CBASIC are available as languages.

Not being an assembly language programmer, I have found no particular advantage to programming with CP/M. The disk operating commands are easy to learn and in many ways more flexible than TI's operating system. Of course, programs written using the TI operating system cannot be accessed by the CP/M system, and vice versa.

The CP/M card uses a 40-column by 24-line screen. However, most CP/M software uses an 80-column screen. The Morning Star card uses two techniques to get around this limitation: windowing and scrolling. These operate in much the same way as TI-Writer and Microsoft Multiplan, horizontally and vertically. Whether scrolling or windowing is used, programs such as Personal Pearl cannot be configured for 40-column display. This means that on-line instructions for the program must be read across the 80 columns, one line at a time, scrolling back for the beginning of each line. My first reaction to this was to try it a few times, turn the computer off and pull the card out. I let it sit for a couple of weeks and then returned to it, my mind better prepared for the scrolling that would be necessary to work with Personal Pearl. That is the point at which I am right now. How things go in the future will be the subject of another story.

1:11:27. Graphics give this disk catalog a new look for TI users

Disk catalog programs are among the most useful tools any computer user can have. Without them, few would be able to keep track of what is and isn't on their disks.

Of course, there are many disk catalog programs floating around, most of them in the public domain. The one included on this page comes from Ron Castleton of Richardson, Texas. He writes: "Someone may be mildly interested in . . . DISKGRAPHX . . . (which) presents a graphic and text catalog. It is an old users group program heavily reworked for multiple disks, double- and single-sided and screen or roll advance."

We are publishing it because it takes advantage of color and graphics, making it somewhat more elegant in design and display than the run-of-the-mill catalogs most of us use. The program requires Extended BASIC to run.

```
100 REM DISKGRAPHX;SCREEN/R
OLL SELECTION & FULL DISK D
ISPLAY COURTESY;R.CASTLETO
N JULY-AUG 1983, RICHARDSON
, TEXAS
110 REM DOUBLE-SIDED DISK A
LGORITHMS BY M.FLORES,AUG.1
983,DALLAS,TX
120 CALL CHARSET :: CALL CL
EAR :: CALL SCREEN(4)
130 FOR AZ=1 TO 8 :: READ A
$ :: CALL CHAR(AZ+95,RPT$(A
$,8)):: NEXT AZ
140 DATA FF,80,C0,E0,F0,F8,
FC,FE,FF
150 CALL COLOR(9,7,1):: CAL
L COLOR(10,5,5)
160 OPTION BASE 1 :: CALL C
LEAR
170 IMAGE ##
180 DISPLAY AT(8,8)ERASE AL
L:"DISKGRAPHX MENU" :: DISP
LAY AT(10,8):"DISK? (1-3):
 1" :: ACCEPT AT(10,21)BEEP
 SIZE(-1)VALIDATE("123"):D$
190 DISPLAY AT(12,2):"DISPL
AY-ROLL/SCREEN(R/S)?:S" ::
ACCEPT AT(12,28)BEEP SIZE(
-1)VALIDATE("RS"):RS$ :: CA
LL CLEAR
200 D$="DSK"&D$&"." :: OPEN
 #1:D$,INTERNAL,RELATIVE,IN
PUT
210 INPUT #1:N$,A,B,C :: I=
0
220 IF B>358 THEN DISPLAY A
T(1,1)ERASE ALL:"DOUBLE-SID
ED ";D$&N$: :"USED";B-C ::
 CALL G(3,9,(B-C-32)/4)
230 IF B>358 THEN DISPLAY A
T(4,1):"FREE";C :: CALL G(4
,9,(C-32)/4):: Z$=" # FILE
 NAME T USE DSECTOR" :: GOT
O 250
240 DISPLAY AT(1,1)ERASE AL
L:"SINGLE-SIDE ";D$&N$: :"U
SED";B-C :: CALL G(3,9,(B-
C-16)/2):: DISPLAY AT(4,1):
"FREE";C :: CALL G(4,9,(C-1
6)/2)
245 Z$=" # FILE NAME T USED
 SECTOR"
250 DISPLAY AT(6,1):Z$
260 Z$=RPT$(CHR$(104),28)::
 DISPLAY AT(2,1):Z$ :: DISP
LAY AT(5,1):Z$ :: DISPLAY
AT(7,1):Z$
270 N=0
280 X=0
290 X=X+1
300 N=N+1
310 INPUT #1:P$,A,B,C
320 IF LEN(P$)=0 THEN 350
330 DISPLAY AT(X+7,1):USING
 170:N :: DISPLAY AT(X+7,4)
:P$;TAB(15);A :: CALL G(X+
7,17,8):: DISPLAY AT(X+7,25
):B
340 IF X=15 THEN 390 ELSE 2
90
```

```
350 DISPLAY AT(23,1):RPT$(C
HR$(104),20):"ANOTHER DISKG
RAPHX(Y/N)?:Y" :: ACCEPT A
T(24,26)BEEP VALIDATE("YN")
SIZE(-1):A$ :: IF A$="Y" TH
EN RUN ELSE 360
360 CALL CLEAR
370 CLOSE #1
380 END
390 IF RS$="R" THEN 280 ELS
E 400
400 DISPLAY AT(23,1):RPT$(C
HR$(104),28);TAB(3);"REST O
F DISK (Y/N)?:Y" :: ACCEPT
 AT(24,23)BEEP VALIDATE("YN
")SIZE(-1):RD$
410 IF RD$="Y" THEN 430 ELS
E 350
430 FOR W=8 TO 22 STEP +2 :
: CALL HCHAR(W,1,32,32):: N
```

```
EXT W :: FOR V=21 TO 9 STE
P -2 :: CALL HCHAR(V,1,32,3
2):: NEXT V
440 GOTO 280
450 END
460 SUB G(R,C,N)
470 A$=""
480 A=INT((N-.5)/8)
490 B=N-A*8
500 IF N>7 THEN A$=RPT$(CHR
$(96),A)
510 IF INT(B)=8 THEN A$=A$&
CHR$(96)
520 IF B=0 THEN 530 ELSE IF
 INT(B)<8 THEN A$=A$&CHR$(9
6+B)
530 DISPLAY AT(R,C)SIZE(LEN
(A$)):A$
540 SUBEND
```

1:11:27. Follow the numbers to bulletin boards across the country

Scott DarHng of Spokane, Washington, is one of thousands of TI users who tune in to electronic bulletin board systems operated by TI-994/A users.

Although TIBBS is a trademarked word that refers to the Texas Instruments Bulletin Board Service software marketed by a firm in Atlanta, Georgia, not all bulletin board systems operated by TI users are TIBBS. (See the June *MICROpendium* for more information about TIBBS.)

Anyway, Darling is Sysop (system operator) of Caltex 8 in Spokane and provided the following list of TI electronic bulletin boards because "I'd like to see that everyone gets as much information as possible on TI."

Because of the nature of electronic bulletin boards, we cannot guarantee that all of those listed here are still operating. Most of them operate at 300 baud only. Those who are not listed here may mail a phone number to *MICROpendium* (we keep losing notes on phone calls) and we will include it in a future issue.

Electronic bulletin boards

| Location	Telephone No.	Location	Telephone No.
Brick, NJ	201-477-7263	San Jose, CA	408-9265-8767
Portland, ME	207-797-5690	Fremont, CA	415-794-8050
Reading, PA	215-929-5348	Patchague, NY	516-794-8050
Cleveland, OH	216-289-7311	San Francisco, CA	415-431-3783
Washington, DC	301-434-0117	Indianapolis, IN	317-631-994A
Washington, DC	301-681-5065	Glendale, CA	818-507-6219
Hyteville, MD	301-927-7079	Spokane, WA	509-328-0553
Newark, DE	302-322-3999	Santa Cruz, CA	408-426-1482
West Palm, FL	305-793-8050	Rocklin, CA	916-624-3328
Orlando, FL	305-831-5990	San Jose, CA	408-578-6264
TI-WEST	312-766-2797	Phoenix, AZ	602-252-4499
Chicago TI-BBS (Private)	312-848-4669	Toledo, OH	419-385-7484
MAGS	312-598-5955	Gresham, OR	503-661-0408
Warren, MI	313-751-1119	Knoxville, IA	515-842-2104
Hazel Park, MI	313-544-0714	Albany, NY	518-765-4993
Detroit, MI	313-544-7788	Minnesota	612-920-1889
Wichita, KS	316-681-3167	Knoxville, TN	615-573-2136
Rhode Island	401-728-8117	Burlington, MA	617-273-3262
Atlanta #1, GA	404-425-5254	San Diego, CA	619-276-3173
Atlanta #2, GA	404-928-4278	TIBBS-CAL	714-350-8583
Atlanta #3, GA	404-471-1283	N.Tonawonda, NY	716-692-7289
Ringold, GA	404-935-4054	Tonawonda, NY	716-837-6635
Pittsburgh, PA	412-854-5575	Virginia Beach, VA	804-486-1484
Milwaukee, WI	414-649-TEAM	Hawaii	808-536-0998
Appleton, WI	414-739-5380	Tampa Bay, FL	813-525-7998
Freedom, WI	414-788-9730	St. Petersburg, FL	813-526-1265
San Francisco, CA	415-364-8517	Kansas City, MO	816-444-4163
San Francisco, CA	415-355-3092	Pasadena, CIA (7-11 p.m.)	818-578-0678
Fremont, CA	415-651-4147	Raleigh, NC	919-851-8460

1:11:29. Review: Data Base Manager System

Keep track of lots of data

By JOHN KOLOEN

Review	
Report Card	**Cost:** $69.95 (cartridge)
Performance ...　A Ease of Use ....　A Documentation　B Value ....　B+ Final Grade ....　B+	**Manufacturer:** Navarone Industries, 510 Lawrence Expressway, #800, Sunnyvale, CA 94086, (408) 985-2932
	Requirements: console, monitor or television, disk system, memory expansion, printer optional
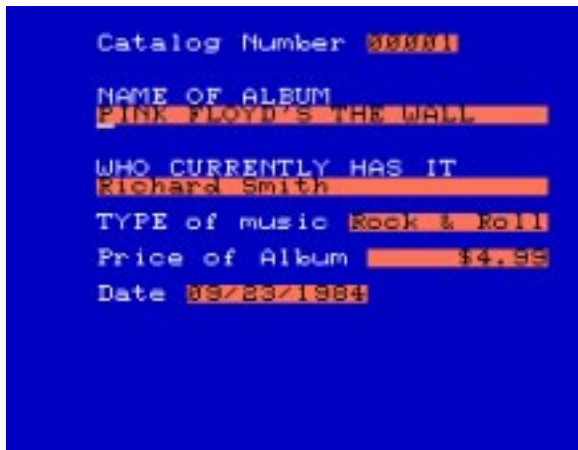
Data Base Manager System by Navarone Industries is a sophisticated file manager in a cartridge. (The program also includes a system disk that contains examples, among other things.) It allows users to define up to 25 fields of data per record. Navarone says the program can handle up to 32,000 records using a hard disk. Otherwise, it is limited to the amount of space on a floppy disk. I found it to be compatible with single- and double-density diskettes.

Performance: The Data Base Manager System consists of four programs, each of which is loaded separately into computer memory via the GROM port. The four are:

Setup

Entry

Sort

Reports

```
        TEXAS INSTRUMENTS
          HOME COMPUTER
     PRESS
     1 FOR TI BASIC
     2 FOR DBM ENTRY
     3 FOR DBM SETUP
     4 FOR DBM REPORTS
     5 FOR DBM SORT
```
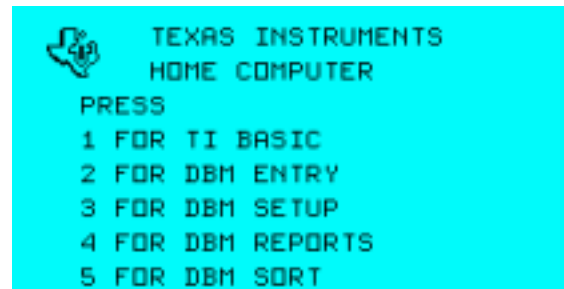
The Setup section is used to design data entry formats. The Entry section is used to enter data using the Setup format. The Report section is used to design forms for printer or screen. Sort is used to sort records developed through the Entry section.

The Setup section is well-conceived and executed, offering the user considerable flexibility in designing a database form. (Although the program is named Data Base Manager System, I do not regard it to be a true database manager since it cannot access more than one database simultaneously.) The user may create up to 25 fields of data, with a maximum of 28 characters per field. Each record may consist of up to 255 characters.

The Setup mode starts out as a blank screen, It is here that the user defines his fields by giving them a name and by determining the field length. The name is entered by simple typing and the entry field is created by using the INSERT key. Each time the INSERT key (**FCTN 2**) is pressed a red square appears in the field. After creating the field, the user presses **PROC'D** to go to the field definition screen. This screen displays the position of the first character of each field relative to the fields that precede it as well as the number of characters in the field. This screen also prompts the user to determine whether the field is numeric and whether it is a key sort field.

A unique feature of the Setup program is the ability to create a key message field. This is entered using the field definitions screen. Essentially, the user inputs information about the field that might be of use to persons who will be using the DBMS to enter data. This message is called up by simply pressing the **AID** key. This can be very useful if the person who enters the data is not the person who designed the Setup format.

DBMS requires that at least one field be defined as the key sort field. Because data entered into this field must be absolutely unique, the user will probably want to assign a number to it, incrementing it by one for each subsequent entry.

The Setup portion of the program allows for complete editing of any field name, field length or field definition entry. Users may even modify the Setup structure after it's been used to enter data, though field positions and lengths cannot be changed without altering the location of data. However, new fields may be added to the end of the Setup at any time without affecting previously entered records.

Users may also break up individual fields if they like. For example, suppose you want to enter telephone nurnbcrs in the following format: (555) 555-5555. You would insert the parenthesis and hyphen in the Setup file. Then, when entering data, the user would enter "555", press **ENTER**, "555", press **ENTER**, and "5555".

Once the user has defined his Setup format, he presses **BACK** and is prompted for "auto format." Auto format automatically aligns fields within a record. The user is then prompted to enter a name for the data file that will be the database for the Setup format and then the user gives a name to the Setup form itself. Both of these are saved to disk. The format for both of these is: disk drive number/filename.

DBMS writes and reads Display/Variable 80 files. Those with existing databases, such as a mailing list, may create a Setup file that matches the characteristics of the existing database, use a BASIC converter program to convert the existing database into D/V80 and be able to write and read the database using DBMS. The most critical aspect of this conversion is to make sure that during the conversion process each field is "padded" with spaces to fill out each field. Otherwise, the data will not appear in designated locations when called up using the Setup file. There are some examples in the DBMS manual to help you out, but I found some of the programming hints to be erroneous.

Having finished with the Setup mode, one leaves the program via **FCTN QUIT**. Bringing back the cartridge's menu, the next logical selection is the data entry mode. Selecting this option, the user is asked to enter the Setup file name and the data file name. (You can create as many data files per Setup file that you want. Likewise, you can create any number of Setup files that you want. All of these may be stored on the same disk, though each must have a different name.)

The data entry mode allows the user to call up previously entered records based on the key sort field. The importance of a numeric key sort field becomes evident here. The user must first place the cursor under the first position of the key sort field, then, by entering a number in this field, the corresponding record appears. If the key sort value does not exist, the program lets you know. By calling up the most recent key sort number you can continue the sequence of entries without having to make note of the last entry each time it is made.

To enter new records, the user presses **BEGIN**. The Setup screen appears and the user simply fills in the relevant data. Pressing **ENTER** moves the cursor to the beginning of the next data field. Having entered the data, press **PROC'D** and the record is written to diskette. Records are written to disk very quickly. The initial screen reappears, and the user pressed **BEGIN** again to enter new data.

Existing records may be modified by simply calling a record up using the key sort field. Make the changes and then press **PROC'D** and the new record is written to disk. All of the data entry functions are executed very quickly, virtually instantaneously. This is because the program is written in Assembly language.

While entering data, the message field can be called up simply by pressing **AID**. The message appears at the bottom of the screen, consisting of up to 112 characters.

Although it is not necessary to have a color monitor, DBMS screens use colors to highlight entry fields.

The Reports mode asks the user for the name of the Setup file and loads it into memory. From there, the user may manipulate the data fields in whatever way he wishes, using an 80-column wide screen to do so. (The screen scrolls from left to right.) Of course, if you are designing a report to be outputted to the screen, you would limit yourself to a 28-character screen since the screen can be scrolled only during the Reports design stage.

The Reports screen displays line and column numbers, as well as the template for the Setup file making it very easy to manipulate the various record fields. This is the easiest to use report generator that I have seen for the TI. All the information you need to design a report is always in front of you. Fields are also very easy to move. Simply place the cursor at the first position of a field, press **CTRL M** and use the cursor keys to move it to any location on the screen. Having placed the field where you want it, press **CTRL M** again and it will remain there until you decide to move it.

You may rename the fields if you wish, or not use names at all. The field names may be placed in the page header so that they appear only at the top of each page, whether outputting to screen or printer. The user also specifies page length, output device, whether to suppress details (such as names, etc. so that only numeric totals appear), whether to pause between pages and the name of the data file that you want to use.

The user may also duplicate fields, have totals summed on numeric fields, have numeric fields formatted with up to four decimal places or (two decimal places and a dollar sign) and have trailing blanks removed from a field.

The user may also use the Reports mode without a previously defined Setup file. The Report format may be saved to disk for future use.

Like the Setup program, the Reports function is enormously flexible. Users may even enter printer control characters into the Reports file.

The final program in DBMS is the Sorts program. The user may sort records by up to six fields. During the sort, the program creates a second file to store the sorted data so that the original file can continue to be used for data entry.

The user decides which field to use as the primary sort field. Subsequent sort fields are entered in the order of the priority of the sort as defined by the user. For example, to sort a database for mailing purposes, the user would probably select the state as the first priority, ZIP code as second, last name as third priority, etc. By designing a mailing label form using the Reports program the user can output a list of names that is printed out alphabetically by state, in ZIP code order and alphabetically by last name within each ZIP code.

Each sort field must be entered based on its starting position within the total record as well as its length in bytes. To do this, one would need to record this information from the field definition screen in the Setup mode.

The primary sort field allows the user to specify a particular string within the field as a "mask" or template. Also, this field may be sorted on the basis of items being equal to or not equal to the mask. Subsequent sort fields are sorted on the basis of ascending or descending order.

Having entered all the parameters, the file is sorted in two passes and written to disk. The number of records sorted is displayed when the sort is over.

Ease of Use: This is a very sophisticated file management program. It provides the user with virtually unlimited flexibility in designing database formats and reports. The sort routine is the most powerful that I know of for the TI home computer. To take advantage of all this sophistication and power, the user must spend time to learn how to use it. I would say it is no more difficult to use this program than TI's Personal Record Keeping cartridge and far easier to use than the Personal Report Generator cartridge which uses PRK files to generate reports.

Documentation: If this package has a fault it is in the documentation. The manual is 36 pages long, and divided into sections. Although it strives to be a tutorial, information is not necessarily presented in the order that it is required. This is particularly true of the portion that deals with the Sort program. Also, there are some errors regarding tips on how to convert files for use with DBMS which, if followed by the user, can result in the waste of a great amount of time.

I feel the author of the manual may have assumed too much when it comes to the sophistication of his potential audience. Many concepts are left totally unexplained, such as the use of "string masks." For $69.95 I expect to get a manual that answers all my questions about the program, not create them.

Value: At first, I didn't like the idea of having the program loaded into a cartridge. But given how each program segment depends on the others, I find it very convenient — not to mention much faster than loading from diskette — to call up each program from the cartridge menu and get on with the work at hand. Of course, the primary reason for loading into cartridge, according to Navarone, is to prevent the program from being copied.

I found no problem in the fact that users are limited to 25 fields. Though I tried, I was not able to come up with a database that was longer than 18 fields without naming subsequent fields "miscellaneous". There is really only so much data that can be useful in the context of this type of program. I would like to have seen a few more calculation options (such as multiplying and dividing). An auto-incrementing counter that would record the number of entries automatically would have been nice.

The program is expensive, placing it in the company of the Companion word processor and, to some extent, TI-Writer and Microsoft Multiplan, though the latter are still selling in the $80 range in many places. For the purpose of data management, I feel this program is the equivalent in sophistication of the word processing programs.

Although it is not my policy to give "plus" grades above "A," I would give DBMS an "A+" for performance if my policy were different.

1:11:32. Review: Gravity Master

Build your own game

By CHRISTOPHER BOBBITT

Review	
Report Card Performance ... A Ease of Use .... B+ Documentation B– Value .... A Final Grade .... B+	**Cost:** $19.95 (diskette)
	Manufacturer: CSI Design Group, Box 50150, St. Louis, MO 63105
	Requirements: monitor or television, disk drive system, 32K memory expansion, Extended BASIC

It is sort of a truism that every computer game comes set up to play right out of the box. For practically every game, once it is loaded, the player simply begins playing. It doesn't take genius or great artistry to set up or play most games. There is, however, a new genre of games being produced which have educators and parents on their ear. These are the "interactive" games, where the player has the opportunity to create his own game environment, or screen, using a set of predefined figures.

This type of game allows the budding artist in everyone to get a workout, as it is in our own interest to create interesting games for ourselves. It also gets a number of children interested in doing something else with a computer than just play games, namely, create them. About the most well-known of this type, and alas, not available for the TI, is Pinball Construction Set from Electronic Arts. Since Electronic Arts didn't think it was reasonable to write their games for the two million TI-99/4As out there, we will have to do without their excellent game.

However, we don't necessarily have to settle for second best. There is another game of this type exclusively for the TI-99/4A, which is everything the quality program Pinball Construction Set is. CSI, formerly Challenger Software, may not have the big hame and reputation of Electronic Arts, but in my humble (and often heard) opinion, their program Gravity Master is the equal of anything Electronic Arts has produced.

Gravity Master actually is sort of a hybrid, since it can be played directly after loading. It includes two sample games of different levels of difficulty, each with a number of screens. These two games are merely examples, albeit alone worth the price of the game. The real star of the program is the game screen editor, which allows, the player to create games, each with up to 20 screens. Each of the screens can be designed in an infinite number of ways. If the player gets tired of the game, he merely has to design more screens.

The game has a very familiar plot and playing screen. The screen is covered with girders of various types at different levels, ladders connecting some of the girders, and robots moving back and forth menacingly on some of the levels. The player's character, vaguely shaped like a robot, is placed on another area of the screen, safe for the time being.

The game play resembles the play of Miner 2049'er, from Tigervision. The player must move his character over the girders, back and forth, until they are a particular color. Once all the girders have been "painted" that color, the player moves on to the next screen. The player may jump from one girder level to another, eluding robots, and changing girders to different colors. Some girders are beneficial, allowing the player to destroy robots once these particular girders have been touched. Some disappear once they have been sopped on, destroying a possible means of escape from those terrible enemy robots.

The "gravity" part of Gravity Master has to do with the jumping one can do. The higher the gravity level of the screen, the more likely it is that the character will be killed if it jumps off a ledge. This is a game in which the player must balance a complicated set of factors. The object: to survive to see the next level.

Performance: Gravity Master requires a fair amount of hardware to run. The user must have an Extended BASIC cartridge, disk drive system and a memory expansion. Though this may seem to be a lot, it is quite reasonable for a game like this. Most, if not all, of the advanced applications and better games today require the ability to access Assembly language routines. BASIC simply doesn't have the power of Assembly. If the disk containing the program is in disk drive one, the program loads and automatically runs when Extended BASIC is selected. Once loaded, the user is faced with a menu containing a number of options.

The first option available to the user, and the focal point of the program, is the Builder, or game screen editor. The editor is extremely "user friendly," a term used in conjunction with many programs nowadays.

To create the game screen, the user uses one of two different-sized arrows to pick up objects arrayed in a menu and place them where he wants them to be. The smaller arrow is used to pick up the smaller pieces, such as the various types of girders while the larger arrow is used to move around the player's character, or the opposing robots. To pick up a piece, the user simply moves the appropriate arrow over the desired object and presses the **SPACE BAR**. To place a copy of the object being carried by the arrow, the user only has to put it over the desired area on the screen and press the **SPACE BAR** again. Once the user has created the desired screen, he can save it to disk.

If the user wishes to test the screen, the next option is just what the doctor ordered: the Tester. This option lets the user try out each screen, to make sure all the girders are accessible and in the proper places. The robots are not active, so the user doesn't have to worry about "dying." The screens can be edited again with the Builder after being tested.

After the screens have been tested, the Linker option is used to put them all together in one game. The Linker can be used to play a screen already in the program's memory, or may be used to create a game out of several screens already saved to disk. Individual screens may be linked together in any order the user desires.

The program also contains an option which allows the user to catalog disks, by program files or game screen files, and delete files. I found this to be pretty useful when it comes time to link together game screens into one game, since I often forgot the filenames I'd given the screens.

The program seems to perform perfectly. The only difficulty I had with it, which I traced back to my console, was in saving a game screen. I didn't find out it was the console's fault until after I asked the manufacturer for a new review copy. I am happy to report that CSI has very fast service; I received a new, guaranteed copy within a week after I mailed my letter.

Ease of Use: For the most part, this program gets top marks for ease of use. The screen editor is extremely easy to use, and the many options are menu-oriented and easy to access. The program is arranged logically, a plus, and works very quickly.

Documentation: This is my only real complaint with this package. Several facets of the program, in the Linker and Editor, go unexplained. In the review copy a number of crucial things went undocumented; for one, the fact that the user is to use the arrow keys in the editor.

The manual is not arranged in a logical fashion. You would expect the simplicity of the program would be reflected in the manual, but there is no table of contents, explanations for the parts of the Linker are not in the order that the program requires them and explanations for use of the Tester and disk utility options are inadequate. The manual is also difficult to read, assuming the user has a lot of knowledge he may not have, and it assigns acronyms haphazardly. The various sections seem to be arranged rather randomly. To top it off, the manual I received had two page eights and no page seven. (This has been corrected in subsequent manuals, according to CSI.)

The manual isn't without its strengths, however. The explanation of how to play the game is quite good, and the cover graphics are excellent.

Value: An arcade game is an arcade game, you either like it or you don't. This game, I believe, has more value than most arcade-type games. The option allowing the user to make an infinite number of screens insures infinite variations. The player isn't as apt to get tired of it as quickly as most games, and the game will always be as challenging as the player wants it to be. Never mind that the actual plot of the game is rather old, the game situations can always be new.

The beginner may find this game to be difficult to use, but once the constructs of the game are familiar, the user is assured of hours of excitement and scores of interested and challenging situations.

1:11:33. Review: Learning TI-99/4A H.C. Assembly Language Programming

Filling in the learning gap

By CHRISTOPHER BOBBITT

Review	
Report Card Performance . . . A Ease of Use . . . . B+ Documentation A Value . . . . A Final Grade . . . . A	**Cost:** $16.95
	Manufacturer: Wordware Publishing Inc., Piano, TX 75074
	Requirements: console, monitor or television, Mini Memory or disk drive system, 32K expansion and Editor/Assembler cartridge

For the first three or so years of the TI-99/4A's existence, the only documentation available on the machine's Assembly language, 9900 Assembly, was that available from Texas Instruments itself. Not to fault those few books that did deal with 9900 Assembly (hereafter Assembly), but most of them weren't on a par with the Beginner's BASIC manual that accompanies the console, as tutorials. The actual Editor/Assembler manual is a fine reference tool, but is no substitute for an easy to understand Assembly tutorial. The Mini Memory manual was even worse, even though the module was touted as a great way to get into Assembly language.

As if TI's departure from the scene was a starting gun, books on the 99/4A have become as common as the ones for the TRS-80 machines and the T/S 1000; a giant increase in quantity. Most of these books are simple tutorials on BASIC or Extended BASIC, and feature one or more programs. Some are wholly

programs, and others are wholly text, but most seem to deal with the most simple facts about the unique features of the 99/4A. For the advanced student, the people that bought into the computer early, or learn fast, the lack of Assembly language books was unbearable. At last, a few books have come out, but not in the prodigious numbers of the BASIC books.

One, if not the first, of the five or so available Assembly language books to appear in the marketplace was the one reviewed in the July issue of *MICROpendium*, Introduction to *Assembly Language for the TI Home Computer* by Ralph Molesworth. True to its title, the book serves only as an introduction, albeit a very good one. This book gives the Assembly enthusiast a taste of Assembly, while providing the reader a number of very useful routines. It gives the reader an example of the breadth and scope of Assembly but as a tutorial, it lacks completeness and the proper viewpoint. It attempts to teach Assembly by giving examples and providing the reader with an understanding of how the various commands work. It is really teaching how to use 9900 Assembly, not how to understand Assembly per se.

The book Learning *TI-99/4A Home Computer Assembly Language Programming*, by Ira McComic, (I wish these writers would give shorter titles to their books) fills in many of the gaps of the other book. This book, one of the most recently published, teaches the reader Assembly from the bottom up. Lacking are the great routines found in the Molesworth book, but present are the real meat and potatoes issues of Assembly: how the commands work, how they interact with each other, how they change their functions under different conditions and more. This book is one of the best for getting into Assembly language in the first place; the Molesworth book is best for expanding your knowledge of 9900 Assembly and its peculiarities.

Performance: *Learning TI-99/4A Home Computer Assembly Language* uses a variety of teaching styles to get its points across. Each particular term, instruction and addressing format is explicitly defined in an easy to read manner, using few technical terms. Diagrams and examples are used to explain how each particular item functions. Each of the 19 chapters has a brief, concise summary of what is covered.

Within each chapter, the subjects are delineated by section numbers so they are easy to find when referenced in later chapters. At the end of some chapters, page and chapter references are made to the Editor/Assembler manual, the Bible of the Assembly language programmer.

The book divides the study of the instruction set into neat, logical units. An individual chapter covers the data movement instructions, the compare instructions, the jump instructions, the logical instructions and others. There are also chapters describing the use of the programming tools (the Debugger and Loader) and the Assembly editor and assembler. There are chapters on virtually every aspect of Assembly language, from the structure of data to machine code formats. At the end of the book are three appendices, including a summary of all the instructions, a comparison of the number systems used in Assembly and, for those like me who have lost their Editor/Assembler reference card, a table of ASCII character codes.

The programming examples that appear in the book are rather generic. The big program of the book is an Assembly program to translate characters into Morse Code. The book, however, gives a programming example or a diagram after virtually every instructions explanation. Many of them are very enlightening. However, if you are only in the market for a book of Assembly language routines, this book is not recommended.

The many types of teaching methods and the cornucopia of teaching tools used makes the book far from boring. It almost draws the individual into reading on, to see how the chapter is going to be taught in any case.

Ease of Use: Logical design was apparently a big consideration when this book was written. Since each chapter is made into sub-sections, and sub-sub-sections, looking up a particular item is extremely easy. The way each chapter covers only one subject shows the author was thinking of the poor reader. The book even has an index, something that can't be taken for granted when it comes to computer books.

My only complaint lies in an area where the author excels — organization. The chapters themselves are for the most part self-contained, but have been arranged almost haphazardly. The chapter on the structure of the TI home computer and the chapter on the anatomy of an Assembly language statement come after the chapter on the structure of data. All these chapters come before the chapter on how to use the Editor/Assembler. The chapter on how to use the Loader and Debugger come before the chapters on the types and definitions of the instructions. It is inequities likes these which make Assembly language harder to learn than it should be. Overall though, if the reader is willing to skip around in the book, he or she shouldn't have much difficulty.

Documentation: The book is well documented. The table of contents gives, as usual, the chapter numbers and titles and page numbers. After each chapter is a list of the sub-sections and their page numbers, which is pretty useful when you want to look something up quickly.

Appendix A covers the entire Assembly language instruction set. Each statement is quickly defined and categorized, and a diagram accompanies each instruction indicating the status bits affected by the statement.

Appendix B is really useful for the Assembly language programmer who doesn't have a calculator to do number system conversions. Binary to decimal to hexadecimal conversions are given attention. The last chapter, a table of all the ASCII codes and characters, is superfluous unless, like me, you have lost your Quick Reference Card. The index is rather short, but one index is better than no index. Overall, the book is complete.

Value: This is the section the book excels in. As Assembly books go, it is nearly perfect. It is concise, no nonsense and easy to read. The technical terms are defined as the readers goes along, and are used VERY sparingly. The explanations of data and the statements, as well as the instructions on how to use the Assembly language debugger, are alone worth the price of the book. The sections on machine code formats, and the appendices are an added value. This book gets you into Assembly the easy way. But as the book says in its introduction, no book can teach Assembly unless the reader really wants to learn Assembly and looks upon it as something fun to do and not as a chore. Assembly, the paragon of computer languages, can only be learned if you have the proper attitude. This book will give you this knowledge. That is why this book is superior to the rest available.

1:11:36. Newsbytes

More PEB cards

Myarc has begun shipping a disk controller card and RS232 card for the Peripheral Expansion Box. The disk controller will control up to four floppy drives. The card can take advantage of single-sided, double-sided, single and double-density drives. It comes with the Disk Manager II cartridge. The cartridge is used to initialize double-density diskettes. The RS232 card is being produced because supplies of Tl RS232 cards are virtually nonexistent, a company spokesman said. Actual sale prices are determined by distributors, but the spokesman said the cards are "comparably priced" with cards by other companies.

Also, the company is offering a cable for its MPES/50 mini-peripheral system. The four-foot cable is used to connect the MPES to the console. The MPES otherwise is directly connected to the console peripheral port.

For more information, contact Myarc at P.O. Box 140, Basking Ridge, NJ 07920, or call (201) 766-1700.

New products

Quality 99 Software has been introducing a number of new products recently, and the most recent batch include a disk manager program that once loaded into the computer's memory remains there for instant access until the machine is turned off.

Called Disk Manager III, the disk-based program requires a memory expansion and Extended BASIC. The resident disk manager program includes such functions as disk catalog to screen or printer, disk initialization (double-density included), diskname and filename changing, file protection change, and file delete. The program operates without disturbing the program in memory. These functions may also be used in Extended BASIC programs. The price is $39.95.

Other new programs include Chart Maker, which creates charts and graphs for display on screen or printer, $19.95; SDUMP, a resident screen dump utility, $19.95; and QS-Writer, allows TI-Writer to be loaded in Extended BASIC, Editor/Assembler or Mini Memory, $29.95.

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

Pay later

Looking for a way to use ISAM files? ISAM (indexed sequential-access method) is a file-accessing technique that is faster than sequential-access method and slower than the random-access method which requires more file space.

ISAM allows the user to read relative record files by use of an alphanumeric key, which simplifies record searches and response time. A Massachusetts company is offering ISAM to users for $25. The user must also submit a disk for the program. Included are an ISAM initializer and help utility. The program requires Extended BASIC and a disk system. The unique aspect of this operation is that users need not pay unless they are satisfied with the product. "Our policy: if you like what you get then send is $25," the company says. Write to: Software Tools, P.O. Box 191, Newton, MA 02168.

Football analyst

Looking for help in predicting the outcome of professional football games? Ridge Services claims its Pro Football Analyst has chosen selected NFL Overlays (best bets) at a 66/3 percent win rate over the last five years. The company says it can be used to predict winners against the point spread, as well as for pools and total point choices. Statistics from newspapers are used for input. The price is $35 on diskette or cassette, with BASIC and Extended BASIC versions available. The company also markets Personal Social Register, Puzzler and Personal Inventory Program. For more information, write to 170 Broadway, Suite 201, New York, NY 10038.

System doctor

Know-Ware is offering a system diagnosis disk for the TI-99/4A that can be used to check the health of VDP RAM, system software, scratchpad RAM, memory expansion and speech synthesizer. Requires XB, E/A or MMM, disk system, memory expansion. The expansion memory test requires MMM. The cost is $17.95. Write to the company for information: Box 53674, Lubbock, TX 79453.

More hardware?

CorComp Inc. is engaged in market research regarding the production of a number of items for the TI-99/4A, according to Jackirae Sagouspe, president. She says that the company has "put out feelers" on a mouse, time clock card, internal modem card, Koala-type graphics pad and RAM disk card. She notes that if there, is a demand, none of these items would be "overly difficult" to produce.

Unisource Electronics, a mail-order firm dealing in TI products, demonstrated CorComp's 9900 disk controller card at the Chicago TI Faire Nov. 10, she noted.

Biggest yet

Tex-Comp's new catalog is the biggest one that the mail-order company has ever done, according to Jerry Price, Tex-Comp's vice president and managing director. Those wishing to; receive the 30-page TI-99/4A Catalog and Buyers' Guide may send $2 to Tex-Comp, P.O. Box 33084, Granada Hills, CA 91344 for the catalog and a $5 certificate good, on TI products. The catalog features many new items never available before, Price said.

About that chip

The TMS9228 VDP chip is not "plug compatible" with the TI-99/4A, according to informed sources. Thp new chip, referred to in the September edition, can address up to 64 kilobytes of RAM, and offers five graphics and two text modes. It was earlier believed that the new chip might be used to replace the TMS9918 VDP used in the TI console.

However, there is at least one hardware manufacturer that is believed to be looking into the chip for use in a card for the Peripheral Expansion Box. No one wants to be quoted on this at this time.

Newsbytes is a column of general information for TI-99/4A 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.

1:11:36. User Notes

Smooth motion

Dan Parrott, president of SMAUG of Grand Bay, Alabama, writes: "Smooth, curvilinear sprite motion can be achieved with sine and cosine functions. The trick is to store the factors derived from the trigonometric functions in an array that can be called much faster than having to recalculate each time. For example:

```
100 CALL CLEAR :: CALL
SCREEN(2)
110 CALL INIT
120 DIM A1(28),A2(28)
130 FOR A=1 TO 28
140 CALL SPRITE(#A,46,1
6,98,128)
150 A1(A)=SIN(A/4.456)*
40 :: A2(A)=COS(A/4.456
) :: NEXT A
160 FOR A=1 TO 28 :: CA
LL MOTION(#A,-A1(A),-A2
(A)):: NEXT A
170 GOTO 130
```

Parrott recommends you vary the constants in line 150 to produce different results. This requires Extended BASIC and a memory expansion. The program may also be run without the memory expansion by eliminating line 110.

Floppy revived

Jerry Trinkl of the Milwaukee Area 99/4 Users Group in Wauwatosa, Wisconsin, had a floppy disk that would no longer revolve in its jacket. Was the fit to tight? Read on.

"I had the unfortunate experience of losing a disk full of programs. It didn't happen all at once, I occasionally couldn't load a program and sometimes got the error message, 06, the error for no disk drive. Looking at the disk I found two circular gouges, one on the inside track closest to the hub and one towards the outer most track. I tried to move the disk inside its jacket and, ah ha, the problem was that of a cheap disk that jammed up. It could not be turned even by hand.

"I had some very good programs on that disk and wasn't about to throw it out just yet. My first thought was to try Disk Fixer. But if the disk would not turn, then Fixer could not even read a sector. Okay, so now what?

"I carefully cut out the bad disk from its jacket and inserted it into an empty Verbatim cleaning jacket. And voila, it worked! I quickly backed up my makeshift cleaning disk on a good disk and was tempted to turn el cheapo into a frisbee. But I decided to save it as a backup and a reminder of a great idea that actually worked."

Correction

A typographical error in a review last month of the Transtar 120S printer makes it seem that the printer is slower than a snail. It isn't. The review said that the printer plods along at four characters per second, when, in fact, it chugs along at 14 characters per second.

Edge connectors

Have you purchased a second or third disk drive only to find that you no longer have a 32-position edge connector card for the external cable? This can happen, since the cards were originally included with the TI disk controller card and are probably unavailable from local electronics shops. Using these cards makes it a lot easier to connect external drives.

But never fear, TI is still there to support you. Those who are in need of an edge connector can let their fingers do the walking by calling the TI toll-free number (800) 842-2732 to receive one. Simply request an edge connector for your disk drive and the operator will take your name and address and have one sent to you. The cost is the same as for the toll-free call.

Not a bad deal.

From BASIC

The following program operates out of BASIC using the Mini Memory or Editor/Assembler cartridge. Of course, a memory expansion is necessary. Although in its present form it doesn't provide you with a useful utility, it demonstrates what can be done in BASIC. Enter the following program, in BASIC mind you:

```
90 PRINT "PRESS:":"N FO
R NORMAL MODE":"C TO CL
EAR SCREEN":"T FOR TEXT
MODE":"M FOR MULTICOLO
R MODE"
100 PRINT "B FOR BIT MA
P MODE"
110 CALL KEY(3,G,S)
120 IF G<>78 THEN 140
130 CALL POKEV(-32768,0
)
140 IF G<>67 THEN 160
150 CALL POKEV(-32352,0
)
160 IF G<>84 THEN 180
170 CALL POKEV(-32272,0
,"",-POKEV<-32272,0,"",
-30945,0)
180 IF G<>77 THEN 200
190 CALL POKEV(-32280,0
)
200 IF G<>66 THEN 220
```

```
210 CALL POKEV(-32766,0
)
220 GOTO 90
```

Now, type RUN and press the **C**, **N**, **T** or **B** keys. Watch what happens. **N** is for normal mode, **T** is for text mode, **M** is for multicolor mode in which each character is a 4 ×4 block, and **B** is for bitmap mode. To get out of the program you must **FCTN QUIT**. This program comes from the Arizona 99 User Group of Phoenix.

Different Colors

The following brief routine will allow you to display numbers in a different color than letters on the screen. It comes via the Upper Pinellas 99'er Group of Largo, Florida. According to the Floridians, it appeared previously in the DC User Group newsletter and was credited to Phil Newton.

```
100 For A=5 TO 12
110 CALL COLOR(A,16,1)
120 NEXT A
130 CALL CLEAR
140 CALL SCREEN(5)
```

Sound mystery

This Extended BASIC program — a memory expansion is required, too — produces a veritable symphony of sounds. It comes from the Southwest Ninety-Niners of Tucson, Arizona. The **FCTN CLEAR** will cause it to stop running.

```
90 CALL INIT
100 FOR A=1 TO 255 :; CA
LL LOAD(-31744,-A):: NEX
T A
110 FOR A=1 TO 255 :: CA
LL LOAD(-31744,A):: NEXT
A
120 FOR A=l TO 255 :: CA
LL LOAD(-31744,A):: NEXT
A
130 FOR A=1 TO 255 :: CA
LL LOAD(-31744,-A):: NEX
T A
140 FOR A=1 TO 255 STEP
4 :: CALL LOAD(-31744,-A
):: NEXT A
160 CALL SOUND(100,110,0
)
170 FOR B=1 TO 2 :: NEXT
B
```

FUNCTION X

Phil Bennis of the New Horizons Computer Club offers a very "functional" way to edit programs in BASIC or Extended BASIC. This method is used when you know what program line you want to look at. Simply enter the line number you wish to see and press **FCTN X**. And there it is. You may make whatever changes you wish and hit the **ENTER** key and the line will be changed. (Actually, you don't even have to hit **ENTER**.) Of course, pressing the **FCTN X** key again will bring up the next program line while entering **FCTN E** will bring up the previous program line. And so forth.

Quick transfer

Terminal Emulator II is a wonderful program, but when it comes to transferring data via electronic bulletin boards it is a bit on the slow side. That's because it operates at 300 baud.

However, the transfer rate can be speeded up considerably when transferring BASIC or Extended BASIC programs via phone lines. According to Larry Prikockis of the Northcoast Users Group, which is affiliated with the Cleveland Area 99/4A Users Groups, the following method can speed up the transfer by up to five times while still operating out of a 300 baud modem.

How's it done? Read on.

"First, both the sender and receiver must select TI BASIC. Then, load the program to be sent into memory and type SAVE RS232, but do not press **ENTER** yet. The receiver should type OLD RS232. When you are ready, switch over to the modems and press **ENTER**. The receiver should wait about five seconds and then press **ENTER** also. Both users should see a number, corresponding to the number of blocks of the program, at the top of the screen. This number will slowly count down to zero, at which point the transfer is complete. Since the program is loaded directly into memory, the receiver must remember to SAVE the program to disk or cassette."

This approach seems to work only between TI home computers and not with such telecommunications services as The Source or CompuServe.

Freeware

MICROpendium is continuing its offer to provide a selection of software free of charge to subscribers. Currently offered are the file updates for TI-Writer and Microsoft Multiplan and the Super Bugger utility.

To order any of these, readers must enclose an initialized diskette and include a self-addressed, stamped return mailer. The TI-Writer and Multiplan updates require a single-sided, single-density diskette. The Super Bugger requires a single-sided, single-density diskette. All three will fit on a double-sided, single-density diskette. (Please, do not send single-sided disks that have been altered to allow files to be written to both sides.)

Allow at least two weeks for delivery. Orders may be mailed to FREEWARE, c/o *MICROpendium*, P.O. Box 1343, Round Rock, TX 78680.

MICROpendium will also provide TI Forth and documentation, if a minimum of 100 readers order it. The Forth program includes two example programs. Because of the cost of reproducing the 235-page manual, there will be a $20 charge (checks or money orders only). This includes postage and packaging. Readers must also submit two single-sided diskettes. Order TI Forth separately from the FREEWARE. Checks will be held until the minimum number of orders are made. To order write to: FORTH, *MICROpendium*, P.O. Box 1343, Round Rock, TX 78680.

All of these programs were released into the public domain by Texas Instruments Inc. No warranties of serviceability or usability are implied.

A little hint

The current *MICROpendium* software improvement contest has to do with improving a program that simulates an organ. Here's a little hint from the Houston (Texas) Users Group that may give you some ideas.

Enter the following routine for tremola:

```
140 FOR J=1 TO 8
150 CALL SOUND(-50,N,I)
160 CALL SOUND(-50,N*1.03
,1)
170 NEXT J
```

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.