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-

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Home Computer Compendium

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Coming Next Month

—Have a program you'd like to market? How tough is it?
—Home budgeting programs
—Reviews and more reviews

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Comments

What's next for home computer users?

It's hard to believe, but the TI99/4A 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 TI99/4A, 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 Cor-Comp'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

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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 connnector to remove any lint build-up. Blowing into the connector occassionally 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 TI99/4 and the TI99/4A, 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 Isle... which I'm working on now) as well as numerous other computer text-adventures solved, I consider myuself 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.

(Please turn to Page 6)

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. 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
```

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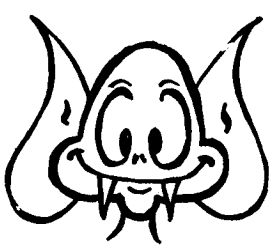

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DEALER INQUIRIES INVITED

TI signs with Imagic, Sierra; list of million names available

Texas Instruments signed software production agreements with Sierra On-Line and Imagic in January 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 von 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 TI99/4A.

"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

FEEDBACK—

(Continued from Page 4)

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 TI99/4A home computer. Mail Feedback items to: Home Computer Compendium, P.O. Box 1343, Round Rock, TX 78680.

Kean Computing

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Requires Extended BASIC..... $19.95

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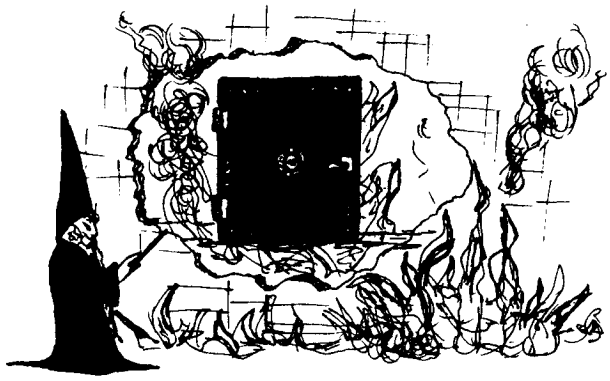

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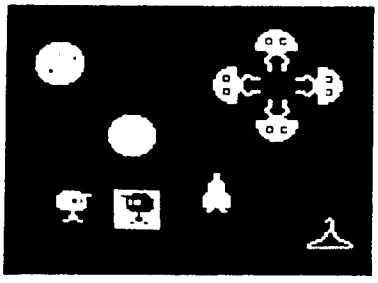

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Requires Extended BASIC..... $17.50

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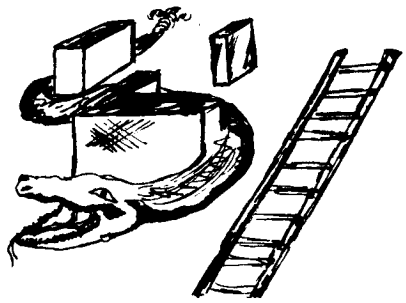

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Phoenix to hatch soon

Cor-Comp Inc., the California-based company that says it has developed the successor to the TI99/4A, 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.

However, as with everything regarding the 99/64, all dates and deadlines are projections. As an example, in December Cor-Comp 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 TI99/4A 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, Cor-Comp 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 Cor-Comp Inc. Sales of the new machine will also be conducted by some 1,000 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 Cor-Comp 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.

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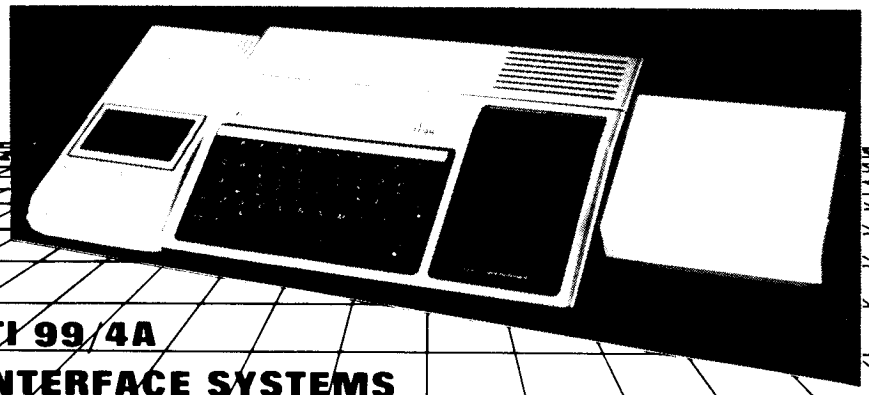

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Foundation's got plans

New products compatible with the TI99/4A 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

Pole Position, Jungle Hunt coming

If your Atarisoft Pac Man 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 TI99/4A are Pac Man, 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. Pac Man, Moon Patrol and Jungle Hunt.

Atari will release educational and home applications titles for the TI99/4A 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 games are about

As for the games that are available:

It seems almost superfluous to describe Pac Man, 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, Pac Man 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

(Please turn to Page 12)

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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 market 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

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 TI99/4A are reduced to

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ATARI—

(Continued from Page 10)

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 manuevering 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 ony 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 car. 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. Pac Man is similar to Pac Man, 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

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 TI99/4A 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

BOOLE—

(Continued from Page 12)

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

Review

Star Trek

Enterprise takes you far

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 them 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 hari 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.

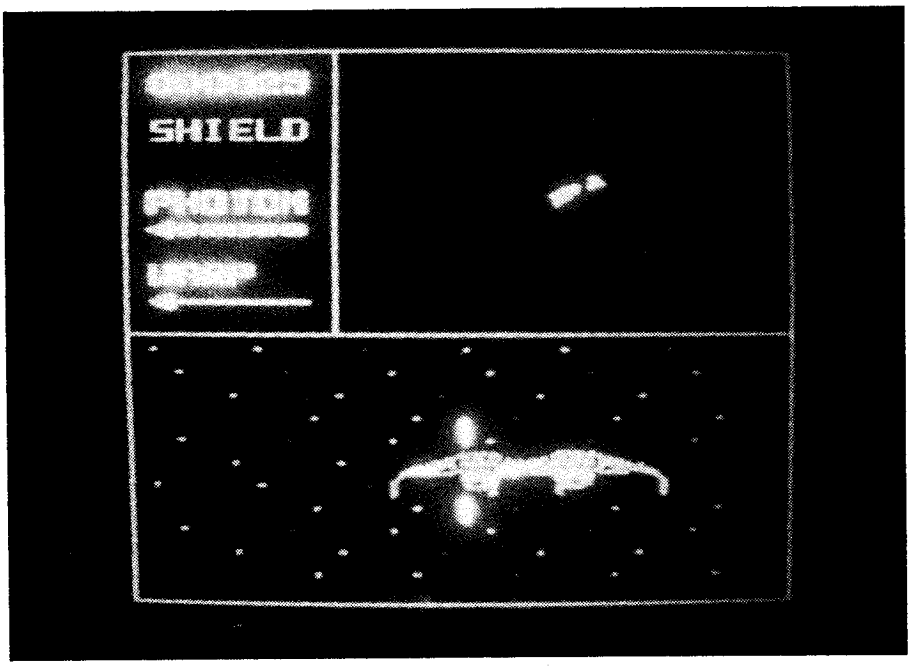
Having destroyed the Klingons in Sector 1.1, you advance to Sector 1.2, 1.3 and later to Sectors 2, 3 and beyond.

(Please turn to Page 20)

Report Card

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

Cost: $29.95 (cartridge)
Manufacturer: Texas Instruments
Requirements: console, monitor or television, (joystick, speech synthesizer optional)



Escape From Balthazar

Crime pays in this game

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 TI99/4A 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.

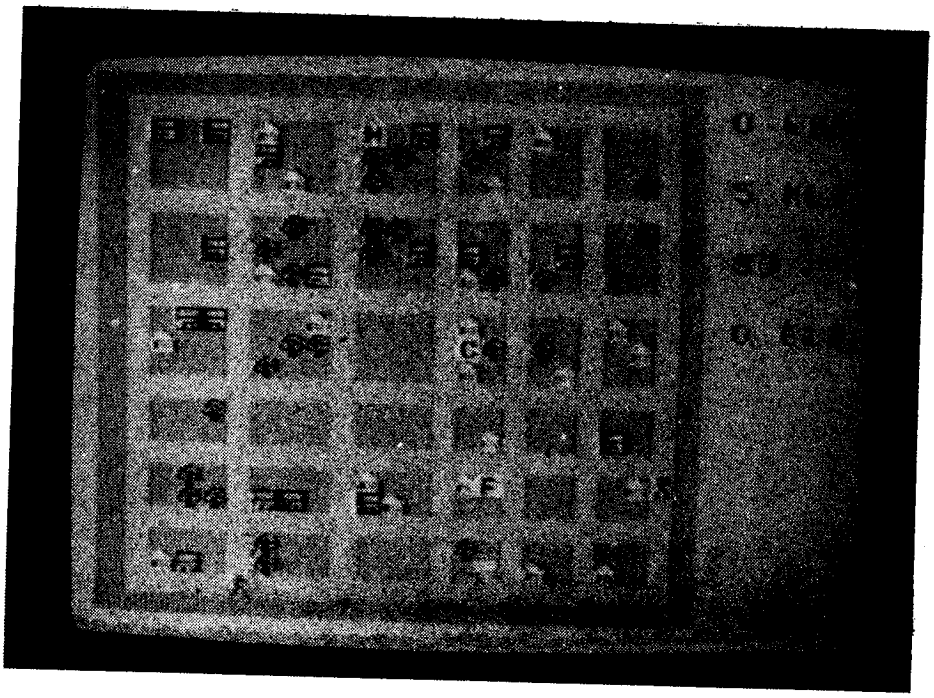
—JK

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



Garkon's Getaway

Have fun with escapism

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 storyline, 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. Ther 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

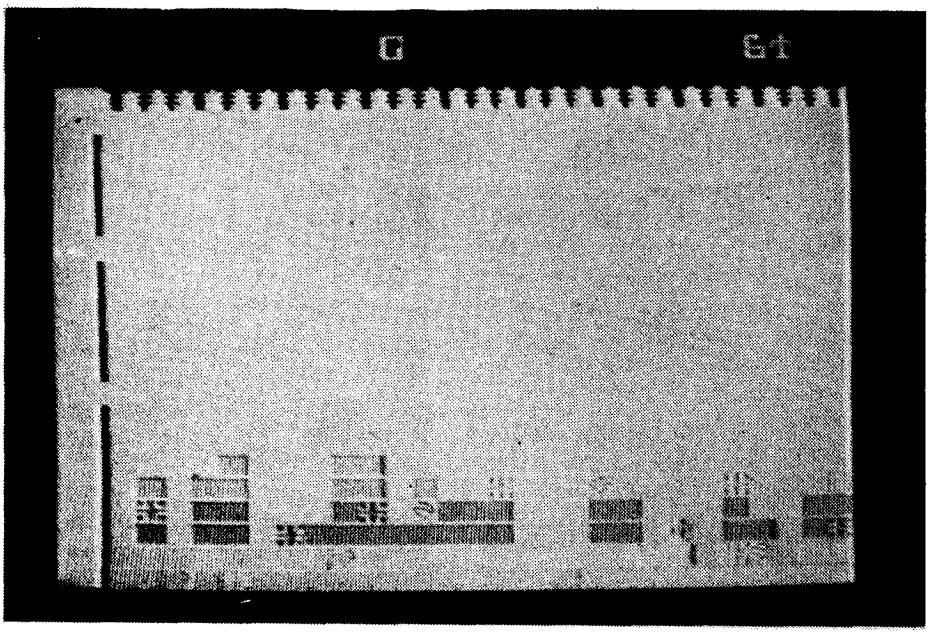
(Please turn to Page 20)

Review

Report Card

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

Cost: $15.95 (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



Sky Diver

Jump out, and Geronimo!

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 bullseye 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 percent 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 bullseye. 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 preceed 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

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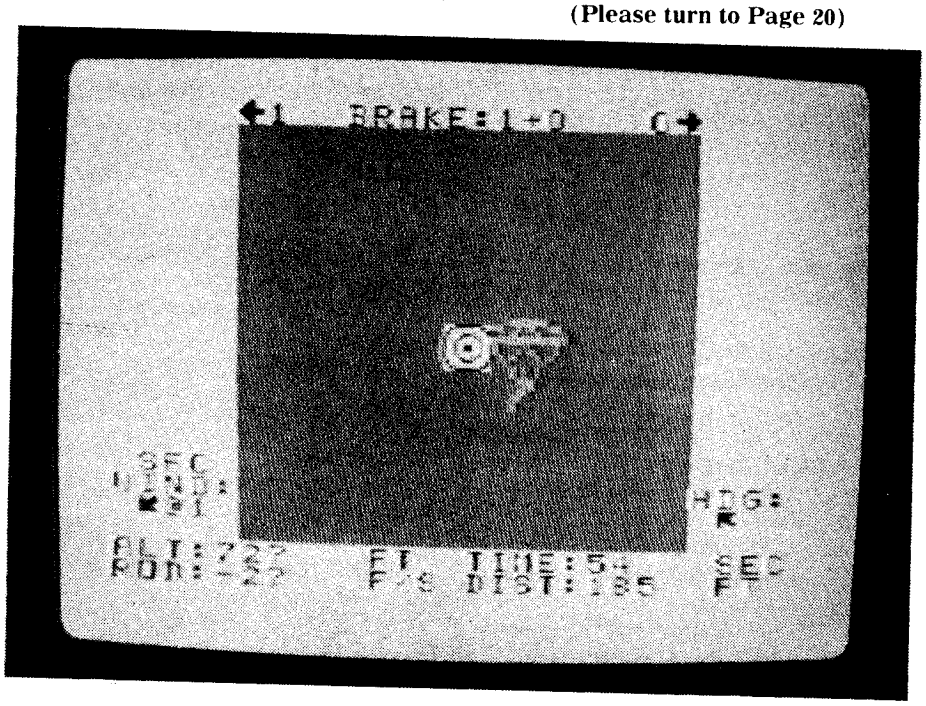
Review

Report Card

Performance	**A**
Ease of Use	**B**
Documentaton	**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



Mail-Call

For your appointed rounds

Mail-Call is a relatively new applications program for the TI99/4A home computer. Utilizing relative files and written in Extended BASIC, it is more useful than TI'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 (3½ X 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?

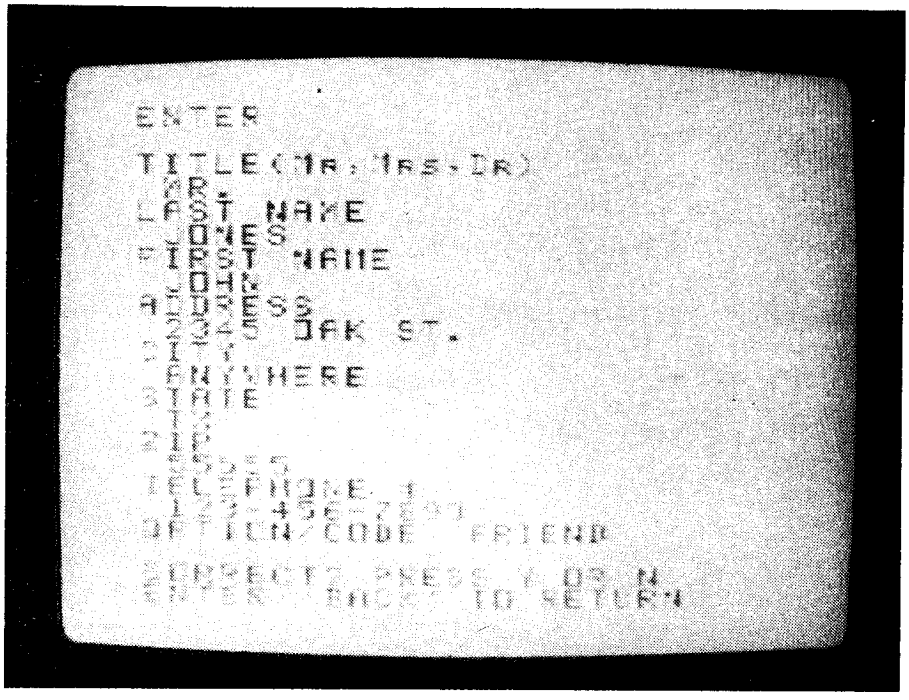
(Please turn to Page 21)

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



Prowriter Printer

Works like it's made for the TI

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 accomodate 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.

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 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

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Home Computer Compendium

This is elongated type.

This is a sample of the type produced by the Prowriter printer. It is typed using the proportional type character set.

This is a sample of the Elite character set showing boldface on two words.

This is a sample of compressed pitch which uses 17 characters per inch.

STAR TREK—

(Continued from Page 14)

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 voice 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 manuevering, 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 keybaord 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 everytime they play a game, this one will provide quite a challenge.

—JK

SKY DIVER—

(Continued from Page 17)

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

PROWRITER—

(Continued from Page 18)

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

GARKON—

(Continued from Page 16)

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

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. The 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 intraoffice 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 Sofware, 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 TI99/4A 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.

MAIL-CALL—

(Continued from Page 19)

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

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 Function 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=99 THEN 1090
1030—FOR NOTE = -5 TO 30 STEP 5
1040—VOLUME=ABS(NOTE)
1050—CALL SOUND(-99,TONE,VOL
UME,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 Function REDO key. You may start your scrolling anywhere you'd like by NUM and the line number. Then hit the Function 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 Function QUIT key inadvertantly. 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 two-liner that disables the Function 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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Software for Sale

RECORD KEEPING

Flex-File program allows translation of Personal Record Keeping module files into a format which can be accessed by your BASIC or Extended BASIC programs. Use data from your module files without restraints imposed by the module. Write programs to perform customized data analysis or print specialized reports. Program uses "secret" module routines to allow access to data files. Send SASE for catalog or $9.95 for cassette or $10.95 for disk to TSS SOFTWARE: 8249 Bunnell Hill Rd.; Springboro, OH 45066.

STOCK MARKET

Stock market analysis based upon fundamentals developed by the National Association of Investment Clubs. Educated judgment is an essential element for your investment success. Kit includes an 81 page investment manual produced by the NAIC. This manual is the nation's most widely used text for learn-by-doing investment and covers many topics which explain the time proven methods developed by the NAIC organization. The Extended BASIC computer program included in the kit speeds usage of the decision making techniques presented in the manual and allows rapid computer record keeping and math calculations. Send $28.95 for cassette or $29.95 for disk to TSS Software: 8249 Bunnell Hill Rd.; Springboro, Ohio 45066.

TI-99/4A SOFTWARE BARGAIN!

A complete library of 100 Terrific cassette programs ONLY 50 cents each! A GREAT BUY! Send for Free Catalog. THE EXCHANGE, HCC-2, P.O. Box 46, Sterling, VA 22170.

TI-99/4A SOFTWARE

125 programs available, only $3 each! Not public domain, not translations, not pirated, not brief routines, these are absolutely original innovative programs utilizing full color and sound capabilities of the TI-99/4A. Programmed in BASIC but XBASIC etc. often optional. Games, education, music, displays, programmers' aids, etc. Catalog $1, refundable. Tigercub Software, 156 Collingwood, Whitehall, OH 43213.

LEARN by experience. Motivating interactive educational software for the TI99/4A, designed and field-tested by professional educators. Free Catalog. Specialities include Math, Science, Administrative and Authoring system. Intellestar, 25 West Middle Lane, Rockville, MD 20850, (301) 251-0046. Phone orders accepted.

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