

# Peelings II<sup>TM</sup>



THE MAGAZINE OF APPLE  
SOFTWARE AND HARDWARE EVALUATION

VOL. 4, NO. 8  
1983  
\$3.00  
DATA MANAGEMENT  
HOME ENTERTAINMENT

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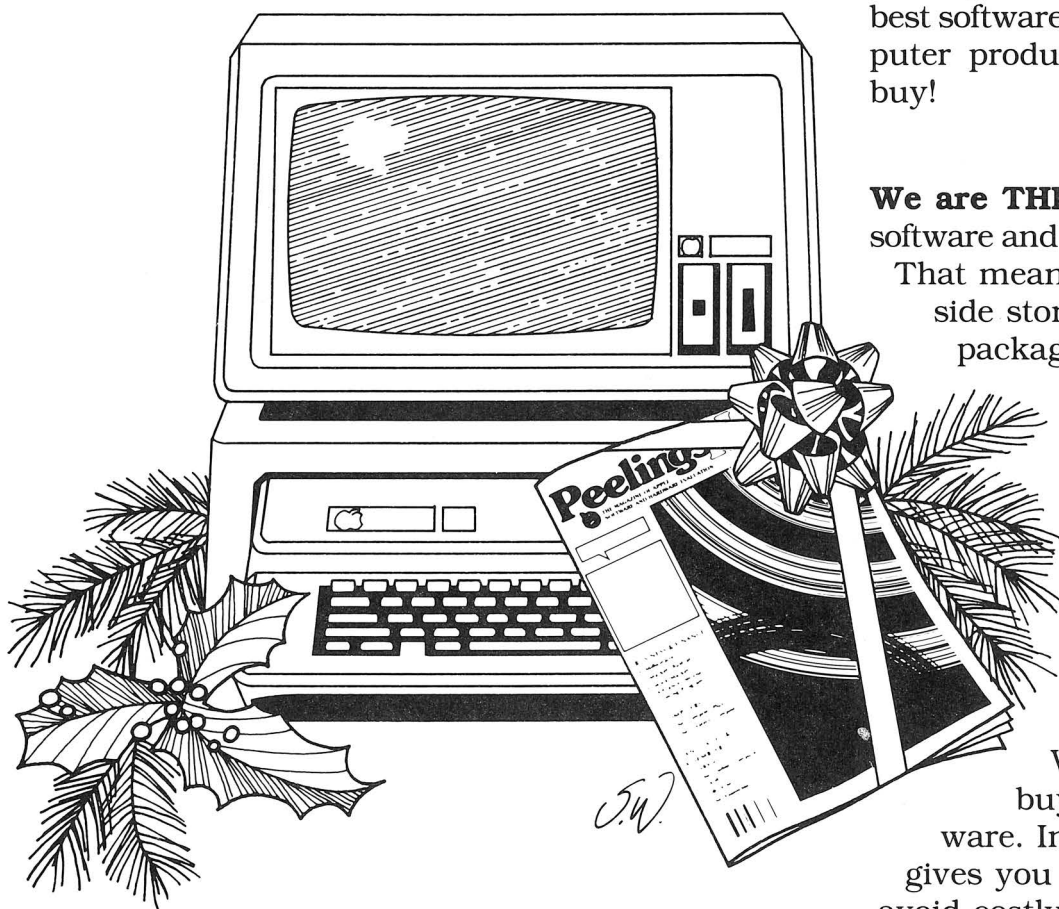
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THE MAGAZINE OF APPLE  
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# THE ANYTHING MACHINE

## Chapter Eight: DATA DEBASEMENT

*by Tom Little*

---

As often as computers are used for keeping records, it is surprising how much mystery has grown up around the topic of data base management (DBM). This month's column will not be a discussion of all the powerful DBM systems available: the magazine's reviews do a much better job of this than I could. Instead I'll discuss some of the basic principles of record keeping on a computer. These principles should be of value both to the amateur programmer who would like to write a modest data base manager, and to the consumer who would like an overview of the topic to aid in making purchasing decisions.

### THE GREAT MASS

The first consideration in computerized record keeping is the amount of storage which is going to be required for your records. Nowadays, all Apples (and just about all other small computers) have at least one disk drive and 48K or 64K bytes RAM memory. A single floppy disk can store 125K bytes of data, more or less. The best general rule is one character equals one byte. That is, about 100 bytes will be used to store a string of text containing 100 letters, digits, spaces, and punctuation.

The amount of storage needed can be reduced if some of the information can be coded. For example, a date can be coded into three numbers, each of which need take up no more than a byte. The data base program can display 10,25,83 as "October 25, 1983" on the screen, and still not have to waste the memory required to store 16 characters in memory or on disk. It is truly amazing how many things can be encoded in this way, and a data base management system customized to a specific application can squeeze every last bit out of the available storage.

There are two great disadvantages to compressing and encoding data. The first is that it tends to make a system inflexible. In the example above, the date format is not agreeable to dates before 1900 or after 1999. Furthermore, if the user wanted to mark some dates with an asterisk for some reason, the program would very likely be disagreeable. Note, of course, that the program can easily be *written* to accept any interesting information. The

problem is that what the program will or will not accept is essentially frozen at the time of its writing. This is very poor for those of us who like to regard the computer screen as a blank page, on which we can make any notations we find appropriate. In general, encoding and compression of data reduces flexibility. Sometimes this may be desirable, often it is not.

The second disadvantage to encoding data to save space is that the data thus produced will probably be indecipherable without the aid of the program which created it. For a system dedicated to data base management, and continuously running a single, professional program, this is not a problem. A modest-sized system, however, might not provide all the possible features for using the data base. The user might want to sort his records with a separate sorting program. He might want a printout in a different format than that provided by the data base program. He may want to alter some of the information in an unconventional way to suit his own needs. Furthermore, if the data base program should fail in any way, encoded and compressed information is essentially inaccessible to the user. This applies with fury to programs which keep their data on disks with nonstandard formats. For maximum utility, a data base program should keep its files in a text format, such as could be read into a word processor and edited.

Naturally there is a trade-off between the special space- and time-saving features that a custom-tailored data base program can provide and the accessibility of the data and the flexibility of its format. Both sides need to be weighed carefully before storing large amounts of data in a computer. For some applications, a word processor may be all that's needed. Many word processors have powerful search functions and report-formatting commands. The word processor as data base should not be ignored.

The data base program comes into its own where all the data is stored in relatively rigid format (e.g., a mailing list which contains precisely the name, address, phone number, and perhaps some other fixed items about each individual), or where some special organization is to be imposed on the data (for example, in a genealogy program,



where individual records need to be accessed on the basis of several different relationships with other records). A data base program can also be written so as to severely restrict the entry of invalid data: it can check entered dates for intelligibility, can check spelling, and will ordinarily prompt the user specifically for only those pieces of information needed. This is tremendous, provided that the items requested by the program are the same ones the user needs to file.

With the storage format known, the user can proceed to calculate how much storage will be required to keep his records. For a project of any size, several floppies will be needed. This need not present a problem, even with a single-drive system: the program can prompt the user to exchange disks when a new file is needed. The key is to group the records onto the disks in such a way that swapping is as infrequent as possible. Furthermore, there should be minimal exchange of information between disk and memory. This means that individual files should be of a size which can be loaded into memory all at once.

Here is another design decision: should the disk file be updated every time a change is made to the data base, or only when the user is finished altering a whole file and wants to save it. The first method is a safeguard against power failure and against managing to avoid saving the

file at the end of the session. Its disadvantage is that it is more time-consuming, and may not give the user the option not to save a change which itself is incorrect.

These are all general problems of dealing with large quantities of data. They apply even to handmade programs, written in BASIC or Pascal. Too often these issues become tangled with the actual workings of a data base program, but they are more fundamental considerations which genuinely depend only on the disposition of the user and the nature of the data being stored. The advice to the prospective data base management system (DBMS) author or purchaser is: first, think about yourself and your data base. Careful consideration of the amount and nature of the data should answer many questions about the type of program needed, before finger ever touches key.

## GETTING IT TOGETHER

The heart of every DBMS is the scheme used for the organization of data. There are two basic methods which are used by all record-keeping programs.

The first of these is the array. An array is simply a table of data in the computer's memory which is indexed numerically. Nearly all programming languages have provisions for using array variables. Consider the following lines of BASIC:

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3. DUMP Binary/Ascii to screen or printer.
4. DISA disassembles Binary to screen/printer.
5. AL prints program Address & Length.
6. / Single keystroke, second Catalog command.
7. HIDOS moves DOS to the Language Card.
8. FIND hex group in 64K memory in 3 seconds.
9. DATE prints out. Use with Mtn. clock card.

Commands 8 & 9 in Hidos only.

### 10K More Memory

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```

10 DIM NAME$(20): DIM YEAR(20)
20 FOR I=1 TO 20
30 INPUT "NAME:";NAME$(I)
40 INPUT "YEAR:";YEAR(I)
50 NEXT
60 FOR I=1 TO 20
70 PRINT NAME$(I); " ——— ";YEAR(I)
80 NEXT

```

A record kept in array is accessed by a combination of the array name and a numerical index. Thus as the variable "I" takes on the values 1 through 20 in the first FOR-loop, the INPUT statement refers to successive slots in the "NAME\$" and "YEAR" arrays. These arrays are depicted in Figure 1.

If the index for a record stored in an array is known, the record can be accessed very rapidly. This is a main selling point for an array. Another selling point is this: if the elements of an array are arranged in a sorted order, they can be located quickly. The process is similar to finding names in a phone book. Each name has its slot, and the alphabetical ordering allows you to "zoom in" quickly on any particular name. (With a real data base there is the problem of which part of the record to sort on. In our example, we may want to have the array sorted by alpha-

NAME		YEAR	
1	JOHN DOE	1	1965
2	MARTHA JONES	2	1972
3	JAMES WATT	3	1984
4	CHRIS COLOMBO	4	1492
5	JOHN MARTELLARO	5	2001
≈		≈	
20		20	

FIGURE 1. Data stored in an array.

betical order on NAME\$, or by numerical order on YEAR.)

Now some of the bad news on arrays. The first inconvenience is that the size of an array (the number of slots) is fixed (e.g., by the DIM statements above). This means you can't add more records past this number without rewriting the program (for example, by substituting "50" for every "20" above). With only one set of data this is

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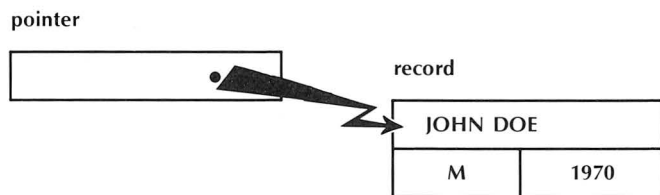
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no real problem, because it's not too difficult to figure out just about how many records the computer's main memory will accommodate and to declare the array to this size. If there are two or more different data sets in memory together, however, the array system can be quite wasteful (you may run out of space in one array while large portions of others are unused).

Another problem is inserting and deleting records of an array. This can be done by simple assignments to the appropriate array elements if the array is not sorted. If you want to keep the array sorted (e.g., names in alphabetical order), then the only way to do an insertion is to find the correct spot for the new item, move all the items in subsequent spots down one slot to make room for it, then put it into the vacated slot. In general, the amount of time necessary to insert an item into a sorted array is proportional to the number of items already in the array, which can be very large.

The other method for organizing data is the pointer. A pointer is a piece of information which indicates an individual record directly. This is usually depicted as shown in Figure 2.



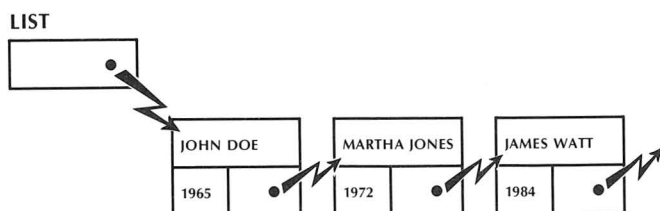
**FIGURE 2. Data access via a pointer.**

A pointer may be an actual machine address for the record or any datum which unambiguously specifies a single record to the machine or program.

Pascal has pointers built in, BASIC does not. In BASIC it is possible to simulate pointers, with considerable effort on the programmer's part and considerable loss of efficiency.

When pointers are used, the variables which contain the records are not declared explicitly. Instead, there is a special instruction (NEW in Pascal) which allocates space in memory for a new record, and provides a pointer to it. The data are then accessed *indirectly* through the pointer.

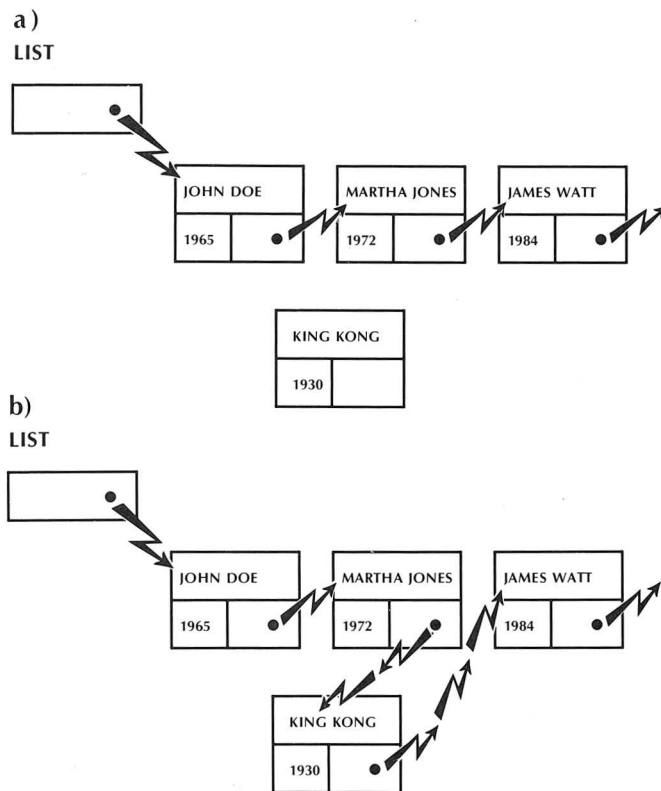
The advantage to this strange way of creating variables becomes apparent when you consider that pointers can be part of a record themselves. This allows you to connect records with one another, as shown in Figure 3.



**FIGURE 3. A linked list.**

This illustration shows a linked list, where each record contains a pointer to the next one.

A linked list solves the array memory-wasting problems: space is allocated for a record only when it is actually needed. Furthermore, insertion is easy, consisting only of altering a few pointers (see Figure 4).



**FIGURE 4. Insertion into a linked list.**

The disadvantage with this structure is that to get to any item on the list, it is necessary to traverse the chain of pointers. There is no immediate selection of a particular element, as with arrays. Also the pointers themselves take up space in memory.

There are numerous ways in which to organize data using pointers. Consider that each record may be arbitrarily linked to an assortment of others via pointers. Not only chains but rings, trees, and networks can be constructed using pointers to link records.

Once again, it is important to emphasize that the choice of implementation depends on the nature of the data. This is why there is no *best* data base organization. If the information is sorted and to be accessed by its ordering, and there are few insertions or deletions expected, then an array may be a feasible solution. If the data base is a constantly changing list which is always accessed as a whole (for example, a mailing list whose elements are never printed individually), then a linked list using pointers may be the solution. Other data imply other structures. There have been many excellent books written on data structures and their advantages and disadvantages for sorting, searching, and modifying.



## RELATIONAL DATA BASES

A different tack can be taken on the whole subject. If the data base is large and general-purpose, it is desirable to allow all manner of queries. Thus, the user should be able to request not only a printout of John Doe's address but also a printout of the addresses of all individuals who work for James Dolt and live in Kentucky. This kind of query is much more complicated. A simple-minded database program will usually have no recourse except to check each record in memory to see if it meets the imposed condition.

A relational data base management system (RDBMS) is one which is built around the idea of this kind of query. The approach used is to store tables of relations, containing pointers to the records themselves. In the example, the program would look up the name of James Dolt in a table which contains the employer-employee relation. This would result quickly in a (hopefully) short list of pointers to James Dolt's employees. Then the table containing the state-of-residence relation would be accessed by the key "Kentucky", producing another list of pointers indicating residents of Kentucky. The two lists would be compared,

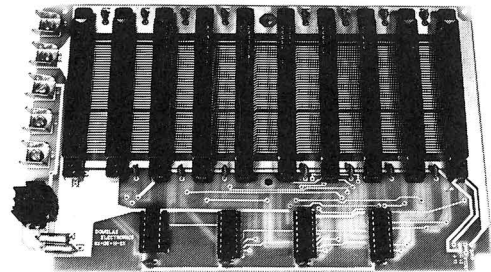
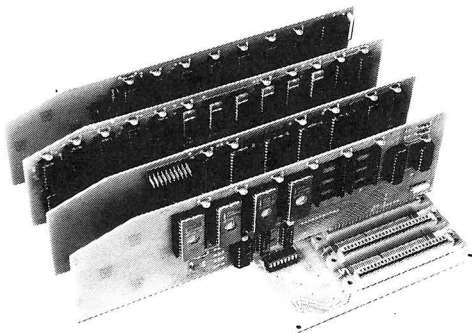
and the pointers common to both would be used to access the actual data.

It can be seen that for a truly general relational data base system, there will be many, many tables of relations. Managing the tables is then a data base problem in itself. The RDBMS is the heavy artillery of the record-keeping world, and a full-featured one is nearly always doomed to impracticality. Still, the idea of using tables to simplify processing the most common queries is a valuable one, which is incorporated, to a greater or lesser extent, into many professional systems.

The bottom line is that a lot of thought needs to go into doing any large-scale record keeping on a computer, whether you're a programmer or a purchaser. There are no right answers, no best systems or methods. Perhaps the best advice is: as long as you're not certain exactly what your present and future needs are, use a data base program which keeps its files in an easily readable and usable form. That way, upgrading need not mean retyping.

Next time The Anything Machine will feature word processing, "anything -3". After that comes the last hurrah of this column: a sidelong glance into the future of computing!□

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# ZAXXON

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*Apple version by John Garcia*  
*Datasoft, Inc.*

9421 Winnetka Avenue  
Chatsworth, CA 91311  
213-701-5161

\$39.95

Rating: AA+

Reviewed by Michael L. Weasner

## INTRODUCTION

The arcades have come to the Apple. In the past, there were many games for the Apple that claimed to be just like the arcade version or have arcade quality graphics and sound. Very few could live up to their namesakes. That is, until Datasoft brought ZAXXON to the Apple. This is the arcade game, with all the graphics and sounds of the original. Mr. Garcia has done an admirable job in transporting the game to the Apple computer.

In ZAXXON, your mission is to fly your spacefighter over an alien landscape that is protected by surface-to-air missiles, gun emplacements, enemy ships and at the end is a robot with a homing missile. Along the way, there are a multitude of targets for you to destroy and objects to avoid. To enjoy ZAXXON, you will need a good joystick and preferably a color monitor or TV. In addition, the Mockingboard line of sound interface cards are supported to provide arcade quality sound. Sound can be turned on/off, and the game can be paused at any time. Up to two players are supported, and their

scores are displayed along with the highest attained score.

The documentation is a full-color, eight-page description of the game, the individual targets, scoring, and hardware requirements. Very high quality for a game.

## PLAY

In the November 1982 issue of *Peelings II*, I discussed some standards for flight simulators. I mentioned that color should be used where appropriate. Although not a simulator, ZAXXON does come the closest to being a full-color flight simulator.

You can dive, climb, bank left and right, fire your guns, and because of the three-dimensional aspect of the graphics, you will actually feel as though you are flying. There is even a shadow of your spacecraft to aid you in altitude determination. Some instruments are provided: altimeter scale along the left side of the display, fuel gauge on the bottom; the number of enemy ships and your ships remains in the lower-right corner. You must fly to avoid running into the walls or other objects but must also destroy fuel tanks to keep from running out of fuel. The rate of fuel flow depends on your altitude; at maximum altitude your fuel is depleted in about 10 seconds, and you will crash.

There are three sections to the game: two different landscapes with a space battle in between. If you are successful in completing all three, then the game repeats but with ever increasing difficulty. You will start each game with three spaceships, but once you manage to score 30,000 points, you will receive an extra ship.

Points are received for each target destroyed, and there are many bonuses available. Overall, the play is very responsive and challenging. Unfortunately, the play is made somewhat more difficult by an offset in the hit parameters; you must not aim precisely at the targets but offset slightly in order to score a hit. Also you can be destroyed by a missile or cannon when you thought you were safe. This is the only bug I discovered in the game, but its seriousness warrants correcting in later versions. Once you become accustomed to this offset, you will tend to ignore it in the heat of the battle. If you have not played ZAXXON in the arcades, you will probably find the rate of fuel consumption to be frustrating. But again, once you get used to it and discover that you really must continually destroy fuel tanks to stay alive, the game becomes challenging and not frustrating.

## SUMMARY

The program disk is warranted for 90 days, and there is a registration card provided to insure that you are covered. Returning the card also gets you a full-color ZAXXON iron-on transfer. The bug mentioned earlier and the lack of a save-high-score-to-disk capability detract somewhat from the excellence of ZAXXON. However, there is no doubt that ZAXXON has replaced CHOPLIFTER as the game to have. Games for the Apple computer have a new standard in smooth, color graphics and sound, and maybe flight simulators too. Make ZAXXON your Christmas present to your Apple. □

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# ADVENTURE GAMES: WHY NOT FOR CHILDREN?

*by Sandy Abernathy*

---

Man is a curious creature. On one hand he craves stability, and yet on the other hand he seeks activities which will challenge him and give him a sensation of risk. Challenges take many forms. As a child, did you call down the magical incantation, "Step on a crack and break your mother's back", and then try to avoid the cracks in the sidewalk? Did you walk backyard walls even after

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your mother told you not to? Do you like mountain climbing, hang gliding, or ballooning? Maybe you have a passion for jigsaw or crossword puzzles, or possibly your interests lie in exploring the worlds of Tolkein, Stephen Donaldson, or Arthur Conan Doyle. Have you ever done something in a more complicated way just because it made the activity more interesting? All these involve some sort of problem solving. The last one not only involves solving a problem, but also creating one.

Adventure games, too, pose a problem for the player to solve. Until now, however, adventure games have been designed for the adult. Those who play must be able to remember clues, locations of rooms and objects seen earlier, remember commands and object words acceptable to the computer and spell them correctly, move through complex environments using compass points, accept the possibility of being killed, and, above all, be very patient.

Elementary school teachers are always looking for games, activities, books, and other materials to stimulate the imagination of their students, to encourage them to use their reading skills to gather information, and to develop problem solving skills. Finding activities that are not contrived and are on the level of students, that will hold their interest and provide practice for these skills is often difficult.

Adventure games are one type of

activity that can satisfy these criteria. They are imaginary and so not contrived, and appeal to the inherent sense of adventure and challenge in everyone. Reading skills are used to solve a problem. The player must read the material, analyze it, make a decision and live with the consequences. Developing game strategies will help the student play the game. In addition, he or she must have or develop a sense of directionality in order to successfully complete adventure games.

Adventure games are well suited to the microcomputer with color and high-resolution graphics capabilities. Sequences can be programmed that will convey a sense of movement through three-dimensional space. An adventure program has the capability of branching from one scene to any other, so the creator can set up whatever paths are most appropriate for the target group. With appropriate scenarios and reading levels, adventure games can be designed for the more elementary player.

With the advent of microcomputers in elementary classrooms, it has been only a matter of time until someone wrote an adventure game for this group, and finally, someone has done just that. Here are two adventure games designed for the beginning adventure game player who reads at the second- or third-grade level. I hope this is a forecast of many more quality adventure games for the elementary-school-age group. □



---

# ELEMENTARY

## ADVENTURE GAMES

### DRAGON'S KEEP      TROLL'S TALE

---

*by Al Lowe and  
Michael MacChesney*

*Sierra On-Line, Inc.  
Sierra On-Line Building  
Coarsegold, CA 93614  
209-683-6858*

*\$29.95*

*Rating: AA*

*Reviewed by Sandy Abernathy*

*by Al Lowe and  
Michael MacChesney*

*Sierra On-Line, Inc.  
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Coarsegold, CA 93614  
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*\$29.95*

*Rating: AA*

#### INTRODUCTION

Sierra On-Line has produced two introductory adventure games for the real beginner. Texts are written at the second- and third-grade level. Although aimed at the primary crowd, older players with low reading levels or those with no concept of what adventure games are like could play these and enjoy the experience.

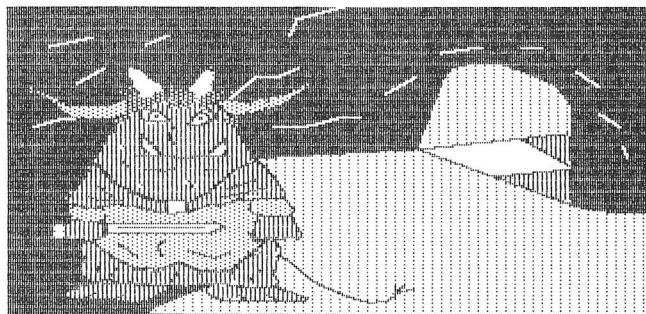
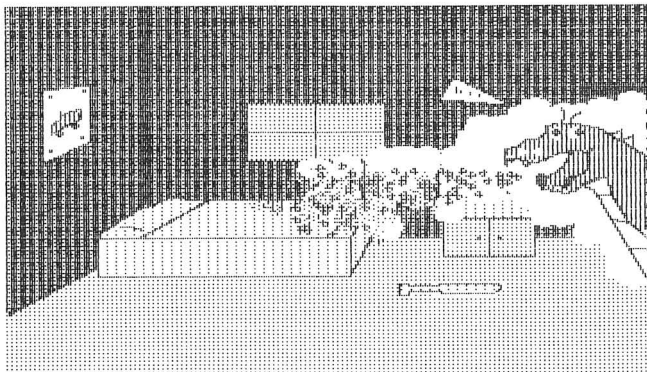
The real beauty of these games is the three-dimensional, high-resolution color graphics used throughout. They give the player a real sense of space and directional movement as he or she moves through the game's environment. The text is displayed at the bottom of the screen and consists of a sentence telling something about the

current location and a set of up to three choices for the next move. Appropriate choices are fairly obvious, but no penalties are attached to the selection of less desirable ones. In fact, the player is almost invited to try these out as well. The author has a delightful sense of humor that emerges through the "silly" choices. Exploration of all possibilities, of course, will give the player more time to explore the world and to develop a sense of directionality. The games are easy to play since only the Space Bar and the RETURN key are used.

Both packages require 48K and a single disk drive. Although written for a color monitor, they can be played using a monochrome set. This is not possible with some software. Best of all, the sound can be toggled on and

off so the game can be played when quiet is essential. This may be necessary during a study period in school or early on a Saturday morning when parents are still sleeping. The sound effects really aren't that loud, but in certain situations they might be annoying. Every programmer who allows the player to control the game's sound should receive an automatic reward of some sort.

The games contain the basic elements of an adventure game: a scenario which can be played out a number of ways, depending on decisions made during game play; directional movement; hidden objects; and obstacles. If you want to introduce adventure games to someone who can read at or above the second-grade level, these two games are an excellent way to do so.



**SAMPLE SCREEN GRAPHICS FROM DRAGON'S KEEP  
AND TROLL'S TALE**

## GAME DESCRIPTION

The games are similar in many respects. Both use three-dimensional, high-resolution pictures to show the current location. Directional words are used to describe the scene and alternative moves. The combination of pictures, text, and game progression helps the player develop a sense of three-dimensional space as well as a sense of logical consequences.

With these games the player does not need to know how to spell words, to remember commands, or to figure out which words the computer will accept. Choices are listed. The player must read them and select one in order to continue the game.

The games are played using only two keys, the Space Bar and the RETURN key. Practice using these keys is provided at the beginning of the game. If the player answers "N" to the question "Have you played this game before?", he or she can change the color of the screen or see a surprise by pressing these keys. First the picture is drawn and the color is filled in, and then the text is displayed at the bottom of the screen in regular size uppercase letters. The first sentence usually describes the current location. The next three lines usually list three choices from which the player can select his or her next move. Next the player presses the Space Bar to move the cursor next to the desired choice and then presses

RETURN to load the next sequence. Although almost every choice involves disk access, loading time does not appear to hamper game play. If anything, it might heighten the suspense.

The game's environment is stable. Rooms, doorways, stairs, etc. do not change or move. This aspect is very helpful for players who are just beginning to orient themselves within their own world. It means that they can explore the environment and trace and retrace paths and begin to develop a sense of direction. "If I go right this time and then left next time, I'll be back where I started." Mapping skills are very hard to teach primary-age children without physically involving them. These games can give the child a physical sense of direction and movement lacking in most mapping activities. The computer's ability to provide immediate feedback to the player is invaluable in developing these skills.

Valuable objects also remain in the same place. If the player cannot collect one the first time it is discovered, he or she can go back at a later time and retrieve it. The opportunity to know where an object is and then to try to trace the path to the spot can encourage the development of visual, spatial, and memory skills.

Both packages include a very simple map, picture stickers of the 16 hidden objects and a compass rose, and a Parent Guide. The Parent

Guide is merely a folder which describes the object of the game, its educational value, and how to play. Since the game is self-sufficient, this is all that is absolutely necessary.

The game environments are risk free, that is, the player cannot be harmed nor can he or she harm others. This allows the player to try all choices and explore the logical consequences of a particular act. There is an element of danger, however, which the player can make as scary as he or she wishes. At random times, a guardian of the treasure appears. With the appearance of this creature, no objects can be collected.

The games have an altruistic, playful nature. Both elicit help from the player for a character or characters in the game, and both have possible decisions that are there just for the fun of it. These fun selections encourage the player to try all possible paths in the game just to see what will happen. The text gives the illusion that another game player, just off the screen, is talking to the player and describing the scenes.

The sense of fun, the risk-free environment, and the altruistic flavor should appeal to girls as well as boys. The games are designed for one player, but they can be played by a small group.

Although similar in many respects, the two are designed for slightly different audiences. DRAGON'S KEEP



is the more elementary of the two and presents the player with very fundamental concepts. TROLL'S TALE is more complex and introduces the player to more elements found in most adventure games.

## DRAGON'S KEEP

DRAGON'S KEEP is written at the second-grade level. The object of the game is to free 16 animals located in a house or in the surrounding countryside. The scenes should be familiar to the young player, and this familiarity should help orientation in the game.

The environment is simple and consists of a few rooms on the first and second floors of a house, the basement, the roof, and several spots outside. The animals waiting to be rescued are those found in many second-grade readers and trade books and include a puppy, calf, frog, fish, raccoon, and bear. Each animal is recognizable in the pictures. If, during the game, the player wishes to see what animals have been found, he or she can press the F key and the list will be displayed. Directional words used in the game include "right", "left", "above", "in", "into", and "down". Although a compass rose sticker is included, the words, "north", "east", "south", and "west" are not used. The compass rose sets the scene for the next game in the series, TROLL'S TALE.

The path to a trapped animal is obvious. The basic obstacle in this game is the ability to move around in the environment. For a student who is just beginning to develop a sense of direction, this is enough. A dragon has been added to the game to give it a fillip of danger. This creature provides a minor obstacle by appearing at random times and preventing the player from rescuing any animal in the current scene. Since neither the dragon nor the player have the ability to hurt each other, the green dragon with his magical red fire makes a nice, safe, scary addition.

The parent or teacher may want to laminate the simple map included in

the package. This will allow the player to place the animal stickers over the correct circle location and then remove them at the end of play. In this way, the map and the stickers may be reused.

To give you a flavor of the game, here are two text sequences.

**"THE BUTTONS IN THE ELEVATOR SAY:**

- 1. DOWNSTAIRS HALL.**
- 2. UPSTAIRS HALL.**
- 3. FUN!**

**(Select 3 and press RETURN).**

**A LOUD NOISE SOUNDS AND THE LIGHTS GO OFF AND ON. THIS IS HOW THE DRAGON HAS FUN.**

**PRESS RETURN TO CONTINUE:"**

**"THERE IS A VERY TALL TREE IN THE FIELD.**

- 1. GO TO THE BARN ON THE RIGHT.**
- 2. GO TO THE FIELD ON THE LEFT.**
- 3. CLIMB THE TREE.**

**(Select 3 and press RETURN).**

**(Something happens, and then...)**

**YOU ARE IN THE TREE.**

- 1. JUMP DOWN.**
- 2. BE CAREFUL AND CLIMB DOWN.**

**(Be reckless and choose 1)**

**YOU ARE TOO HIGH. YOU HAVE TO BE CAREFUL IF YOU WANT TO FINISH THE GAME.**

**PRESS RETURN TO CONTINUE:"**

**(If anything other than RETURN is pressed, the word RETURN flashes).**

## TROLL'S TALE

TROLL'S TALE is written at the third-grade level. This game bears a greater resemblance to the typical adventure game. The world is imaginary and is larger and more complex than in DRAGON'S KEEP. A valuable object must be found in order to begin the search, and clues are given at the beginning. Choices are less obvious than those of DRAGON'S KEEP and do not always produce the same result. The player who has mastered DRAGON'S KEEP and

can read at this level should find this adventure game challenging but not insurmountable.

As with many adventure games, the scenario begins with the search for a useful object. Once found, the player is led to valuable clues which must be read in order to learn the object of the game. The player is requested to retrieve King Mark's 16 treasures which are hidden in an underground world. The guardian is a "gruesome" troll right out of *Where The Wild Things Are*. It appears at random times and prevents the player from collecting the treasures. The "F" key has the same function here as in DRAGON'S KEEP.

TROLL'S TALE has more paths, passageways, and chambers than DRAGON'S KEEP. The illusion of distance is more pronounced, and the player will have to play the game more times to become familiar with all the locations in the world. In addition, an element of instability has been introduced. If certain alternatives are chosen, the player may find himself or herself suddenly transported to another part of the world. The player can control this by not selecting these choices.

This world is located underground. The creator of the game has balanced familiar scenes such as buildings, rooms, and a well with less familiar scenes such as underground passageways and chambers. Again, the main obstacle is the ability of the player to find his or her way through the various paths. The direction words "north", "east", "west", and "south" have been introduced into this game. Some text passages include translations from "right" and "left" to "east" and "west". The compass rose sticker included in the package should be helpful. The game is challenging enough that the teacher or parent may want to show the player how to use graph paper to map the underground land as it is explored. The map included in the package can act as an overall schema.

Here are two sequences from the game:

**"YOU SEE SUNLIGHT TO THE NORTH.**

- 1. GO TO THE EAST. (RIGHT)**
- 2. GO TO THE WEST. (LEFT)**
- 3. GO TO THE NORTH."**

**(Select one of the choices).**

**"YOU ARE ON YOUR KNEES IN A NARROW HALL.**

- 1. CRAWL INTO THE CAVE TO THE NORTH.**
- 2. STAND UP!**
- 3. GO THROUGH THE DOOR TO THE EAST.**

**(Select 2 and press RETURN).**

**OUCH! YOU BUMPED YOUR HEAD**

**AND I DID TOO. I STOOD UP AT THE SAME TIME THAT YOU DID. PRESS RETURN TO CONTINUE:"**

## **SUMMARY**

Students will probably not have a chance to complete either game in one sitting. Game play cannot be saved on the diskette. These limitations mean the player must retain information over a period of time and develop a play strategy in order to successfully complete the games. The design of the games allows a player to explore sections of the world without having to trace through those parts already explored.

These adventure games are design-

ed for the beginning adventure game player who has a reading level at or above second grade. The games are not scaled-down versions of adult adventure games but are designed specifically for elementary school students. They should give the player a reason for reading and encourage the development of directionality, memory retention, and problem-solving skills. They are suitable for both classroom and home, and are easy to use and bug free. Above all, they are fun. However, be careful. If your players like this type of game, you may create in them an insatiable thirst for more of the same!□

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# **MICRO MOTHER GOOSE**

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*Software Productions, Inc.  
2357 Southway Dr.  
P.O. Box 21341  
Columbus, Ohio 43221  
614-486-3563*

**\$39.95**

*Unlocked  
Game paddles required*

*Rating: AA*

*Reviewed by Sandy Abernathy*

## **INTRODUCTION**

MICRO MOTHER GOOSE is a well-designed software package for young children. The cover suggests it is suitable for ages three to nine. It includes an unlocked diskette with nine nursery rhymes and three games, a readable manual for parents, a Micro Do's and Don'ts poster, six Mother Goose stickers, and an extra diskette label for the working copy. Fingerprints have been added to the label to show where it should be held. If you have

an Apple computer and small children who want to play with it, this program would be an excellent introduction. Since the diskette is unlocked, you don't have to worry about ruining your one-and-only copy. Make several backup copies and put the original in a safe place.

## **THE MANUAL**

The manual is full of information. The program is basically self-explanatory, so the producers of MICRO MOTHER GOOSE could have marketed the diskette by itself. Instead, they wrote detailed directions for playing the games and rhymes and all sorts of suggestions to make the computer experience more enjoyable for parent and child. The manual contains directions for setting up a computer corner and caring for hardware and software, which will be valuable for those who have just brought their new "baby" home from the computer store. The anecdotes and cartoons about kids, computers, and disasters are entertaining and get the point across that children need to be taught how to use valuable equipment.

The poster included in the package portrays four correct and four incorrect ways to use computers. For instance, one picture shows a hand holding the diskette correctly and inserting it into the drive. The caption reads, "Handle your disks properly. Fingerprints kill them". Nonreaders can understand the pictures without reading



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and "Little Miss Muffet". Their favorite sing-along rhyme was "Twinkle, Twinkle Little Star". When used at home, the program gives the parent the opportunity to read the rhyme as it appears on the screen and to sing the rhyme with the tune. A child will soon join in if this is a fun experience.



The games are the most exciting part of the program to me because two of the three games are constructive rather than destructive. In my opinion, the lack of constructive games in the world of computer games is a real void. The simplest game of the three is "Lamb Scram" in which the player must help three lambs move through a gate to escape the wolf and rejoin Mary. When a player is successful, flowers appear and the rhyme's tune is played. The second is "Splat", a game in which the player tries to catch falling eggs with a basket. The third and hardest is a typical knock-em-down game, but scaled down so younger children can succeed. There are several levels to this game, so it will hold the interest of "older" children. I noticed that with this last game the girls tended to drift away and the boys became very serious and competitive. Although each game is designed to be played by one child at a time, the Apple was surrounded by eager preschool bystanders making suggestions to the current player. With the first two games the nonplayers made comments that showed they wanted to help move the lamb or catch the eggs. With "Bridge Out", the player tried to beat the previous players'

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This package is very carefully constructed, from the manual with its many suggestions for parents, to the exclamation points at the end of game titles which serve to separate games from rhymes. A great deal of educational effort has gone into this package to provide enjoyable experiences for a child or for parent and child together. Attention to minute detail, to the capabilities of young children and their sense on whimsy and cooperation help to make this package one of the new generation of computer games. The ability to make working copies of the diskette is a big advantage. It's nice to know that there are a few software companies that will trust customers *not* to distribute copies to friends. Although this program is designed for home use, it can be used in a preschool or kindergarten setting or in a program where nursery rhymes are being learned. If you have a young, curious child and a new Apple computer, this program may be the package you are looking for to introduce one to the other. □

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3. GO TO THE NORTH."

(Select one of the choices).

**"YOU ARE ON YOUR KNEES IN A NARROW HALL.**

1. CRAWL INTO THE CAVE TO THE NORTH.
2. STAND UP!
3. GO THROUGH THE DOOR TO THE EAST.

(Select 2 and press RETURN).

**OUCH! YOU BUMPED YOUR HEAD**

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Students will probably not have a chance to complete either game in one sitting. Game play cannot be saved on the diskette. These limitations mean the player must retain information over a period of time and develop a play strategy in order to successfully complete the games. The design of the games allows a player to explore sections of the world without having to trace through those parts already explored.

These adventure games are design-



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the text. Some might suggest removing the text since the software is designed for small children who don't read. Having gone through the "I Can Read" phase with my own children when they were between three and five, I like the idea of the text. If a parent reads the captions to the child when asked, the child will soon "read" them by himself.

## THE PROGRAM

The program is unlocked. This is a real advantage when a diskette is used by small children. The "peanut butter and jelly" syndrome may incapacitate the computer, but with the original safely stored, Classic Family Software will survive!

No reading skills are needed to run the program, and only the Space Bar, Return key, and game paddles are used. All other keys are inactivated. There are two menus to choose from. The Blue Menu contains five nursery rhymes and one game; the Orange Menu contains four nursery rhymes and two games. Items are designated by both a picture and a title. A pointing hand indicates the current choice. Pressing the Return key loads the rhyme or game, and pressing the Space Bar moves the hand forward.

Each nursery rhyme sequence is similar. A picture is drawn and colored, the rhyme is typed out, the tune is played, and objects in the picture move if this has been included in the routine. Some pictures are still, some have moving parts, and some have two pages. The first time I used the package I felt that not hearing the nursery rhymes sung might be a drawback to an otherwise good program. In order to test this idea, I took the package to the gifted preschool class located down the hall from my office. They thought it was a marvelous program and had no trouble with the lack of singing since they supplied their own! Most knew the nursery rhymes already, and some could read the rhymes as they were typed on the screen. Their favorite graphics were "Three Blind Mice"

and "Little Miss Muffet". Their favorite sing-along rhyme was "Twinkle, Twinkle Little Star". When used at home, the program gives the parent the opportunity to read the rhyme as it appears on the screen and to sing the rhyme with the tune. A child will soon join in if this is a fun experience.



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## SUMMARY

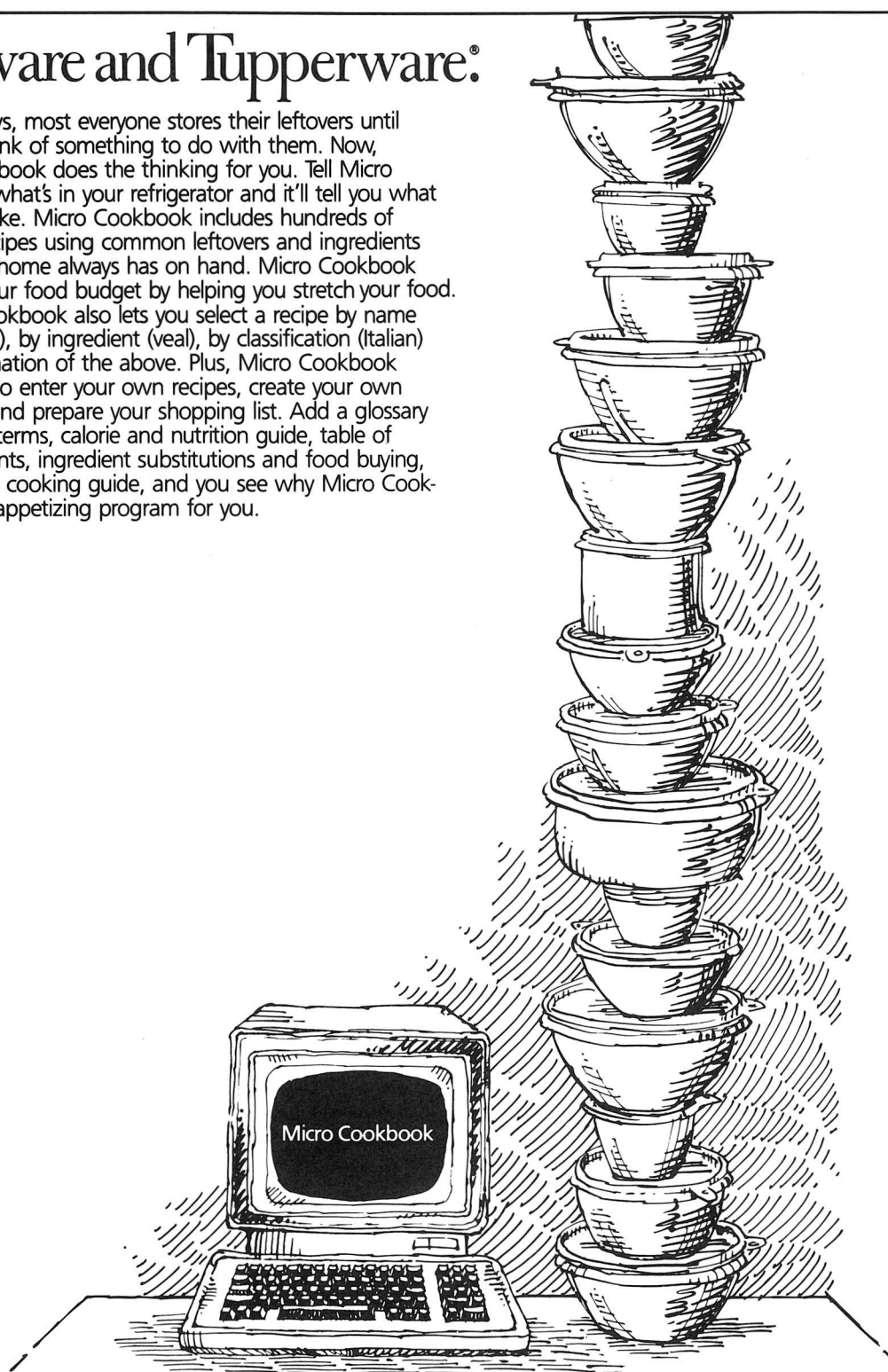
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# GERTRUDE'S SECRETS

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*The Learning Co.*  
4370 Alpine Road  
Portola Valley, CA 94025  
415-851-3160

\$44.95

Rating: A

Reviewed by Larry Ross

## INTRODUCTION

Gertrude's Secrets is a program containing seven highly interactive games which teach and reinforce the attributes of color and shape. Logical thinking must not only be used while playing the game, but is also an integral part of operating the program. THE LEARNING COMPANY recommends this program for children ages four to nine.

## DOCUMENTATION

Gertrude's Secrets was designed to provide somewhat of a discovery approach to operating the program. The written documentation consists of a very small pamphlet which includes a map of the rooms used in the program. Screen documentation enables the player to discover the workings of the program as he/she passes through each room.

## THE PROGRAM

The user is greeted with an absolutely beautiful title page: a picture of Gertrude next to a safe. The next screen page shows how to move a green box which must be manipulated by either four keys or a joystick

throughout the program. This box will be used to travel through the myriad of "rooms" contained in the program and to manipulate the game pieces.

The user now has two options. The first is to travel through the right door, which leads the player through various rooms, each giving instructions on some of the fundamentals needed for the game. The player is actually taught how to pick up and put down objects, move in small increments, move rapidly, and turn on and off the sound. The method of choosing the joystick option for moving the box is also detailed in this section of the program.

The second option is to travel through the left door. This option can be chosen after the user has a thorough understanding of the information taught in option one. The left door leads the user into rooms which are entered to play the game. It is at this point that the room map, provided in the instruction pamphlet, should be used.

There are four special categories of rooms to enter. The first of these rooms is the "Rule Room". There are seven "Rule Rooms", one for each game. Entering this room will provide you with information used to play each game.

The second special room is the "Sample Puzzle Room". This room illustrates a completed puzzle. The combined effort of entering the rule room and the sample puzzle room will give a fairly clear picture of how the game should be played.

The third special room is the "New Puzzle Piece Room". This room is filled with puzzle pieces different

from those used in the game. When a player introduces a new piece into the game, all of the other pieces automatically change their shapes as well.

The fourth special room is the "Shape-Edit Room". The Shape-Edit Room allows the user to pick up a game piece and alter its shape. The game piece is carried into the room and is automatically enlarged. The shape can then be altered by erasing or adding minute squares to it. The new shape can then be entered into the game once again, automatically changing all the game pieces.

There are seven games which may be played in this program. The first is the "3 X 3 Array". A 3 X 3 array is presented. Gertrude drops certain puzzle pieces in selected boxes and the user must decide what the pattern of the array is. The attributes of shape and color are used to determine the pattern and play the game.

The second game is the "4 X 4 Array" and is played the same as the previous game, with the exception that there are now 16 boxes instead of nine.

The third is the "One Loop Puzzle". A predetermined attribute is selected by the computer, or Gertrude, and it is up to the user to determine which three puzzle pieces belong in a box. A process of elimination is used, as inappropriate puzzle pieces fall through the box.

The fourth puzzle, "Two Loop Puzzle", is very similar to the previous game. The difference is that this time interlocking boxes are used with a common space created. Thus, three pieces are inserted into each box, and one may be placed in

the common space. This piece would have one attribute of each box.

The fifth puzzle, "One-Difference Train Puzzle", has a series of six boxes connected to each other with one line between each box. The user must place puzzle pieces in each box such that there is one attribute which is different between each piece. The attributes of color and shape are once again used.

The sixth puzzle, "Two-Difference Train Puzzle", is a variation of the preceding game. This time there must be two differences between each puzzle piece.

The seventh puzzle, "Mixed-Difference Train Puzzle", is a variation of the two preceding puzzles. This time there are some puzzle pieces which must differ in one way

and others which must differ in two attributes.

## EVALUATION

There is no question in my mind that Gertrude's Secrets is an excellent educational game. It is nice to see a game for young children which is both educational and nonviolent.

From an educational standpoint, the game teaches and reinforces the recognition of shape and color. This is accomplished in a pleasurable manner in which the child becomes involved in learning, but has not attached the educational label to his activities.

Another positive attribute of this program is the "shape-edit" feature which allows creativity and variation. The structure of the game, which

moves the player through various rooms, also adds a challenge.

The program is recommended by THE LEARNING COMPANY for children ages four to nine. A bright four- or five-year old might be able to play the games with an adult, but will probably be unable to operate them independently. Therefore, the skills are generally at a six- through eight-year-old level, but the operation of the program calls for an older child.

Even though Gertrude's Secrets does not lend itself immediately to independent operation, the program is exciting and educational. The logical thinking process is well taxed in this program. Children find it absolutely fascinating!□

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# THE DARK CRYSTAL

---

*by Roberta Williams  
Sierra On-Line, Inc.  
Sierra On-Line Building  
Coarsegold, Ca 93614  
209-683-6858*

\$37.95

Rating: A

Reviewed by Robert L. Abernathy

## INTRODUCTION

The Dark Crystal is an adventure game based on the movie of the same name. The setting of this adventure is the strange world of the Dark Crystal. A crisis is developing which will allow evil to conquer the entire planet. This conquest will only be averted if you can guide Jen on his quest to repair the Crystal. This

game is the #6 Hi-Res adventure game produced by Sierra On-Line, Inc. There are both text and graphics.

## BACKGROUND

The background for this adventure is given in the documentation as "Aughra's Song". Aughra is the ugly, one-eyed chronicler of the world of the Crystal. The song tells how she witnessed the coming of the urSkeks, who were drawn to the planet by the Crystal. The Crystal is always magical, but its powers are greatest when all three suns come together in the sky. This occurrence is known as the Great Conjunction. The urSkeks used the light of the Crystal at the Great Conjunction to purge their evil side by passing through the light of the Crystal. Each one was fractured into two separate beings, one evil (the Skeksis) and one good (the Mys-

tics). Although the bodies were divided, the souls of these beings were linked. The Skeksis stormed through the castle, and in the melee, struck the Crystal. A shard of the Crystal broke away and flew out of the castle, and fell onto the mountainside. The light of the Crystal was dimmed, and it became known as the Dark Crystal. The Mystics fled the castle and made their way to the Valley of the Stones, leaving the castle to the Skeksis.

At first, the Skeksis did not let their evil natures show. They became friends with the Gelfling, a native race of small elf-like people. This relationship was broken when the Skeksis began to take Gelfling as slaves. The Gelfling were dismayed and sought to make a wall of prophecy. This wall showed that the Skeksis would rule the world forever



unless the shard was put into the Dark Crystal by the hand of a Gelfling at the next Great Conjunction. When the Skeksis saw the wall, they resolved that no Gelfling should be left alive so that the prophecy would be unfulfilled. To this aim, the Skeksis created the Garthim, a race of incredibly stupid and unbelievably strong shelled creatures. As spies, the Skeksis sent out bats carrying an artificial crystal that sent images back to the castle. As an additional measure, the Skeksis made three copies of the shard and scattered them onto the mountainside. Although the Gelflings brought all four shards to Aughra, she has been unable to discover which is the real shard from the Dark Crystal.

Now Jen and Kira are the only two Gelflings left alive. The time of the Great Conjunction is near. Jen will soon be sent on a quest to find the shard and place it back into the Dark Crystal.

When you play *The Dark Crystal*, you are controlling Jen on his quest. First, he must find Aughra's observatory and answer her riddle. Only then will she let him take a shard, but

he must be able to choose carefully from the four shards to get the right one. Also, he must avoid the servants of the Skeksis, who will attempt to locate him and take him prisoner. This is only the beginning of the adventure which, with some luck, will end in the healing of the Dark Crystal.

Much of the scenery and mysteries are new, but most of the key parts of the Dark Crystal adventure are from the movie. This makes some parts of the adventure easy if you have seen the movie. However, the game deviates from the movie enough to make the game interesting for those who have seen the movie. You do not need to see the movie to play *The Dark Crystal*.

The game comes on two diskettes, with data on both sides. Three sides are unlocked, and you are encouraged to make copies of these sides. Label these copies carefully so you will be able to use them at the right times. The booting side is locked, so you must use it to boot the game every time you play. After booting, only the unlocked sides are used. A data diskette can be formatted by the

game, and only by the game, if you want to save your place. A DOS 3.3 diskette cannot be used to save your place. The documentation for this game is very well done. A history of the Crystal is given, as well as directions for booting the diskette. There are also directions for playing adventure games written especially for those who have never played an adventure game before. It shows not only how to enter commands, but also how to plan an adventure and how to map your progress. This feature makes *The Dark Crystal* a very good introduction to adventure games.

## CONCLUSIONS

*The Dark Crystal* is a good graphics adventure game, although some people may want a more mysterious story line; much of the material will not be new to people who have seen the Dark Crystal movie. There are additions made to make this adventure interesting. If you have never played an adventure game before, this game will provide clear, readable instructions. □

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# PLASMANIA

---

Sirius Software  
10364 Rockingham Drive  
Sacramento, CA 95827  
916-366-1195

\$34.95

Rating: A

Reviewed by David Birnbaum

## INTRODUCTION

The submarine creeps slowly through the alien formations. A huge blob drifts toward it. Quick, dodge to the left . . . to the right. Blast it!! It continues down the passage.

A scene from a sci-fi movie? No, it's one of the newest games from Sirius Software, *Plasmania*. In this game, apparently based on the book *Fantastic Voyage* by Isaac Asimov, you are in control of a submarine, shrunk down to microscopic size and placed in the blood stream in an attempt to save a patient who has a blood clot in a blood

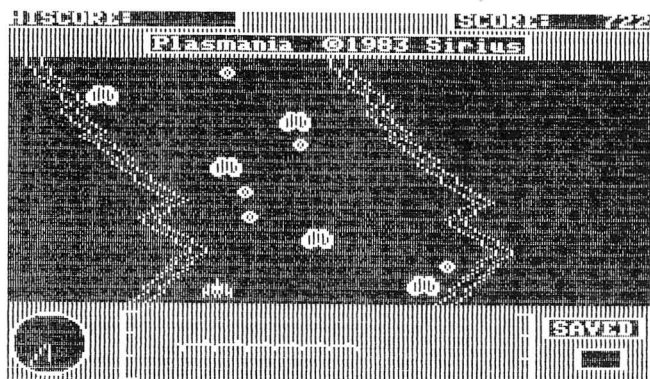
vessel supplying the brain. On the way to the blood clot, you must pass through various obstacles, including blood cells, enzymes, bacteria, and clotlets.

## STARTING OUT

The disk comes in a brightly colored box, with a pamphlet containing instructions. Unfortunately, once removed, the disk doesn't fit back into the box. In a vain attempt to get the disk in and out of the box, the box tore in two places.

In the pamphlet are all the instructions for the game. The player is told how to start and what the disk should be doing. When the disk first boots up, a title page appears, and then, to my surprise, a voice emanates from the computer, exclaiming, "Sirius Software presents: Plasmania—ha, ha, ha, ha!" This voice on bootup is interesting the first time, but after the fourth time, it had become annoying.

After bootup, there is a short display, and then the computer shows the game. Hitting any key gives the start-up menu with options for normal, easy, and expert play. It also asks for joystick, keyboard, or joyport. Hitting "0" restarts the game. And the voice comes on again. . . .



## GAME PLAY

Plasmania is much more complex than most arcade style games. There are five different phases, each with a different objective. On the player's first trip, only phases 1, 2, 5, and 6 are used. For the second trip, phase 3 is added. And finally, with the third trip, phase 4 is added.

Phase 1 has defense cells which are released by the blood vessel as the player passes by. As the player moves down the blood vessel, defense cells shoot out from the left wall to the right wall of the vessel. These cells can be shot or passed by.

Phase 2 has blood cells. Blood cells come slowly down the blood vessel. It hurts the patient a lot to shoot these blood cells. They must be avoided at all costs.

Phase 3 has bacteria. Bacteria come down the blood vessel at the same speed as blood cells. As many bacteria as possible must be destroyed. It takes three shots to completely destroy bacteria. Each shot makes them progressively smaller, until they disappear.

Phase 4 is a combination of phases 1 through 3. The player must dodge some objects while shooting others.

Phase 5 is a small blood vessel. The arterial wall shrinks to about half normal size. The object here is to get through in the shortest time.

Phase 6 is the final stage. Here the player must dodge indestructible clotlets which have broken off the main clot. Shooting at them does nothing, so they must be avoided. After passing about 20 clotlets, the ship approaches the main clot. The main clot must be hit 15 times to be destroyed. Running into the main clot kills the patient and destroys you. If you make it past the main clot, then you go on to a more challenging stage.

In Plasmania, instead of having three or five ships, there is one patient with a predetermined amount of heart strength. The heartbeat is displayed continually at the bottom of the screen. As the patient weakens, the heartbeat speeds up and gets weaker. When the heartbeat goes flat, the patient is dead and the game is over. The patient loses strength slowly but surely through the passage of time. Going through a phase incorrectly is the main cause of the patient losing strength—for example, by shooting blood cells or by crashing into bacteria. Every time your ship hits an object, shoots a blood cell, or lets a bacterium by, the patient loses some of his strength. Also, if your ship hits the wall, the blood vessel releases antibodies which will weaken the patient if they are not shot. The walls should be avoided at all costs.

However, a patient gains strength in phases 1 through 5 when you shoot the enzymes that appear. Avoiding the enzymes does no harm, but lessens your chance of finding more enzymes.

## SUMMARY

Plasmania is an extremely interesting game. At first it is almost impossible to win, but through experience, patients can be saved. It took me at least 10 tries before I could save a patient. Also, the directions must be read carefully, or the player will find himself shooting blood cells and dodging bacteria. Compared with other Sirius games, this one is about average. One thing noted is that the graphics aren't as colorful or interesting as in other Sirius games. □





# SHUTTLE INTERCEPT

by John Van Ryzin  
Hayden Software Company  
600 Suffolk Street  
Lowell, MA 01854  
800-343-1218  
(in MA: 617-937-0200)

\$34.95

Rating: C

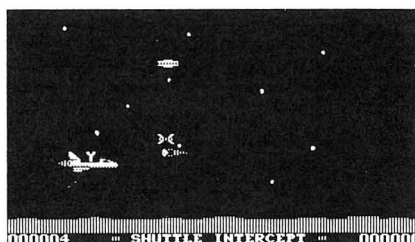
Reviewed by Michael L. Weasner

## INTRODUCTION

Shuttle Intercept is a space shoot-'em-up game for a 48K Apple II or II Plus. The name conjures up images of something similar to Rendezvous by Edu-Ware (reviewed in *Peelings*, V3N9, 1983), but this impression is totally incorrect. Your mission is to retrieve satellites while destroying enemy spacecraft and avoid being destroyed by them or meteoroids. After 10 satellites pass, you are automatically placed in hyperspace where the dangers can only be avoided (your offensive weapons are inoperative).

## PLAY

Shuttle Intercept requires one game paddle, but a joystick can be used. The single axis moves your space shuttle up and down the screen; there is no forward motion, only perceived motion as the targets move toward your shuttle (right to left). The button raises your satellite retrieval arm (not made in Canada) and also fires your weapons. Sound can be turned on and off using the "S" key. A pause is available as is a



restart without rebooting. A color monitor or TV will be required to distinguish the friendly satellites from the enemy's.

The game plays very similarly to a Space Invaders type game with the screen turned on its side. Being restricted to only up and down motion means you either dodge the approaching missiles, meteoroids, enemy satellites and spacecraft, or you shoot at them. Some of the targets cannot be destroyed with your laser cannon (I suppose this shuttle is called Moonraker) but will either annoy you or destroy you if they strike your shuttle. At various times you will make the transition into hyperspace where you must maneuver (up or down only) to avoid being hit; your weapons are inoperative. The retrieval of the satellites will require precise positioning of your craft in relationship to the rapidly approaching satellites. One very annoying aspect of Shuttle Intercept is that when in hyperspace, it is extremely difficult to avoid being hit repeatedly after being hit the first time; there is insufficient time allowed for the game to react to moving the paddle before being hit again. Other than these last two points, play of the game is very simple.

## SUMMARY

Shuttle Intercept is a game that would be ideal to create using The Arcade Machine (V3N9, 1982). Its play and graphics have the same limitations that one would expect from using The Arcade Machine. Shuttle Intercept might appeal to young children, but even they will tire quickly of the repetitive nature of the game, the lack of a challenge once the basic skills are mastered, and the problem mentioned above when hit in hyperspace. □

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# STAR MAZE

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By Gordon Eastman  
Sir-Tech Software, Inc.  
6 Main Street  
Ogdensburg, NY 13669  
315-393-6633

\$34.95

Rating: A

Reviewed by Monty Lee

## INTRODUCTION

STAR MAZE is a Hi-Res game in which you must maneuver through a maze to find nine power jewels scattered about. You must then return them to your mothership. Do this for all 16 levels of the STAR MAZE, and you become an ace.

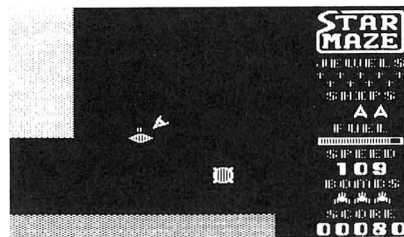
## OPERATION

Since STAR MAZE is a protected diskette, you have to boot the game diskette. After loading you are in a demo mode until you select the control mode desired for play. The choices are Keyboard, Paddles, Joystick, or Atari Joystick/Joyport. Because of all the possible combinations plus the required keys for bombs, etc., STAR MAZE comes with a seven-page pamphlet which explains the various modes of operation. Once you become familiar with a particular mode, you won't need to refer back to the pamphlet.

You start the game with a full fuel tank and three antimatter bombs. With the joystick, you press button 0 to fire the thrusters to maneuver. Thrust is applied in the direction you

are facing, determined by the joystick. The joystick mode is extremely easy to use. Simply point the joystick in the direction you want to face, and the ship points that way. Sir-Tech uses an excellent programming technique in providing a method to reverse both the horizontal and vertical axes of the joystick in case yours doesn't respond correctly. This capability makes STAR MAZE compatible with all joysticks on the market.

To pick up a power jewel, you have to fly (traveling less than 200) over one (speed indicated on the right—see Figure 1). If you fly over your mothership with a speed of 100 or less, you can drop off a jewel and refuel. Each load of fuel lasts approximately four minutes.



To complicate game play, there are various alien ships in the maze, and all are out to get you. You either have to destroy them or avoid them. As you play the game, you will find out which ones to destroy and which ones to try and avoid. The reason for two different tactics is that some tend to divide after you fire at them, and each part becomes more aggressive. To destroy them, you press button 1

to shoot bullets. If things get desperate, you can press the X key to fire an antimatter bomb. Unlike bullets, you have a limited supply of antimatter bombs. These bombs will obliterate all enemy objects in sight. In extreme cases, you may hyperwarp to other areas of the STAR MAZE. Of course, hyperwarp is not a proven success, and you may either find yourself destroyed or in some cases in a spot filled with more aliens than before.

STAR MAZE is very easy to learn. The most important thing when playing is to get your bearings in the maze. Each maze is different from game to game and level to level. However, each maze is relatively small, and you can usually get your bearings and find your way back to the mothership quickly. You need to be able to get back for both refueling and for dropping off the jewels. Finding the last jewel can sometimes be frustrating because it may be hidden in some remote part of the maze.

Once all the jewels are dropped off at the mothership, you proceed to the next level. A BONUS is awarded depending upon the speed with which you complete the maze. If you are destroyed by an alien, you start with a new ship at the mothership. You still have the same number of jewels left that you had when destroyed. You have only three ships before the game ends.

If you are one of the top six scorers, you can record your score and it will be saved to disk. Sir-Tech has provided a backup copy of the game on the backside of the diskette. When using this version, you cannot save the

high scores to disk unless you cut out a notch for the read/write sensor.

## SUMMARY

STAR MAZE is a fun game that is not extremely difficult to play. The Hi-Res graphics are good, and the Hi-Res program flow is superb. There is no flicker at all, even when a multitude of shapes are on the screen. The

sound effects enhance game play and are not at all obnoxious. The game may lose its interest after a while because each level is mostly a repetition of the first level. The aliens do get faster and it is a little harder, but the difference is not immediately noticeable. After you get to about the fifth level, the mazes start to blur together in your mind if you aren't concentrating. The only frustrating part

about the whole game is the occasional restart after being destroyed by an alien or a flying rock right in the middle of the game. This gives you no chance, and you lose a ship unnecessarily. STAR MAZE provides enough difficulty for the advanced game player, yet is challenging without being frustrating for the beginner.□

---

# BOLO

---

*by Elvyn Software  
Synergistic Software  
830 N. Riverside Drive  
Suite 201  
Renton, WA 98005  
206-226-3216*

\$34.95

Rating: A

*Reviewed by Robert L. Abernathy*

## INTRODUCTION

Bolo is a tank/maze game. You are in a tank set in your enemy's proving grounds, looking for the replicator tank factories. These factories must be destroyed since they are capable of producing large numbers of tanks which will be used in the conquest of Earth. This game makes an effective use of black-and-white graphics.

## GENERATING THE MAZE

When you first boot Bolo, it begins with an example of the option screen. Pressing any key will allow you to put in your choices for level and density. There are nine levels of increasing difficulty. This difficulty refers to the enemy tanks, not the maze. The density refers to number of walls in the maze. A density of 1 will make many empty spaces in the maze, while a density of 5 will put walls almost everywhere. Once your choices are entered, the program

generates the maze. The maze is always generated when you start a new game, so it is different each time you play. The game then places the replicator factories and your tank in the maze.

## SEEK AND DESTROY

Your job in the maze is to find and destroy the six factories which are producing tanks for your enemy. To aid you in this endeavor, there are some instruments on the right side of the screen. One simply shows your location in the maze. This instrument is a large, empty rectangle with a single dot in it. The edges of this rectangle represent the walls of the maze, the dot represents your position in the maze. Since you cannot leave the maze, there will always be a dot somewhere in this "position finder".

Another instrument helps you to find the factories. This instrument is a square divided into four square pieces. Each square represents a quadrant of the maze based on your position. The square is "lit" if a factory is in this quadrant. For instance, if there is a tank factory to the northeast of your tank, the upper-right square will be lit.

Another instrument is the fuel gauge. This is simply a bar which indicates the amount of fuel in your tank. The only way to refuel is to find and destroy an enemy tank factory. There is also an instrument to show your current heading (i.e., you are facing north, northeast, east, etc.). This instrument may become useful if you turn the gun turret frequently. If you do not turn the gun turret, you will be able to determine the direction you are facing by your gun's position. The number of extra tanks and your score are also shown. Most of the display, however, is taken up by a bird's-eye view of a portion of the maze.



Fortunately for you, your tank is positioned in the center of this display. No matter how your tank moves, it will always be shown in the center of this display; the maze scrolls in all directions.

The first thing you will probably find in a maze is an enemy tank. On the first level of difficulty, the only enemy tanks are drones. These are stupid, slow, and travel randomly about, shooting at just about any moving thing (including each other). As you move upwards in level, three other types of tanks are found. These are smarter, faster, and harder to hit. There are torpedo tanks, which are faster than the drone versions. These tanks have a rough idea of your position, but cannot find you all of the time. There are also hunter/killer tanks, which are even faster than the torpedo tanks. These tanks can find you almost every time. All three of the above tanks can shoot, just as your tank can, except that they do not turn their gun turrets. The most dangerous tanks are the assassin tanks, which do not shoot—instead, they depend on their speed to ram your tank before you can even take aim. These tanks do not miss; you must shoot them to avoid being destroyed.

When you find a factory, you can destroy it by hitting the small circle in the center of the factory. But to hit the circle, you must first blow a hole through the walls of the factory. The walls regenerate automatically, so you must shoot fast enough to keep the hole open. You shouldn't

shoot too fast, however, because the shrapnel from the explosions sets up a protective screen for a moment. If you shoot the shrapnel, more shrapnel is thrown into the air closer to your tank. If you shoot at shrapnel long enough, it will get close enough to you to blow up your tank!

Playing this game may initially be frustrating. Not only must you avoid enemy tanks while finding your way through the maze, but the walls of the maze are shielded with a force field. Any contact with the walls will result in your immediate destruction. For this reason, I was grateful that I could choose the density of the maze.

You may play either with the keyboard or a joystick. To use a joystick, you must press <CTRL>-J. The keyboard can be reselected by pressing <CTRL>-K. If you play with the joystick, the directions on the stick are north, northeast, east, etc.; in other words, these directions are based on the maze, not on the direction you are facing. One button is used to shoot and the other is a reverse-gear toggle switch. On the keyboard, the commands are quite different. You may turn the tank 45 degrees left or right, increase or decrease your speed, stop moving altogether, or fire your gun. There are also advanced command for turning while increasing speed. Using all these keys is very difficult for beginners, even if you only use the simple commands. Whether you use a joystick or the keyboard, keys 1 and 2 can be used to turn the gun turret (although use of this feature with a joystick is clumsy). Use of the keyboard will probably result in higher scores in the higher levels, if you become adept at using the keys.

## TECHNICAL DETAILS

One bug I encountered while playing this game was that the game would stop and lines would be drawn across the screen. The computer had to be turned off and on again to restart the game. On the good side, the graphics, although only black and white, are flicker free and very smooth. A nice feature of this game is that when you have found and destroyed all six factories in the maze, you are congratulated, and then the computer generates a new maze at the same level. This means that you can play as long as you like at any difficulty and density. If you wish to move on to another difficulty or density, you can do so by pressing <CTRL>-R to return to the option screen. This can be done at any point during the game. The sound can be toggled with <CTRL>-S. <ESC> will halt the game and pressing <ESC> again will resume the game.

## CONCLUSIONS

Bolo is a well-made game. If you like maze and tank games, this one is a must. It is unfortunate that there is a bug loose somewhere in this game. The action of this game is well done, although it takes some practice to do well even at the lower levels. A joystick can be used, although more control is provided if commands are entered through the keyboard.□

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# THE SERPENT'S STAR

By Michael Ormsby  
Ultrasoft  
12503 NE Belred Ave.  
Bellvue, WA 98027  
206-251-8104

\$39.95

Rating: A+

Reviewed by Pat Turpin

## INTRODUCTION

The Serpent's Star, the second game in the Ultrasoft adventure line, is an attempt to combine animation with an adventure game; this is done by a sequence of fast moving Hi-Res pictures made to give the player a feeling of movement.

The game pits you, Mac Steele, against the perils and mysteries of Tibet. You begin by breaking into the

Potala fortress and stealing the legendary Llasa scrolls which provide the documentation necessary to play the game. Your purpose is to find the lost Serpent's Star worth millions of dollars.

## THE GAME

You traverse mountain paths, trying to find the legendary monastery of Kara Koram. Before reaching Kara Koram, you enter two monasteries, an inn, an ice cave, and even go through an avalanche. At several points, you are denied passage, by monks and even the Serpent itself, until you answer certain questions (hint: read up on your oriental philosophy). Failure to answer these questions results in instantaneous death. Throughout your journey, different colored gems are gathered; some for doing good deeds such as giving offerings to monks, and others are merely stumbled upon. You travel by using the appropriate keyboard com-

mands or short sentences, which makes The Serpent's Star a joy to use compared to the lengthy answers some adventure games require. It also has convenient options such as "quick travel" for when you eventually become bored with the somewhat tedious travel sequences.

## CONCLUSION

All in all, The Serpent's Star is a refreshing new game; no gruds or magic swords in this one. It has better graphics and more involved puzzles than its predecessor "The Mask of the Sun". It is easy to follow, has good documentation, and even includes some hints for the game's text-handling capabilities. Even though this game gets an A+ rating, it deserves an AA+ for originality. The only question this reviewer has is: is it absolutely necessary to buy a book on Buddhist philosophy?□

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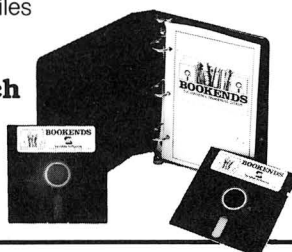
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# MUSIC MAKER

---

by Jim Baldridge  
Distributed by SubLOGIC  
713 Edgebrook Drive  
Champaign, IL 61820  
217-359-8482

\$39.95

Rating: A

Reviewed by David Carlson

Music Maker is a software music synthesizer/composition system, requiring no hardware modifications or additions to an Apple II. Machine language music modules are easily generated which can be used from within any Applesoft, Integer Basic, or Machine Language program. Music Maker is relatively simple to use, easy to learn, and is capable of producing a surprising range of music and sound effects.

## HERE'S WHAT YOU GET

The package comes with an excellent 32-page manual and a single disk. On the disk are sample music programs, a "continuous loop" demonstration program, and a simple color graphics program that may be used with any Music Maker song module. All of the programs on the disk may be copied except for the Music Maker program itself. No backup is provided or permitted; however, SubLOGIC does offer replacement under better than average terms. Replacement is free in the first six months, and the initial program disk is guaranteed for at least 10 years under a "minimal charge," currently set at \$5.00. (The program disk does not need to be used after the initial booting, so it should sustain minimal wear.)

## DOCUMENTATION

The manual begins with a tutorial section which takes you through the full process of entering a song, listening to it play through the computer's speaker, listing and editing the song (or parts of it), saving it to disk as a text file, saving it to disk as an assembled song file, loading assembled files into a finished song module, and finally,

writing a program to run the finished song module within the program. The writing is very accurate, concise, and complete.

## HOW GOOD IS IT?

I really like the way this program works. It appears to be free from bugs and is virtually crash proof. It refuses to accept any incorrect commands (giving a warning glissando that always makes me flinch when one is attempted) and requires approval before doing anything that might injure the work in progress. And all the single-stroke commands are as logical as possible. Furthermore, a very neat command set is only as far as an "H" away, and can be checked at any time. (I learned to like Jim Baldridge just by working with this program.)

Music notes are entered from the keyboard, one at a time. Although each note has its designated time period, and only one tone sounds at any one time, two-, three-, and even four-part "harmony" is still possible. The sound of rapid "strumming" is approximated by rapidly alternating notes of a chord. To accomplish this requires the entry of numerous notes, a very slow process. Fortunately, any set of notes may be "repeated" (moved in a block to another part of a song).

There are 50 different notes (pitches) that may be selected, from "F" below "Middle C" to "F#" above "High C" in any one of nine basic lengths, from "Whole Note" (four beats) down to "Quarter Grace Note" (1/256 beat). Notes may be designated as Staccato (held for 50% of their designated time), "Regular" (held for 75% of their designated time), or Legato (held for 100% of their designated time), and they may also be "dotted" or measured as triplet or quintuplet in length. Since tempo may be varied, the actual note length can vary from 1.5 seconds duration down to 0.00146 second (683 notes in one second).

The input/editor mode can accommodate up to 1000 notes, enough for most "ordinary" songs. If a bit of "chording" is to be done, the 1000 note limit may be reached well before the end of the song. In that case, the first 1000 notes are stored to disk and linked together with other files later. Up to 16,500 notes can be included in one completed song module, and it is possible to load more than one song module into memory at one time. Size limitations are not very restrictive.





## LISTENING TO THE MUSIC

Completed compositions may be heard through the system's internal speaker or output through the cassette port to an external amplifier and speaker. I tested the cassette out put by recording some music, then playing it through a stereo system. It sounded no better than using the Apple directly, but allow me to use the next two paragraphs to cover a side issue related to that sound.

The first time I tried to play music through the internal speaker of my Apple, I became convinced that it was unhealthy to do so. There were sympathetic vibrations set up that couldn't be doing the computer components any good, and they certainly disturbed the music. I decided to do something about that.

Since my monitor had a built-in speaker (with a volume control only four inches from my nose), it seemed only reasonable to cut the wires to the internal speaker and run them to the monitor. After cutting the wires next to the speaker and attaching a proper jack, I plugged it into the monitor and turned the Apple on. When nothing happened, I turned it off, checked the power connections, and turned it on again. I suffered that "Oh-oh, I've done it this time!" feeling when I realized that the power light was glowing very dimly while the disk drives were quiet. With a pounding heart I reconnected the wires and found that everything again worked normally. I checked the resistance of the speaker (8 ohms), the monitor (very high), and an unused extension speaker (8 ohms). So, I connected the extension speaker to the internal speaker output, and have been much happier ever since. (I have been tempted to put an 8-colsohm resistor across the wires and again wire it to the monitor, just so I could turn down the late-night computer beeps.) My advice is to be very careful when you modify anything on the Apple.

## SOUND QUALITY

Now we come to the Music Maker's weak point. It is possible to design some songs that are fantastically good sounding. Honky Tonk piano or Irish Jigs can be just great. However, most music does not sound particularly good. The program has no provisions for changing the tone quality or continuously adjusting the pitch.

The tempo values indicated are quite close to actual values, but the pitch levels are not. Since the pitch varies somewhat between the octaves and never matches true

values, it is not possible to use this form of computer music within a group of other musical instruments. And since the pitch "wanders" in the top octave, the sound is quite similar to an old-time "out of tune" piano.

There are a number of Bach pieces circulating in "public domain" software; some of them sound very good, and some don't. One Bach number is found in the demo program included on the Music Maker disk. Most of the public domain versions are intonationally superior to this Music Maker sample. Therefore, I suspect that Mr. Baldrige should be able to tune things up a bit. Or, if he could add an addendum to the manual which would explain how to get into the program to adjust the pitch and tone quality to the user's taste, that could add the necessary ingredient to make a good product great.

## RECOMMENDATION

This is a fun program, and it's reasonably priced. If you are interested in adding sound to your programs, this can certainly do the job. And, if you keep the melody line in the lower 2/3 of the range while restricting your "chording" to the notes above the melody line, the sound can actually be most enjoyable. Should you be a Scott Joplin or Irish Jig fan, don't pass this up. With Music Maker, Apple can play that stuff better than any human!□

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# TUNNEL TERROR

---

by Eric Popejoy  
Adventure International  
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Paddles (optional)

Rating: B+

Reviewed by Robert L. Abernathy

## INTRODUCTION

Tunnel Terror is a different kind of alien shoot-'em-up. It is similar to the arcade game Tempest, but in Tunnel Terror the aliens are climbing up the sides of a tunnel instead of raining from the sky. You are allowed to move around the edge of this tunnel and shoot fission torpedoes at these undesirables. In the arcade game, the use of fine resolution graphics and smooth motion is an important part of the fun. Tunnel Terror keeps most of the other elements of the arcade game, but lacks the fine graphics and smooth motion.

## STARTING UP

One to four people can play in a game of Tunnel Terror. The game is designed so that each player can start at a different level of difficulty. The levels chosen can be 1, 5, 9, etc., but before anyone can start playing at level 9 or higher, at least one person must play to that level to show the level can be achieved. Each time the disk is rebooted, the maximum starting level is reset to level 4.

The tunnel is divided into sectors with each sector running the length of the tunnel. The number of sectors depends on the level of play. For instance, level 1 has three sectors. A sector is added for each higher level. The top of each sector is drawn as a straight line such that the top of the tunnel is a polygon. The edge of the tunnel of level 1, for example, is a triangle, and the end of the tunnel of level 4 is a square. Your ship is positioned on the outside of this polygon. You are allowed to move around the end of the tunnel in a circle, which allows your ship a line of fire down any of the sectors. Your ship can travel two revolutions around the tunnel for the full range of the paddle. When you move into the first or last quarter turn on the screen, an orange triangle appears, which warns you that your ship cannot move much farther in the same direction. This limitation exists even when you are using the keyboard instead of a paddle.

You may fire fission torpedoes down the tunnel at all the nasty creatures coming up the sides. Torpedoes fired down the tunnel will go down the center of a sector, regardless of your position on the edge of that sector. A object traveling up a sector cannot avoid the torpedoes, although some objects can jump to another sector. Only seven torpedoes are allowed in the tunnel at a time. If you have fired seven torpedoes, and all of them are still in the tunnel, you cannot fire another torpedo. Once a torpedo hits an object or travels the length of the tunnel, you can shoot again.

Objects moving up the sectors are

attempting to reach the end of the tunnel so they can catch your ship. It is puzzling to see these objects move too far past the edge of a sector before the computer considers them on top of the tunnel. This occurs because the program considers the circle travelled by your ship to be the top of the tunnel instead of the edge drawn on the screen. Any object which reaches the top of the tunnel can catch your ship by moving into the same sector as your ship. No actual contact is necessary. This means that you can be caught even though there is no other object touching your ship. What is important is the sector you are on, instead of your exact position.

There are at least five different objects which can come up the sides of the tunnel. The most common are the Walkers. These attempt to climb to the top of the tunnel. They do not move down. If they reach the top, they will "walk" around the end and try to catch your ship. If you are firing down the tunnel and a Walker catches you, the Walker is destroyed. If you are not firing down the tunnel and one catches you, your ship is destroyed. Walkers are one of the objects capable of moving from one sector to another in the tunnel. Their motion in the tunnel is not smooth; instead, the Walkers flash from one sector to another, which is rather confusing. The Walker-Carrier appears on level 3. It is a transport for two Walkers. These two Walkers will be released when the Walker-Carrier is hit or if the Walker-Carrier climbs to the top of the tunnel. Another object which first shows up on level 3 is a star that is apparently emitted by

the other objects. These stars move quickly up the tunnel, but stop only for a moment if they reach the end, and then disappear. If you are on a sector when a star rises to the top of that sector, your ship is destroyed.

On level 5, a new object appears: a spiral which builds a spike as it comes up. A spike is simply a line drawn up from the bottom of the tunnel in the center of a sector. Spikes can grow almost to the top of the tunnel. The spirals will come up and go down, making the spike longer each time the spiral rises. Any object is safe while it is riding a spike since the fission torpedoes simply knock off the end of the spike. These spirals are not a danger in themselves, but can help other objects to the edge of the tunnel by building spikes.

On level 10, the most dangerous of the objects appear. These are the Crazies, which look like three wavy lines. They can be hit while they are in the tunnel, but are indestructible once they reach the edge. They run around the edge quickly, much faster than the Walkers, but will retreat back down the tunnel after a short time. Crazies can catch your ship just as Walkers can.

If you clear a tunnel of all the objects except the spikes, the game will clear the screen and set up the next higher level. If you lose a ship, the tunnel is cleared of everything but the spikes, and play resumes with the next ship and the remaining objects (which start again at the bottom of the tunnel). You have three ships per game plus one every 50,000 points. Points are given for each object hit, with higher values for the more dangerous objects. The value of each object is not given in the documentation, and I was not able to figure out these values by playing the game. When the game ends, high scores are recorded (you must put in your initials), and the game then plays a demo until you start to play again. The documentation says that high scores are saved on the disk, but they were not saved with the version I reviewed. Pressing the S key toggles

the sound, and <ESC> halts the game. Pressing any key after <ESC> will restart the game. (If you have an Enhancer II on your keyboard, press <CTRL>-C to resume play.)

Normally, I would not compare a piece of software written for an Apple to an arcade game. However, in this case I must make some comments about the graphics used in Tunnel Terror. The graphics of the arcade game Tempest are very important to the way the game is played. The Walkers of the arcade version flip from sector to sector instead of just flashing from one to another. The "ship" in the arcade version is shown in such a way that there is no doubt of which sector it is on. All of the objects move smoothly. Compared to this arcade game, the main problems of Tunnel Terror show clearly. Although I could not expect Tunnel Terror to be as good as

Tempest, the graphics capabilities shown by Tunnel Terror are barely adequate to show the details of this game. With an increase in it's graphics capabilities, this would be a truly fantastic game.

## CONCLUSIONS

Tunnel Terror is based on some good ideas. However, it's graphics are not done well enough to support the rest of the game. Even so, it is not a bad game, and it has enough action to keep anyone busy. It is also easy for beginners, at least on the lower levels. I wish the program would allow the high scores to be saved, along with the maximum starting level. There probably will be many more of this type of program on the market in the future, and we can hope to see better graphics utilization with the newer games.□

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# CITATION

Version 3.1, Copyright 1983  
Eagle Enterprises  
2375 Bush Street  
San Francisco, CA 94115  
415-346-1249

\$185.00

Unlocked

Rating: A+

Reviewed by Alan Shalette

## INTRODUCTION

CITATION is a file management system designed to help you manage reference information such as magazine articles, books, and names and addresses. With a little imagination, it might also handle real estate listings, recipes, product announcements, a household inventory, and the like. You might even use CITATION to catalog information you've retrieved from information utilities such as Dow Jones or Dialog.

Other offerings of this type previously reviewed in *Peelings II* include: CardFile (V4N2, rated C-); DataFax (V3N5, rated AA); Notebook (V4N4, rated B+ with two disk drives); Time Manager (V3N8, rated A-); and VisiDex (V3N8, rated A+).

## HARDWARE AND SOFTWARE REQUIREMENTS

CITATION is CP/M-based. So, you'll need at least two disk drives, a Z-80 card running CP/M (Version 1.4 or later) with 48K of available memory, an 80-column card, and a monitor. A printer is not necessary, but it's recommended.

Typical of many CP/M systems, you'll find it easier to work with CITATION if your disk capacity is greater than that provided by two Apple disk II drives which can store about 140K bytes each. On the other hand, CITATION's minimum recommended capacity is 240K bytes per drive.

If you would like to use the system to catalog information retrieved from an information utility, you'll need a modem and a CP/M-compatible terminal program to access the information, and a CP/M-compatible text editor to prepare the records for conversion to a CITATION file.

## FEATURES AND FUNCTIONS

CITATION records are composed of three types of information: identification, keywords, and text. When displayed, each record occupies one display screen as illustrated in Exhibit I for a Type 1 record—Periodical Citation.

In CREATE/BROWSE mode, when you tell the system to add a new record, you will be shown a screen with just the heading line showing (begins with "CITATION UPDATE/BROWSE" in Exhibit I). The cursor will be positioned over the "?" in "TYPE=? <1/2/3/ESC>", also in the heading line. You then choose the type of record you'd like to create from among the choices indicated in Exhibit II. Thus, you'll be able to mix records of any of the three types in one file if you like.

As you enter the data in each field, pressing the RETURN key will move the cursor to the next field. First, you'd enter the identification information, then the keywords, and finally, the text. When you set up your file, you may tell CITATION to also include the first 20 characters of Authors information, or Zip Codes as keywords.

If you enter additional records of the same type, the identification in

### EXHIBIT I - TYPICAL CITATION DATA ENTRY FORMAT

CITATION UPDATE/BROWSE	TYPE = 1 <1/2/3/ESC>	KEYWORDS
SOURCE: ← 48 characters → ← 20 characters →		
AUTHORS: _____		
TITLE: _____		
VOLUME: _____		
DATE: ____/____/____		
PAGE: _____		

(Summary Line)

(Nine additional lines of text)

Identification information corresponding to the two other types of records, Publication and Name/Address, is shown in Exhibit II. Keyword and text fields are identical for all three types.

formation on the previous record will be repeated to save time. If you change record types, the new display will be blank.

Hitting the ESCape key at any point after entering the TYPE and first line

## EXHIBIT II - STANDARD TYPES OF CITATION RECORDS

Type 1 Periodical Citation	Type 2 Publication	Type 3 Name/Address
Source	Title	Name
Authors	Authors	Address
Title	Chapter	Address
Volume	Page	Address
Date	Publisher	City, State, Zip
Page	Date	Salutation, Phone

of identification information will send the cursor to a prompt area at the bottom of the screen, and you will be asked whether to save the record, correct it, or abandon it and start a new one.

Other options available in the CREATE/BROWSE mode allow you to View, Change, or Delete records, or Return to the main menu. You are given four options to locate records for the first three functions: 1) First, 2) Next, 3) Specific, and 4) Keyword. In a Specific search, you would enter the Source, Title, or Name corresponding to the record(s) you want to access. In a Keyword search, you would enter a keyword (which may be more than one word as long as it fits in the space provided). First and Next searches operate based on either Specific or Keyword criteria. If your criteria are blank, the First search will send you to the beginning of the file which, for example, is organized in Source, Date, and Page order for Type 1 records. Searches may also be constrained by specifying the earliest date you're interested in. If the system can't locate the Specific or Keyword search criteria you specified, it will show you the next sequential entry in its index file and ask whether you'd like to see that record instead.

Also available is a MULTI-KEYWORD selection mode in which you may conduct searches based on up to seven different keywords. The system also provides Boolean logic to develop compound searches. For example, you may tell it to find only those records containing ALL specified keywords; those NOT containing a keyword; or those containing all keywords FROM "x" THRU "y".

After CITATION searches its index file, you'll be shown a table of statistics indicating the number of records which correspond to individual search criteria and their combinations—i.e., individual keywords, combinations of keywords, or Boolean tests. You may then continue processing, restart the search, or quit.

If you continue, you may send the selected records to your display screen, to a printer, to a standard text file (e.g., for access by a word processor), or to a new CITATION file. You also have the option of viewing each record before sending it to the printer or to either of the disk files. Other output options are available to send only selected parts of text information to text files.

Additional report printing options are available in the PRINT REPORTS section of CITATION's main menu. Here, you may instruct the system to print all records in file order—e.g., in Title, Date, and Page order for Type 1 records. You may also print a complete, alphabetical list of all keywords or a list of all records corresponding to each keyword, starting with one you specify. If you specify a blank, all keyword entries will be printed. Other main menu options include:

- Recreation of CITATION files which may have been damaged due to a loss of power.
- Recreation of an index file, e.g., for a CITATION file which was written in a MULTI-KEYWORD search.
- Load/create a CITATION file from a standard text file, e.g., one which may have been received from an information utility.

- Merge two CITATION files.
- Update parameter files CITATION keeps for each data file which govern disk and printer handling and several other functions.

## DOCUMENTATION

CITATION's documentation consists of one hundred and eleven 8 1/2 X 11-inch, typewritten pages, contained in a loose-leaf binder.

Introductory information is contained in its first three chapters, and its fourth chapter contains a detailed discussion corresponding to each of its main menu options. Five appendices show sample reports, give installation instructions, discuss errors, and present a short tutorial.

The body of the documentation is nicely designed and well written. On the other hand, its index is skimpy and poorly cross-referenced. Its installation information, spread between two appendices and the body of the manual, is difficult to follow and incomplete with regard to keyboard command assignment changes. Users would also benefit from a one-page listing of all text editing commands which are now discussed in two different chapters.

## PERFORMANCE

Despite some problems while trying to figure out how to install the system, it really wasn't very difficult to accomplish. In time, you even get used to handling the three program diskettes in addition to data diskettes.

Getting used to handling the system itself is a much simpler matter. With a little knowledge of what file management systems are supposed to do, you should be able to start creating and working with a file in less than an hour. Ease of operation is facilitated by simple, well-designed menus and command prompts. CITATION's operation is smooth, polished, and unobtrusive. It lets you concentrate on the information you are trying to manage.

There are several significant shortcomings, however.

Data-entry/text-editing commands are very limited. They do an ade-



quate job, but the system would benefit significantly from a character insert feature. To correct an omission without character insert, you must back over the omission and rewrite all the remaining text, or erase the complete line and start over. Further, there is only one character-delete command, and this doesn't work in the identification and keyword sections of the display screen (see Exhibit I) unless you first delete the line. Word wrap is automatic when entering text information and works well.

I also found the editing command key layout (combinations of the CTRL key with others) inconvenient—e.g., using CTRL-Z for the backward character delete (rub) instead of CTRL-H or the Back Arrow (←) which is widely used by other text editors for this function. An installation program is provided in which you may redefine key assignments, but it is poorly documented, and I was successful in making only a few simple changes (e.g., from CTRL-Z to CTRL-H for character delete).

File sizes using Apple disk II drives are limited to only 100 to 200 records, and you may not use more than one floppy disk to store a given file. Typical of CP/M systems, all processing stops if you exceed available capacity during record entry or file merging—although you won't necessarily lose the file you were working on.

As your file size grows, it can take

30 seconds or more to add a new record. No doubt, this is due to the fact that CITATION keeps its records in a specific order and must reorganize its index file each time you add new keywords. Systems such as VisiDex and DataFax, on the other hand, keep their records in the order in which they were entered or updated and can update their index files in just a few seconds. All three systems can access records in about the same amount of time, however—i.e., about 2 to 3 seconds.

CITATION offers an advantage over these other systems in return for the extra time it takes to add records. That is, its print file reports which list the entire file are in useful order while the others' are, more or less, in random order.

Moreover, CITATION's are the most attractively printed and complete reports I've seen with this type of package:

- Each page is automatically titled and given a sequential page number.
- Perforations are skipped if a record can't completely fit on a page.
- All reports list one or all of the keywords associated with each record.
- At least the first text line (labeled Summary Line in Exhibit I) is printed in all reports except for the Keyword List Report.

CITATION offers no options to control page layout. Thus, it works only with standard, letter-sized paper, and you cannot put your records on continuous-form index cards without sending the file to a word processor. VisiDex and DataFax are index-card compatible by letting you specify page length, and Notebook is specifically designed to work with index cards. CardFile has very limited printing capabilities and is intended to be used in combination with a word processor.

CITATION has other limitations in contrast to VisiDex and DataFax—e.g., in the numbers of keywords per record, keyword length, numbers of records stored in a file, user prompts during diskette swapping, template layout flexibility, and text capacity per record (DataFax allows multi-page records, although each page is only 40 columns wide).

I should also note that some of these shortcomings stem from trying to adapt a full-blown CP/M system for use on the Apple.

## CONCLUSIONS

If your Apple is CP/M-equipped and you have high-capacity disk drives, if you prefer clearly superior printed reports and multi-keyword searches, CITATION might be a good choice.

If not, try VisiDex or DataFax.□

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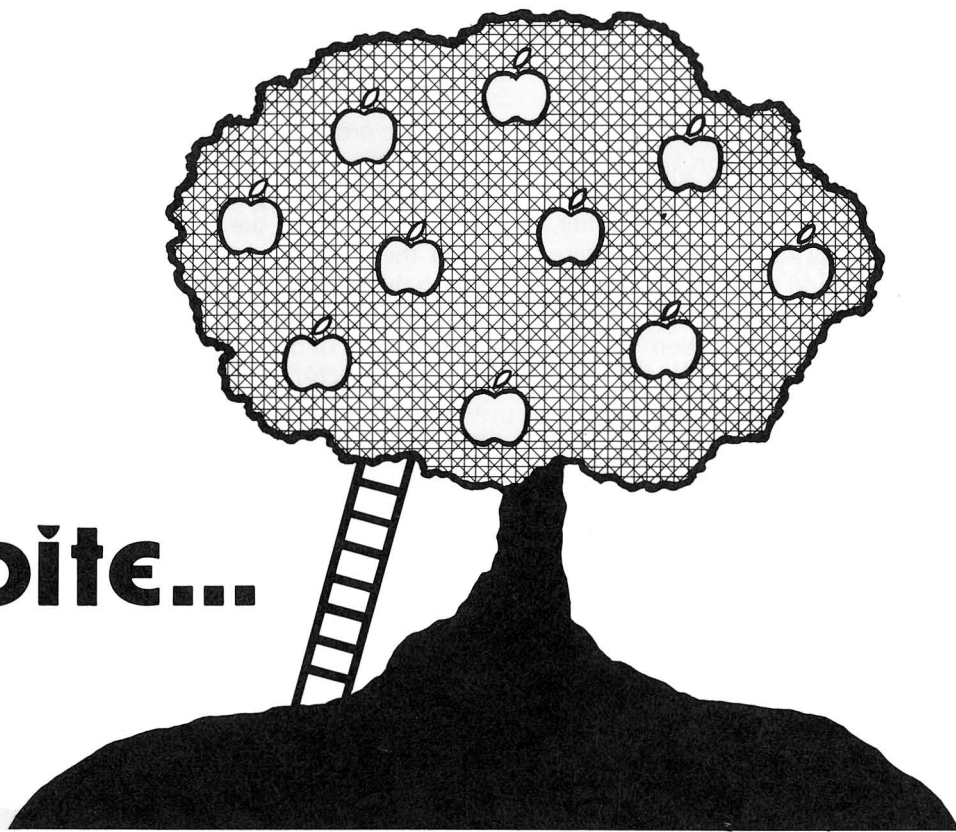
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---

# THINKTANK

---

Version 1.001—Copyright 1983

Program written by Dave Winer  
and Jonathan Llewellyn

Manual written by John Unger Zussman  
Living Videotext, Inc.  
450 San Antonio Road, Suite 56  
Palo Alto, CA 94306  
415-857-0511

\$150.00

Unlocked

Rating: AA—

Reviewed by Alan Shalette

## INTRODUCTION

THINKTANK, advertised as “the first thought processor”, can help you build report outlines, itineraries, business plans, organization charts, and other documents which may be organized in outline form. While it combines the attributes of a file manager and a text editor with a useful print utility, you may often want to transfer your final THINKTANK files to a full-fledged word processor for polishing.

## HARDWARE AND SOFTWARE REQUIREMENTS

THINKTANK is written in Pascal and assembler language and is available in several versions—for the Apple II+ with 40-column display, II+ with Videx Videoterm 80-column card, //e, and III.

Each version requires at least two floppy disk drives or a hard disk operating under DOS 3.3, and a monitor. A printer is recommended. The II+ and //e versions require at least 64K of memory, and the III, 96K.

If you use the Videx 80-column version, you will need to have their V-FRM-600 firmware chip installed in position U3 as shown in Figure 10 of the Videoterm manual (page A-4). If you don't, call Videx Customer Support

(503) 758-0521 and ask for a replacement—which they may provide free of charge. You must have this chip installed to access THINKTANK's disk-management routines.

Hard disk users must have the Apple Pascal software package. I evaluated the Apple II+ /Videoterm version for this review using two floppy disk drives.

## FEATURES AND FUNCTIONS

THINKTANK works with two types of text: headings and paragraphs. Each heading must fit in one, 80-character line and each paragraph may contain up to 2048 characters. Paragraphs are not truly paragraphs, but are blocks of text attached to headings. THINKTANK paragraphs may contain text in any arrangement you like—including one or more “true” paragraphs. Only one paragraph may be attached to any given heading. The title of this section of this review (“FEATURES AND FUNCTIONS”) would be a valid heading, and this paragraph would be a valid THINKTANK paragraph. The next paragraph could not be attached to the same heading as a separate paragraph but could be included within one THINKTANK paragraph along with this one.

Headings and paragraphs may be organized into an unspecified/unlimited number of hierarchical levels. Each level is symbolized by use of indentations. For example, THINKTANK would display the overall organization of this review as shown in Figure 1 (excluding an inverse text cursor bar which would cover one of the heading lines).

FIGURE 1

- 
- + THINKTANK REVIEW
  - + INTRODUCTION
  - + FEATURES AND FUNCTIONS
  - + DOCUMENTATION
  - + PERFORMANCE
  - + CONCLUSIONS
- 

Note the “+” before each heading. In THINKTANK this indicates that additional subsidiary levels of headings and paragraphs are on the file but are not being shown. For



example, the display under FEATURES AND FUNCTIONS could be expanded as shown in Figure 2.

FIGURE 2

---

+ THINKTANK REVIEW
+ INTRODUCTION
+ FEATURES AND FUNCTIONS
+ define headings and paragraphs
THINKTANK works with two types of text: headings
...
— discuss hierarchical organization
Headings and paragraphs may be organized into ...
— illustrate expand command
+ DOCUMENTATION
+ PERFORMANCE
+ CONCLUSIONS

---

Here, all of the top two levels of the outline's organization are shown along with the third level of only the second main section. Paragraphs may be created at any level and are displayed along with their respective headings. The display also indicates that one or more additional levels of information are available under "define headings and paragraphs", but that no additional information is available under the two following subheadings—as indicated by their "—" marks.

A series of commands is available to create, edit, and move headings and paragraphs. Some commands work with single items (headings or paragraphs), and others work with collections of items or sections of the outline.

Access to THINKTANK's text management, file management, and printing commands is provided through a series of menus and submenus or by entering key sequences which are usually mnemonically related to the commands they represent. When needed, menus are displayed on the bottom four lines of the display screen.

Other commands, not displayed in menus, are used in text creation and editing. The text editor performs many basic functions typical of full-fledged word processors. It uses a live display in which text is automatically justified when text is inserted or deleted; provides several types of cursor movements; will find and replace specified character strings; will scroll the display vertically; supports typeover and insert key-entry modes; and will copy, delete, and move blocks of text.

It has neither a full set of print formatting commands nor a shift-lock key but will: automatically capitalize the first letter of each sentence in a paragraph (but not headings); fully capitalize blocks of text enclosed by a pair of carets (" ^ "); or capitalize any single letter preceded by a backslash (" / ").

Two main options are available to print your outline. The first will print only paragraphs with practically no page formatting. The purpose of this option is a mystery to me.

The second print option will produce a result similar to that shown in Figure 3 from the outline shown in Figure 2, assuming the text bar cursor were positioned over the first line in the outline. Note that all text implied by the "+" marks in Figure 2 would be printed but is not shown in Figure 3. Moreover, you may print any specific section of your outline by positioning the text bar cursor over the heading which controls that section before entering the print command.

FIGURE 3

---

16-Aug-83	THINKTANK REVIEW	PAGE 1
1:	INTRODUCTION	
2:	FEATURES AND FUNCTIONS	
2.1:	define headings and paragraphs	
	THINKTANK works with two types of text: headings ...	
2.2:	discuss hierarchical organization	
	Headings and paragraphs may be organized into ...	
2.3:	illustrate expand command	
3:	DOCUMENTATION	
4:	PERFORMANCE	
5:	CONCLUSIONS	
16-Aug-83	CONCLUSIONS	PAGE 1

---

Report formats are determined by a series of options contained in a table accessible through the port/prINTER/formatted command sequence. They are fairly complete.

The combination of its text editor and these formatting options give THINKTANK the strongest text editing and printing capabilities of any nonword-processor I've seen.

DOCUMENTATION

THINKTANK's manual is spiral bound, containing 228 typewritten pages. It is accompanied by a typical six-column Reference Card listing the system's commands with brief definitions and a large sample outline contained on one of the two program diskettes.

The manual's Table of Contents and Index are complete. Its index is exceptionally well cross-referenced. This is a saving grace since the manual's organization leaves much to be desired.

Several problems are readily apparent from the table of contents, many others are apparent when trying to

penetrate the manual itself. For example: there is much introductory information in Chapters 1 to 5 which is repetitious or could be consolidated into a single introductory chapter; users would benefit from a thoroughgoing Tutorial instead of the one presented in Chapter 3 which just highlights the system's main functions; Appendices are placed in the middle of the manual, diminishing their usefulness; and Appendix C contains a tutorial on how to copy disks, which could be in the tutorial section.

The THINKTANK COMMANDS section is well designed and is easy to follow. It devotes separate discussions to most of the system's keyword, editing, and other commands. These discussions are organized alphabetically and are easy to locate. Its ERROR MESSAGES section is also well done, listing both possible causes and remedies.

In summary, THINKTANK's manual is jam-packed with useful information which may often be found only by resorting to its excellent index. If you're good with keywords, its perplexing organization should be no barrier to finding what you need. If you're not, the system's operation had better be self-evident (user friendly) or you'll have an awful time trying to find your way around.

## PERFORMANCE

Is THINKTANK's operation self-evident? Could you learn how to use it (or most of it) if your only clue was how to turn it on and load the sample file?

Very likely so, since almost all commands are self-prompting. That is, with the chief exception of text editing commands, which are easily found on the Reference Card, the menu/command lines at the bottom of the display tell you everything you'd want to know about THINKTANK's commands—including brief definitions of each. Sure, some of the keywords may be obscure at first (like *summit*, *port*, *outline*, *paragraph*, and *promote*), but browsing with the well-designed example for an hour or two can be very helpful.

Further, unless you compound your errors, the system won't allow you to alter or destroy what you've created without being given a chance to either undo what you've done or to think twice about the change. You can abort or escape from any part of the system and return to the main menu by hitting the ESCape key at any time. Its creative use of sound to signify progress being made in various processing steps, error conditions, and other system states is refreshing and can be turned off if it gets annoying. In short, there's a lot to recommend THINKTANK's operating style and performance.

It's when you try to branch out and create your own files that the picture darkens a little. First, THINKTANK doesn't handle disks very well if you have only two floppy disk drives. Its disk management programs are located on its DATA diskette supplied with the package. This diskette also contains the sample file. Thus, to execute disk management functions you'll need to close the file you're working on, load the "DATA" diskette, enter the disk man-

agement menu, and then reload the file you were working on. Following this route takes a fairly long sequence of steps and time—e.g., to convert THINKTANK files to DOS 3.3 text files for use with a non-Pascal word processor.

Second, the system doesn't like write-protected diskettes. Let's say you've developed your outline, want to copy it, and have put a write-protect tab on it. If you then try to load it, the system will display an abbreviated main menu which will allow you to copy a THINKTANK file to a Pascal text file, but it will not allow you to reach the disk-management menu which you would use to translate the Pascal text file to a DOS 3.3 file.

Next, I was trained (and prefer) to develop report outlines using complete sentences rather than keywords below the chapter or section level. This approach is inconsistent with THINKTANK's limitation of 80 characters per heading. Not many of my sentences are just 80 characters long when I set out to write a new report.

Among my other minor gripes are: failure to use consistent terminology and definitions across the various menus and in the manual; lack of a system menu organization chart; inconsistent use of some commands; vertical page scrolling and other nonedit display management chores are fairly sluggish since the system continually goes to the disk when any changes are made (text editing, on the other hand, works very quickly and efficiently); four lines are always reserved at the bottom of the screen for menu displays (whether or not they are actually displayed), and this space could better be used to expand the text display area.

## CONCLUSIONS

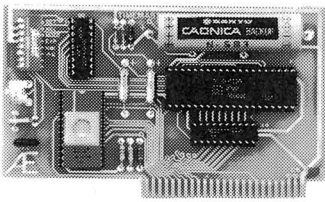
THINKTANK has a lot going for it: a novel and useful concept; a surprisingly efficient text editor; a highly appreciated respect for the printed page; an efficient and easy-to-learn command/menu structure; and good flexibility in communicating with other applications.

It's encumbered by a mediocre manual; an important structural limitation in the size of its heading lines; occasionally sluggish performance; cumbersome floppy disk handling; and lack of polish in spots. But these shortcomings won't deny it my hearty recommendation. If you need help organizing large amounts of information, run to your local retailer for a demonstration. □

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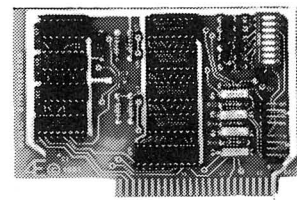
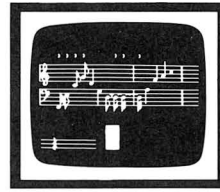
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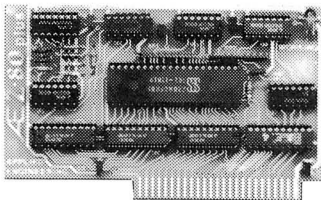
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OMNIVISION	295	NO	YES	NO	NO	NO	YES	YES
VIEWMAX80	219	YES	YES	YES	YES	NO	NO	YES
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# ANA-LIST

---

Version 1.52, Copyright 1982  
Program by Bill Siddall  
Manual by Alfred Poor

Synoptic Software, Inc.  
57 Reservoir Lane  
Chestnut Hill, MA 02167  
617-277-0778

\$150.00

Rating: AA

Reviewed by Alan Shalette

## INTRODUCTION

Which salesmen are most productive with what products? Do horses with inside post positions have an advantage in winning races? Which demographic groups provided the greatest strength to a winning candidate? In business, sports, politics, and a host of other endeavors we often are faced with lists and tables of things from which we attempt to gain new insights and understandings. ANA-LIST is subtitled "The Processor for Lists and Tables" and can be a valuable tool for answering these types of questions. It can also serve as an effective tool for handling simple file management chores such as grade books, prospect lists, and time and expense reports.

## HARDWARE AND SOFTWARE REQUIREMENTS

ANA-LIST operates under DOS 3.3 with Applesoft in ROM. It requires 48K of main memory, a monitor, and one disk drive. A printer, a second disk drive, and a 16K RAM card are optional and are recommended.

## FEATURES AND FUNCTIONS

Design, Enter, Modify, Sort, Report, and Store are the basic functions of most file managers. Since ANA-LIST's records are in the form of row entries in lists or tables rather than pages or screens which most other file managers use, it implements these functions using comparatively simple, menu-driven techniques.

**DESIGN.** To speed processing, all data are kept in memory and are stored on, or accessed from diskettes only on user command. A file (i.e., table or list) may contain up to 800 items with 48K of RAM and 2700 items if you use a 16K RAM card. The number of items in a file is determined by multiplying its number of columns by its number of rows. A list can contain up to 46 columns. Each column may be up to 25 characters wide.

ANA-LIST calls its record designs skeletons. Skeletons define the columns in a list or table. Data in columns may be alpha, numeric, or calculated using logical combinations of other columns, constants and the operators +, -, \*, /, (exponentiation), EXP, LOG and INT.

A list may have more than one skeleton. This feature is comparable to short forms supported by D. B. Master and VisiFile. You might use alternate skeletons to facilitate analysis and report generation or to expand the contents of a list which was created previously.

**ENTER.** Once a skeleton has been defined, records may be added to the list. You may either enter data in all columns or select one or more columns in any order you like. If you

forget the exact names of your columns, a complete, numbered list will be displayed by entering "?". You may then tell ANA-LIST either the number of the column you want to enter, or spell it out. This approach works in most parts of the system where you must designate the columns with which you want to work.

Next, you enter one row at a time and are given ample opportunity to check and correct each entry before it is accepted by the system.

**MODIFY.** Changing rows which were added previously to a list is handled like record addition. The main exception is that you will need to specify the row(s) you want to change. You may change all the rows, only the ones which satisfy one or more conditions you specify, or only the one row you specify.

Conditional row tests are also used in report generation. Rows are tested by comparing the contents of columns with other columns and constants using the logical operators EQUAL, GREATER THAN, LESS THAN, NOT EQUAL, NOT GREATER THAN, and NOT LESS THAN. Compound tests may be created using AND and OR functions.

**SORT.** You may sort the list currently in memory based on the contents of up to nine columns. Each column you specify may be sorted in either ascending or descending order.

**REPORT.** Reports are defined by formats and may be sent to your printer, your screen, or a disk file.

Formats specify columns to be printed, totaled, or subtotaled and their widths; rows to be included and conditions for developing subtotals;

titles; and whether to include all the row data or just the summary statistics.

Statistics which may be specified in addition to subtotals and totals for numeric columns include mean, standard deviation, minimum and maximum, count, and weighted average. Weighted averages for a given column are calculated in conjunction with the values in another column you specify. Only counts may be specified as the statistics to be reported for alpha columns.

Formats also tell the system about page layout—i.e., number of lines per page; number of characters per line; number of copies to print; and whether to stop between pages.

You have a choice of using a system-defined standard format or one(s) which you have created yourself.

**STORE.** ANA-LIST will store and recall from disk just about everything worth keeping—i.e., skeletons, lists, and formats. It will even keep a directory or catalog of everything you've saved on all your data diskettes.

**MISCELLANEOUS UTILITIES.** The system provides a nice complement of utilities with which you may initialize new data diskettes; backup data; fit an existing list to a new skeleton (e.g., to add new columns); convert lists to or from DIF files; and maintain a configuration table which tells it about your disk and printer configurations—including printer initialization strings.

## DOCUMENTATION

ANA-LIST's documentation is just one step short of being masterful. The one step would be to develop a reasonably cross-referenced and suitably categorized index. The index provided is all but useless.

The manual is contained in a loose-leaf binder containing about one hundred and eighty 6 X 9 1/2-inch pages. The first three chapters contain a like number of lessons which step the reader through most functions from very simple to more advanced concepts. The fourth chapter

describes the contents of eight (A through H) tabbed sections which follow. Each tabbed section discusses, in depth, a major functional area such as Skeletons, Reports, and Conditional Rows. A nine-section Appendix follows which contains much useful information about system messages, disk handling, report formatting, sorting, statistics calculation rules, and the like.

A big plus is that the tabbed reference sections are cross-referenced in each of the corresponding submenus. For example, the storage submenu contains a "Tab A" reference in its lower right-hand corner. This helps overcome the lack of a useful index.

The only other item I would like to see is a menu/submenu organization chart.

## PERFORMANCE

Highly flexible, quick, fail-safe, and loose-jointed are the terms I think best characterize ANA-LIST's performance and handling.

I have a tough time trying to invent ways to handle data that ANA-LIST doesn't already support—whether with regard to skeleton alteration, file conversion, reporting, storage, or communication with other systems.

Since all data are stored in memory, sorts are very fast—e.g., taking only about three seconds to sort 100 rows based on the contents of three columns. Although menu-driven systems can tend to be slower handling than command-driven systems, ANA-LIST's menu-driven approach leaves little to be desired. It has two laggardly characteristics, however. First, I think an attempt should be made to speed its printing routines. Second is its need to access its program disk to bring in major blocks of code corresponding to its main menu options. If you use just one disk drive, diskette swapping will be necessary, but not frustrating. Moving between submenus within one of the three main menu options can be accomplished very quickly, however.

All data entry is followed by at least one chance to review what you've done and the opportunity to easily go back and correct errors. There are some traps, however, which will allow you to lose all data in memory. For example, if you enter a new list of data, ignore opportunities to save the data to disk and load a new skeleton, the data in memory will be lost. In this case, flexibility overrules, and you will be held responsible for your own actions.

Loose-jointed is the most negative term I could think of to describe some confusion I encountered as a newcomer to the system. It concerns the correspondence between skeletons, lists, and report formats stored on data diskettes. Since each type of information is stored and accessed independently, I found it easy to lose track of "which belonged to what". Perhaps, if all three types of information could be loaded as a group, or at the same time, confusion would be reduced. Otherwise, I assume more experience would help overcome the problem.

Another aspect of loose-jointedness is the burden placed on users to remember previously specified sort sequences when setting up report formats. Simply put, subtotalling instructions had better mesh with sort sequences, or your reports will look like jibberish. Once your sort is completed, the system can't recall what the specified sort sequence was. Further, you must go to the main menu and then to the utilities submenu to get a hardcopy of the format you are using. In general, it would be helpful if the system let you print hardcopy of all file and report specifications within the submenus in which they were created or accessed.

There are other problems to pick at, but I consider them minor. For example, the system prompts you to enter the date each time you print a report—it doesn't remember the date if you entered it previously. Stored formats don't include any modifications you may have made to your printer configuration parameters

such as number of lines per page or number of characters per line. Each time you print the report, the system recalls these values from its master configuration table. Finally, each time you want to store or access data from a diskette, you will be prompted to load the diskette—even if you're using two drives. I think this takes hand-holding a little too far.

## CONCLUSIONS

ANA-LIST is one of the few systems whose performance exceeded my

expectations. I would strongly recommend it to anyone who needs either a simple, general-purpose file management system or a powerful tool to assist in statistical analyses. This recommendation comes along with a caveat to make sure that your needs would not exceed the system's data storage capacity.

Those of you who already own file a management system may find ANA-LIST to be a worthy addition to your software repertoire based on its flexibility, ease of use, and handling

speed.

My wish list for ANA-LIST encompasses performing chi-squared; one-sample and two-sample tests; developing Spearman rank correlation coefficients; and generation of other selected nonparametric statistical measures. I also wish it could develop simple graphics. However, its ability to create DIF files provides ample opportunities to send its files to other systems for further analysis. □

---

# SYNOPTIC SOFTWARE RESPONDS

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*Thanks for the opportunity to read Alan Shalette's review of ANA-LIST. We are very pleased with the review. It gives an accurate description of the product and shows a good appreciation of the uses ANA-LIST was designed for.*

*There are two factual issues I would like to comment on.*

*1. Under the subhead SORT, the number of columns which can be specified for one sort is ten rather than nine. This is incorrectly described in one piece of promotional literature as nine, which is probably the source of the confusion.*

*2. Under the subhead DESIGN, the third paragraph says that a list may have more than one skeleton. In fact a given list may have only one skeleton although the same skeleton can be used for multiple lists.*

*Beyond this, we are basically in agreement with Alan's comments, both compliments and problems. We appreciate your review of ANA-LIST and remain available at any time for questions or issues you would like to discuss.*

*Sincerely,*

*Synoptic Software, Inc.*

*Bill Siddall  
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# ULTRATERM

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Videx, Inc.  
897 NW Grant Avenue  
Corvallis, OR 97330  
503-758-3091

\$379.00

*Reviewed by Monty Lee and  
Michael Weasner*

## INTRODUCTION

Somebody once said that the Apple II was a useless computer because you were limited to 40 columns per line. Many had requirements for 80 columns in their word processing or telecommunications work. A company called Videx came to the rescue of the Apple II by developing the Videoterm 80-column display card. This card became essentially an industry standard for the Apple II and is the most widely supported of the 80-column cards. But like memory and disk storage, 80 columns per line was not enough for some to accomplish their work. Once again it is Videx to the rescue. Their new UltraTerm is the ultimate text display card for the Apple II or //e. The UltraTerm is also compatible with the Apple //e (using an extended memory card) and the Apple ///—neither of these will be evaluated in this review.

The UltraTerm is warranted for 90 days, but as with all Videx products, this period is very flexible. Chips are all socketed so that firmware upgrades or replacements can be user installed.

## DOCUMENTATION AND INSTALLATION

The UltraTerm manual is well organized for any level of use. Installation is thoroughly explained. It is simple to install because a soft-switch is built in; so merely remove the cover from your Apple and insert into a slot, preferably #3. Unlike the Videoterm, whose video cable is connected inside the Apple, the UltraTerm connects to the Video OUT jack on the rear of the Apple. If you have another monitor (say, a color one) connected here, you would either have to make modifications to the cable supplied with the UltraTerm or make some other arrangements. I tried to connect both monitors using a "Y" connector, but there was a problem, as one might expect. The best method to allow the simultaneous connection of color and high-resolution monochrome monitors is to use the Videoterm soft-switch. Although the UltraTerm has its own softswitch for toggling between the standard 40-column and the UltraTerm screens, it is also compatible with the Videoterm soft-switch. If you are upgrading to the UltraTerm and have the softswitch, keep it. Connect the UltraTerm to the same location that the Videoterm was connected to. If you don't have the softswitch and wish to use two monitors, you might consider purchasing the softswitch. If you plan to use only one monitor, the UltraTerm's softswitch will be sufficient.

The manual contains: other sections on troubleshooting; a beginner's guide; operation; usage under DOS, Pascal, CP/M, BASIC, and

machine language; specific software discussions; and firmware listings, schematics, and theory of operation. All the information that any user could require is here and can be found easily through the Expanded Table of Contents.

## OPERATION

There are eight basic display modes of the UltraTerm:

1. **80 columns X 24 lines (default—Videoterm Emulation)**
2. **96 X 24**
3. **160 X 24**
4. **80 X 24 with interlace**
5. **80 X 32 with interlace**
6. **80 X 48 with interlace**
7. **132 X 24 with interlace**
8. **128 X 32 with interlace**

In addition, there are two intensities of normal and inverse displays: lowlight and highlight. There are two character sets available in most modes. The fonts are 7 × 9 dot and include a seven-character block graphics set and a 15-character line-drawing set. The character sets are even more readable than those of the Videoterm. All display modes are shimmer-free, including the inverse displays which had visible scan lines with the Videoterm. Character-by-character selection of the display modes is made through control characters and/or ESCape sequences.

The UltraTerm supports lowercase keyboards or uses CTRL-A as the shift toggle. An outstanding feature of the UltraTerm is that it performs the con-

version of BASIC or DOS commands to upper case. Typing "catalog" because you forgot to hold the SHIFT key down no longer results in a syntax error. In a BASIC program, commands like PRINT, HOME, etc. can be entered in lower case since all text not between quotes is automatically converted to upper case by the UltraTerm. The commands NORMAL, INVERSE, HOME (same operation as on the 40-column screen), VTAB, and HTAB are supported; however, for VTABs greater than 24 or HTABs greater than 40, a POKE 36 or 37 must be used. All standard cursor-control commands work in all modes except that the Up and Down Arrows will not function on the //e.

## MONITOR REQUIREMENTS

Due to the increased speed of information being sent to the display and the way the higher quality modes are displayed at half the normal scan rate (30 vs. a normal 60 times per second), not all video monitors will be acceptable for use with the UltraTerm. There are three requirements for a monitor to work well in all modes. The monitor must have:

1. **A bandwidth of at least 15 megaHertz**
2. **Long-persistence phosphor**
3. **Minimal overscan**

Bandwidth will affect the quality of the display of the 128-, 132-, and 160-column modes. Persistence affects the interlace modes; a short-persistence phosphor will cause a noticeable shimmer in the display, whereas on a long-persistence phosphor monitor, the display will fade more slowly than the information is sent, resulting in no shimmer. Excessive overscan will cause the left and right sides of a display in 160 columns to not be visible. The manual specifically mentions four monitors: Apple Monitor ///, NEC JB-902M and JB-1202M, and the Amdek 300A. Of course, the larger the screen, the

more readable will be the smaller characters of the expanded modes. The reviewers used the UltraTerm on the Monitor /// and the NEC JB-1201M. Both are green phosphor CRTs but with different characteristics. Our specific comments on each monitor and some software will be presented in the next sections. As long as your monitor can meet the above requirements, you should find the displays of the UltraTerm ranging from acceptable to outstanding.

## APPLE MONITOR ///

The UltraTerm works great with the Apple Monitor ///. There is very little shimmer with the monitor for all display modes. With normal print (white on black), the shimmer is no more noticeable than that of the Videoterm. In the Inverse mode (black on white), there is a very small shimmer that is not at all disconcerting. The UltraTerm display is very easy to read with the Monitor ///. However, not all display modes of the UltraTerm work with the Monitor ///. In the 160-column mode, you cannot see all the display at the right and left edges because the overscan of the Monitor /// throws the text off the edges of the screen. By adding a resistor to the Monitor /// circuitry, it is possible to increase the resistance of the horizontal scan to allow most of the text to be displayed in the 160-column mode. Although a simple modification, **this should not be accomplished by an amateur and will void your warranty..**

If you have been using a Videoterm, you may have to make some changes to the monitor, depending upon which version of firmware you have in the Videoterm. With some Videoterm boards and the Monitor ///, the output is skewed off in one direction. Or you may be using the newest firmware chip on the Videoterm that corrected the Monitor /// problem. In either case, you may have to readjust the screen display to correctly center the output. This is also noticeable with the NEC 12-inch

green phosphor CRT, but to a very small extent and requires no correction.

## NEC JB-1201M

Unlike the Monitor ///, no internal adjustments need be made to display any of the UltraTerm modes. The 160-column mode can present an incredible amount of information on the screen; the text looks very squeezed but is still readable. The interlaced modes will shimmer, but this can be reduced by adjusting the contrast and brightness of the screen. We wouldn't want to use these modes continuously, but for occasional use they are acceptable.

## SOFTWARE

The UltraTerm works with all software we tested that supported the Videoterm. Although the Videoterm Emulation mode is supposed to be totally compatible with all Videoterm software, there is a problem with some software that uses the Hayes Micromodem II. The reason for the problem was never determined, but we worked around it. Data Capture 4.0/80 loses its cursor and has a problem with the modem hanging up at the start of an auto-logon sequence. Only the latter was resolved. Other terminal software for the Micromodem that was tested worked with no problems.

Some software can be configured to run in any of the UltraTerm modes, but with other software, the display reverts to the standard 80 X 24 display, even if the UltraTerm is configured differently before running. Programs like Pie Writer and S-C Macro Assembler have internal drivers that toggle the softswitches to the Videoterm mode. Every attempt to modify these drivers failed. Some of the driver routines listed for the Apple-Cat II must be modified slightly to support the different UltraTerm configurations, but this can be easily accomplished.

WordStar is one of the few programs that allows internal modifica-



tion to the program. Thus it is possible to run INSTALL and then modify the WordStar program using the patches discussed in the UltraTerm manual to allow WordStar to work in the 80 X 48 mode. This mode of operation with WordStar is superb. With the normal 24 lines of text, one of the drawbacks of having the WordStar menu displayed at the top of the screen is that it takes up almost half the available text screen. With the 48-line mode in operation, this is no longer a problem. The display is easily readable, and like all modes of the UltraTerm, the characters are nicely formed. There is virtually no shimmer of the screen display (on a long-persistence monitor), even when filled with text. The modifications provided by Videx will display the menu in highlight inverse. It would have been nice if Videx could have also provided the patches that would support a lowlight menu instead. This is more pleasing to the eye and eliminates all shimmer caused by the inverse display. Additionally, the necessary patches to support other modes of operation like 132 columns would be useful.

ASCII Express Professional (AE Pro) works in any mode of the UltraTerm. It does not supply its own driver and so will recognize any mode the UltraTerm is configured in. You must configure the UltraTerm before running AE Pro because you cannot do it from within AE Pro. There are several cautions that need to be observed when using a column output of more than 80 characters. First, you will have to reconfigure AE Pro to a line length greater than 79 characters (standard default) to support it. However, you cannot change back to the 80-column mode unless you first quit AE Pro. Data Capture 4.0/80 can either be run in any mode the UltraTerm is configured for or can be modified to allow selection of a mode from within the program. Occasionally there is a need to log onto systems that have a 132-column output. Using the UltraTerm in the 132-column mode and with AE Pro

or Data Capture reconfigured, it is great to see the output not chopped off or words split in the middle. Also, it can be deceiving if the display is 132 columns and the host computer only supports 80-column input (like the Source). You may find yourself typing lines too long, without ever knowing it.

One problem did surface during our testing. The UltraTerm recognizes a CTRL-U (Right Arrow) as a standard (40 column) and UltraTerm toggle. This was done to insure compatibility with the //e but can cause problems. If there is an embedded CTRL-U in text received while online with a system, the display will toggle to 40 columns, and you could lose some information. The solution is to trap out the CTRL-U via the software.

This same CTRL-U toggle will cause a momentary flicker of the screen in CP/M whenever a CTRL-C is used to warmboot the system. Nothing disastrous will occur, but it can be distracting.

Other software tested in the Videoterm Emulation mode included GPLE, Big MAC, Videoterm Utilities, VisiCalc w/Preboot, and The Spreadsheet 2.0. Although these programs could not be modified to take advantage of other display modes of the UltraTerm, they all worked properly in the Emulation mode, except for the VisiCalc Preboot from Videx. The Preboot would not turn on the UltraTerm; it would allow VisiCalc to run in the 80-column mode if the UltraTerm was already activated, but then you can't see the Preboot prompts which are on the 40-column screen. This really doesn't present a problem but is inconvenient. Videx plans to release an UltraTerm Preboot for VisiCalc and Apple Writer II as extra-cost software. GPLE worked properly only in the Videoterm Emulation mode; it could display properly in other modes, but the program editing features functioned incorrectly. Currently there is a potential problem with the HOME command. Under certain conditions which would occur only very rarely,

and very possibly never for most users, a BASIC program in memory could be made unusable. Videx will be correcting the problem in future UltraTerms distributed.

The power requirements of the UltraTerm are greater than those for the Videoterm: 450-600 ma, depending on the display mode in use. This could cause an overload in some Apple IIs; however, both of our Apple IIs are loaded with cards, and we found no problems with the power. In fact, the only noticeable effect was a minor screen brightness change when a disk drive was accessed.

## SUMMARY

Overall, we found the operation of the UltraTerm to be outstanding. The character display in all modes is easily readable with the Monitor ///. The display is shimmer free. Perhaps the easiest reading mode is the interlaced 80 X 24 mode. In this mode each character is completely filled in, and no individual dots can be seen. Use of the NEC monitor is possible if you don't mind some shimmer in the interlaced modes. The ability of the UltraTerm to support lowercase commands adds to the power of the UltraTerm. This makes the Apple operate almost like many other powerful operating systems. With Videx putting all hardware (soft-switch included) on the UltraTerm board, it makes the board all that much easier to install and operate.

The UltraTerm will be the new industry standard for Apple video display cards. The availability of the extra modes will enhance almost any software product that uses the text screen. Its compatibility with the II, //e, and /// will insure it a long and useful life. Videx, always a company with superior products for the Apple, has surpassed itself with the UltraTerm. □

# VIDEX RESPONDS

Thank you for the copy of the review we have just received. We were very pleased with the results and are anxious to see the final printing. There are a few points we would like to clarify, however.

Southeastern Software, the publishers of DATA CAPTURE 4.0, do have an UltraTerm and have mentioned they plan to implement the UltraTerm in their 5.0 version.

By setting the DIP switches on the UltraTerm, a user can configure WordStar to display the menu in lowlight and the text in highlight or in a variety of other configurations.

The CTRL-C glitch that was mentioned in the article is familiar to us and the newest version of firmware will eliminate it. As was mentioned in the article, this update is available at no charge.

I was surprised to read about the problem booting

VisiCalc with our pre-boot on the UltraTerm. It should not be necessary to initialize the UltraTerm before using the pre-boot. There might have been a problem with that particular pre-boot version. In any case, the new pre-boots for VisiCalc and Apple Writer II will be available soon for your next review.

Again, we appreciate the good review and the cooperation your staff has consistently shown Videx. If I can be of more assistance to you, please call.

Sincerely,

William Leineweber  
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# IPHERAL BOARD

adapter available to display lower-case letters properly. An additional lowercase display chip would have to be purchased from one of the many sources available.

EPS sells a softswitch that allows you to use both or either keyboard. However, you still cannot take advantage of the Enhancer II functions while using the EPS keyboard. Likewise, the softswitch is not compatible with the old main board Enhancer either. For Enhancer II owners, the softswitch might be worth the \$40, but for Enhancer I owners it is not.

## DOCUMENTATION

The EPS keyboard comes with three sets of documents: the first is a 30-page Instruction manual, the second is a 23-page Promware Instruction manual for BASIC and DOS, and the third is a 15-page Promware Instruction manual on "Your Program". The latter two deal with the one Promware module that comes with the keyboard. Each set of documents is 5 1/2 x 8 1/2 inches and designed to all fit in a small three-ring notebook. When EPS was initially introduced, most owners received sets of documents of different sizes and with the holes all punched differently—quite annoying. This problem has been corrected by EPS, and all subsequent publications are supposed to be standard. With each subsequent Promware Module purchase (\$32.95 each), you get two sets of documents, each dealing with the func-



# VII

Thank you for the copy of the review we had. We were very pleased with the results and to see the final printing. There are a few points I like to clarify, however.

Southeastern Software, the publishers of Dr. Dobbs' 4.0, do have an UltraTerm and have mentioned to implement the UltraTerm in their 5.0 version.

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The CTRL-C glitch that was mentioned in the review is familiar to us and the newest version of UltraTerm will eliminate it. As was mentioned in the article, the UltraTerm is available at no charge.

I was surprised to read about the problem with the

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# EXECUTIVE PERIPHERAL SYSTEMS KEYBOARD

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*Executive Peripheral Systems, Inc.*  
800 San Antonio Road  
Palo Alto, CA 94303  
415-856-2822

\$299.95

*Reviewed by Monty Lee*

## INTRODUCTION

The Executive Peripheral Systems (EPS) Keyboard is a detachable replacement keyboard for the Apple II or Apple IIe. It provides a complete ASCII keyboard in standard IBM layout, complete with full cursor control, auto-repeat, and a functional shift key. Additionally, there are 12 special function keys that can give you up to 48 commands for various software packages. The function keys are defined by programmed ROMs called Promware Modules that plug into the EPS keyboard. They can be switched for various applications. The EPS keyboard also includes a 21-key numeric keypad for data entry.

## INSTALLATION

The installation of the EPS keyboard is relatively simple. However, you must dismantle your Apple somewhat, and depending upon your degree of mechanical ability, it may or may not be easy. The installation is detailed in the manual in a clear manner, with photographs illustrating the installation. Essentially the process involves plugging the EPS in-

terface into the keyboard socket on the Apple's main circuit board. The documentation indicates that dexterous fingers might be able to do this without removing the Apple case. This should not be recommended since the working space is very small and in all probability the process might bend the pins on the interface. It is best to remove the Apple case so you can get to the Apple keyboard and keyboard socket. At this point, you remove the Apple keyboard cable and replace it with the EPS keyboard cable. If you are installing the optional softswitch, you would do this at this point.

Once the EPS interface is plugged into the main board, you can replace the Apple case. The EPS cable from the interface card extends out the back of your Apple with a telephone-style jack on the end into which you plug the EPS keyboard cable. Once this is done, the keyboard is installed.

The EPS keyboard is not compatible with many keyboard enhancement products on the market, primarily because it plugs directly into the main board and bypasses the keyboard. The Enhancer II from Videx is not usable, nor is the Enhancer I that plugs into the main board. The EPS keyboard has trouble reading characters if it is plugged into the old Enhancer; there is too much crosstalk and interference, which leads to random characters. Thus either Enhancer has to be removed. If you remove the Enhancer I, there will no longer be a lowercase

adapter available to display lowercase letters properly. An additional lowercase display chip would have to be purchased from one of the many sources available.

EPS sells a softswitch that allows you to use both or either keyboard. However, you still cannot take advantage of the Enhancer II functions while using the EPS keyboard. Likewise, the softswitch is not compatible with the old main board Enhancer either. For Enhancer II owners, the softswitch might be worth the \$40, but for Enhancer I owners it is not.

## DOCUMENTATION

The EPS keyboard comes with three sets of documents: the first is a 30-page Instruction manual, the second is a 23-page Promware Instruction manual for BASIC and DOS, and the third is a 15-page Promware Instruction manual on "Your Program". The latter two deal with the one Promware module that comes with the keyboard. Each set of documents is 5 1/2 x 8 1/2 inches and designed to all fit in a small three-ring notebook. When EPS was initially introduced, most owners received sets of documents of different sizes and with the holes all punched differently—quite annoying. This problem has been corrected by EPS, and all subsequent publications are supposed to be standard. With each subsequent Promware Module purchase (\$32.95 each), you get two sets of documents, each dealing with the func-

tions on the keyboard. (Modules currently available include VisiCalc, Applewriter II, PFS File, WordStar, Screenwriter II, DB Master, dBASE II, Pie Writer, Multiplan, SuperCalc, and PASCAL.)

The Instruction manual is clear and straightforward. It details the installation and then the basic operation of the keyboard. A description of the keyboard layout is given that explains the primary key changes from the Apple's keyboard. This is very useful in finding your way about the keyboard at first.

All the other sets of documents deal with the various functions on the Promware module. The biggest disadvantage of each set is that there is no single-sheet reference card for quick reference. Since so many keys can have different functions, particularly with the standard module, it is difficult, if not impossible, to remember them all. For example, on the BASIC and DOS Promware Module, there are 17 keyboard-defined keys, like SHIFT-CTRL-C which gives you CHR\$(. This is in addition to over 30 functions with the function keys. In order to aid you in the operation of the 12 function keys, each Promware Module does include a function key overlay that identifies each of the commands for the function keys.

For each Promware Module, there are basically two sets of functions. To select which set of functions you want active, you press the PROG key at the upper-right. This key toggles between the two sets. The documentation for each module describes first one set of functions and then the other. The documentation is well ordered and organizes the keyboard into several functional key groups. These include: A—Alphabet keys, B—Number/Symbol keys, C—Cursor movement keys, D—Data Pad keys, E—Edit keys, F—Function keys, and G—Other keys. Each grouping is discussed along with the keyboard output of that particular group when using the designated Promware module. For example, when using the BASIC and DOS Promware Module

that comes with the EPS keyboard, if you press the CHAR DELETE key in the Edit key grouping, the EPS keyboard outputs a CTRL-X.

Since most of the power lies in the function keys, the documentation provides in detail the operation of each of the twelve keys. Additionally, the function strip overlay is extremely valuable in the use of the particular module. For the various software packages, the corresponding set of commands is also given. For example, with the PIE WRITER module active, pressing the FILE BEG key generates a CTRL-T. Pressing the LINE INSERT key generates a ESC-CTRL-I sequence. In WordStar, pressing the ABDN key generates the CTRL-KQ sequence. You can see the advantage in having defined function keys that tell you exactly what they are doing, rather than your having to remember a set of CTRL sequences.

## THE KEYBOARD AND OPERATION

The EPS keyboard is approximately  $19 \times 9 \times 2$  inches in dimension and is made of strong durable plastic. The keys are laid out in standard IBM format or the new Apple //e format. The construction is sturdy, and the plastic makes it easy to clean the keyboard. The color of the keyboard shell is off-white (similar to the Apple's case). The keyboard area has a light grey coating. The keys are a neutral grey and black, which is very pleasing to the eyes. (*Editor's note: EPS no longer produces a grey keyboard—the keyboard color is now light beige, with neutral beige and light beige keys instead of neutral grey and black.*) At the very top of the keyboard is a hinged top that provides a storage place for the plastic function key overlays as well as the Promware Modules. The standard keyboard comes with a six-foot cord with a 20-foot cord available (\$35). Realistically, the six-foot cord can only be stretched out to about four feet without damaging the cord.

The internal construction is sound. The printed-circuit traces are smooth,

and all solder connections are solid. The internal mounting is secure and not likely to come loose with constant keyboard movement. The internal layout provides access to many of the critical components for easy repair.

Some of the more significant key changes from the old Apple keyboard include a CAP LOCK key where the CTRL key was, a Back Space key instead of the RESET, [ ] and { } instead of the REPT key, and a RETURN key where the Arrow keys used to be. The RESET key has been moved over to the far left above the ESC key, and the CTRL key is below the ESC key. To use the RESET key, the RESET, ESC, and CTRL keys must all be pressed together. This will prevent most cases of accidental RESET.

To the right of the standard ASCII keys are two groupings of keys. One grouping has the full cursor keys: the Up, Down, Right, and Left Arrow keys, and the L and R keys representing the ESC-B and ESC-A keys, respectively. The second grouping is called the Edit keys and includes the CHAR INSERT/DELETE and LINE INSERT/DELETE keys. At the far right of the keyboard is the numeric keypad, complete with 000, 00, a SKIP, BS, and ENTER keys. Above the keypad are the math function keys +, /, and \* (all with the correct math symbol on the key). Finally, above the main ASCII keyboard are the 12 function keys.

The keyboard has a feel very similar to the Apple keyboard. Instead of the raised dot for finding the home keys, the F and J keys are indented slightly more than the others. These indentations have a better feel than the bumps on the Apple //e F and J keys. The keys are auto-repeat when held down for more than about a second. The keys require a slightly harder press than the standard Apple keys, thus the fast typist will have to get used to the new feel. For all users, the change in keyboard layout requires some adjustment. You may be typing the " key instead of the + or the = instead of the : until you get



used to it.

Probably the biggest problem area with the keyboard is the lack of N-key rollover. This is the ability of the keyboard to correctly pick up the appropriate key when multiple keys are pressed. The Apple keyboard only has a two-key rollover. The EPS keyboard has none. Thus if you have any speed at all, you can occasionally get extraneous characters, like CALAL instead of CALL, or CATALAOG instead of CATALOG. When EPS was advised of this problem, they said it probably was the encoder chip; however, replacement of that chip with a new one did not solve the problem. This is quite annoying for even an average typist. For the price of the EPS keyboard, it should support N-key rollover. According to the documentation, the EPS keyboard has an internal buffer which stores about 60 keystrokes and sends them to the Apple. This is not a type-ahead buffer as it may imply, but I suspect it is primarily for the output of the various function keys when several characters must be output (like CATALOG). There is no type-ahead buffer with the standard EPS keyboard. (The Apple //e Interface (\$75) is supposed to have the type-ahead buffer.) Likewise, the //e interface does not provide any N-key rollover capability.

A couple of other minor problem areas exist with the keyboard. First, when hitting RESET, the RESET, ESC, and CTRL keys must all be pressed simultaneously. If you do not press the keys at the same time, you may have toggled the ESC or CTRL key so that the Apple is waiting for another key input. This means that after RESETing the Apple, the next keyboard input may not be recognized, resulting in ATALOG instead of CATALOG. The logic circuitry should have cleared the keyboard strobe after RESET. Second, depending on which Promware Module is being used, some keys do not have any functions. If you accidentally press one of these keys, the output may be unpredictable. For example, when using the BASIC and DOS module, if you

accidentally press the CLR TAB SET key (next to the 1 key), some CTRL character is output. Or if you are using the Pie Writer module and are not in the EDIT mode, typing SAVE TEST will result in a space or CTRL character between every letter. This either results in a PIE COMMAND ERR or a file name different from what you wanted. These are just some caution areas that the user will have to get used to with the EPS keyboard.

Rather than discuss each of the separate modules, it is better to just look at the standard Promware Module that comes with the EPS keyboard. The operation of all the other modules is the same, only the function keys are different. The standard module comes with two sets of functions: the BASIC and DOS set, and YOUR PROGRAM set. Some of the commands on the BASIC and DOS function keys include: LOCK, UNLOCK, PR#, SYST MON, INITIALIZE, HOME, PEEK, POKE, EXEC, NEW, TRACE, NOTRACE, RENAME, CATALOG, CANCEL LN, REM, LIST, (B)RUN, (B)LOAD, (B)SAVE, and DEL(ETE). For the most part, the selection of commands is very useful. It is nice never to have to type CATALOG. To access the commands with parentheses, you must first type the CTRL key and then the function key. Thus to type BRUN, you press CTRL and the F9 function key. Each function key has two commands associated with it, the top row and the bottom row. To use the bottom row, you just press the key. To use the top row, you must press the SHIFT and the function key. For example, function key F4 has SYST MON on top and RENAME on the bottom. Pressing SHIFT and F4 results in SYST MON (a CALL -151 RETURN) being generated, and pressing just F4 results in RENAME being generated.

The more frequently used keys should be on the bottom row. This makes it easier and quicker to use the command without having to worry about pressing the SHIFT key. Such

is the case for the BASIC and DOS layout, but the function key F3 has PR# on the top row and IN# on the bottom. These should have been reversed since PR# is used more frequently than IN#. Additionally, the LOCK and UNLOCK as well as TRACE and NOTRACE should have been combined using the CTRL key sequence described above. This would have freed two more keys for additional functions.

The character output rate from the function keys is relatively slow. Thus CATALOG takes about twice as long to display as the Videx Enhancer II output. The manufacturer said this rate was set so as to be compatible with most software. If the rate was too fast, then the software (like VisiCalc) might miss the command sequence. However, I found that the rate for the BASIC and DOS commands can be sped up without any degradation in operation. This output rate can be changed with the DESIGN-YOUR-OWN-PROM KIT (\$75) described later.

The second function set, entitled YOUR PROGRAM, is a collection of various characters such as the tilde, RUB, and NUL combined with a set of CTRL characters. This collection is essentially worthless. Typing CTRL-L with the keyboard is just as easy as typing SHIFT and function key F7. The advantage of having the CTRL keys defined on function keys is not apparent.

On each of the additional Promware Modules there are again two sets of functions. The first is the particular software function keys and the second is the resident language. Thus with Pie Writer or VisiCalc, the first set includes commands peculiar to the software (WRD/COL TAB, JOIN LINES, UNDERSCORE, etc.), and the second set is the BASIC and DOS commands. For CP/M software, the first set is the software commands (WordStar, dBASE, etc.) and the second set includes CP/M commands (DIR, TYPE, et al.). The point here is that it would be much better if EPS allowed you to choose one free mod-

ule with the purchase rather than providing you with a standard default. If you use BASIC and DOS primarily, then choosing the Pie Writer or VisiCalc module would give you all those commands plus those for the particular software. Likewise, if you use CP/M, you could get all the CP/M commands plus a particular set of software commands. Instead, to make the keyboard useful, you have to purchase Promware Modules at \$32.95 each.

## ACCESSORIES

The EPS keyboard comes with a variety of accessories, most of which have been mentioned in this review. Each Promware Module for a particular piece of software is \$32.95. The EPS Softswitch that allows you to use both keyboards is \$40.00. The EPS-//e Interface is \$75 and is required for the Apple //e. The 20-foot extension cord is \$35. Finally, the DESIGN-YOUR-OWN-PROM KIT is available at \$75.

The DESIGN-YOUR-OWN-PROM KIT offers the greatest potential power for the EPS keyboard. Here you can define your own customized keyboard, including defining any key you choose. This means you can, for example, turn your keyboard into a Japanese keyboard if desired (as long

as you change the Apple's character generator output also). You can change your keyboard from QWERTY to DVORAK. You can fix some of the function key problems described above, including character output rate. (At the time of this review, I had not yet received this Kit and thus could not validate the manufacturer's claim. This evaluation will be forthcoming.) Unfortunately, the Prom Kit only comes with one Promware module, and each subsequent module and casing must be purchased at \$25 each.

## SUMMARY

Overall, the EPS keyboard is an extremely valuable addition to the Apple. For old Apple users like myself who cannot use the Enhancer II/Function Strip combination with all its function key capability, the EPS keyboard is fantastic. It combines an Enhancer II with even more functions, a numeric keypad, and a better ASCII keyboard with true shift key, all in one package. The function keys make program operation extremely simple. Moving around in Pie Writer or WordStar is so easy; no longer do I have to remember all the strange sets of CTRL characters. (Unfortunately, if my EPS keyboard ever breaks, I am lost since I can't remem-

ber the CTRL characters at all.)

The lack of N-key rollover is the biggest drawback. I can overspeed the keyboard more often than I could with the Apple keyboard, and this is annoying at times. The lack of a type-ahead buffer is another minor drawback. I would think that for \$299 these two features would have been present. The Promware Module provided should have been user selectable. The requirement to purchase a particular software module simply drives the cost up and results in the standard Promware Module not being used in most cases. In fact, with all the additional options being priced so high, the cost of the keyboard could run well over \$500 at list price. This is a steep price to pay for the features available. However, price discounting on the keyboard by computer stores makes it more reasonable. Nevertheless, I think EPS needs to reexamine their pricing structure on all options.

In summary, the EPS keyboard is very useful. The product is well manufactured and the layout is extremely efficient and aesthetic. The use of the function keys makes software operation simple and powerful, and the keyboard capabilities are equal to, if not better than, those provided on other mini's or micro's. □

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# EXECUTIVE PERIPHERAL SYSTEMS RESPONDS

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*Regarding the N key rollover: we traded the N key rollover feature for the auto repeat feature during initial design. We may implement N key rollover on new PROMWARE versions at some point in the future.*

*Regarding choice of commands for given function keys: it is difficult to satisfy every individual user's needs when making these choices for which commands to implement and where to put them. A command which may be heavily used by one individual may not be used by another and visa versa. However, we are compiling comments on each*

*module offered, and we will from time to time implement modifications incorporating popular features.*

*Regarding the three key reset: we are changing our manual to recommend using the "space bar" rather than the Escape key, thus eliminating any chance of a Control Escape together.*

*Yours Truly,*

*Robert J. Richardson  
Marketing*

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# FINGER PRINT

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Dresselhaus Computer Products  
P.O. Box 929  
Azusa, CA 91702  
213-914-5831

\$59.95

Epson MX-80, MX-100, or  
IBM-PC Printer

Reviewed by Monty Lee

## INTRODUCTION

An earlier version of FINGER PRINT was reviewed in *Peelings II* (V3N8, 1982) under the name of MXPLUS. FINGER PRINT is the newest improved version which allows you to access most of your Epson printer's capabilities. Once FINGER PRINT is installed, simply tap your printer's panel buttons to instantly select: compressed, double wide, emphasized, double-strike, italics, and fine print. The latter is a new addition. FINGER PRINT features an exclusive no-print, buffer-clear option, too. Like MXPLUS, all print modes are user selectable using only the ON LINE and FF buttons and can be changed at any time.

## DOCUMENTATION

FINGER PRINT comes with an eight-page, 5 1/2 X 8 1/2-inch printed pamphlet that details the operation and installation. The material presented is similar to that presented with MXPLUS, with the addition of several print examples and photographs showing the installation of FINGER PRINT. Dresselhaus has improved their documentation con-

siderably with these additions. Additionally, the limitations of various print combinations, a drawback with the previous MXPLUS, have been more clearly explained. FINGER PRINT also comes with a 2 x 3-inch printed sticker that attaches to the side of the Epson for easy reference to the various print modes.

## INSTALLATION

Installation is virtually identical to MXPLUS and can be accomplished in just a few minutes. FINGER PRINT simply plugs into your printer and requires no soldering. With the old MXPLUS, you may have had to remove the dip-switch cap in order to install it. This has been fixed with FINGER PRINT. The addition of the photographs in the manual have made installation virtually foolproof. Basically, the installation requires the removal of one of the Epson chips, bending out a pin on that chip, and then inserting it onto the FINGER PRINT circuit board. A small jumper wire with a clip at the end is then connected to a chip on the Epson circuit board. The installation point of the clip on the Epson for the FINGER PRINT is much easier to access than the one that was used for the MXPLUS.

Again, FINGER PRINT is compatible with the internal printer buffers available for the Epson. To install FINGER PRINT with a buffer installed, you will have to remove the buffer first.

## OPERATION

FINGER PRINT is activated by pressing and holding the ON LINE button on the Epson until the printer

beeps. The ON LINE lamp will then blink to indicate that FINGER PRINT is active, and the buttons can then be used to select new print functions. Tap the ON LINE button until the number of additional beeps is reached for the desired function. The beep heard when FINGER PRINT is first activated counts as the first beep. You press the FF button to turn the selected function on/off. The blinking pattern of the ON LINE lamp indicates whether the function is currently on or off:

**Lamp mainly on = function on**  
**Lamp mainly off = function off**

When finished selecting the desired functions, press the LF to deactivate FINGER PRINT. The buttons now have their normal functions and the selected function remains active.

All the features of MXPLUS have been preserved with FINGER PRINT, plus FINGER PRINT has added some new features not found in MXPLUS. There are two new commands that allow you to take advantage of features found in the Grafrax-plus ROM of the Epson (also reviewed in V3N8, 1982). The first is Italics and the second is Fine Print. Italics was available with MXPLUS but could not be used by MX-100 owners. Now with Grafrax-plus and FINGER PRINT, it is accessible by all users. Fine Print sets the Superscript mode and 12 lines/inch. It cancels emphasized and double-wide functions. It can be used with Compressed mode for very fine print.

Two other features are included with FINGER PRINT: Buffer Clear and an On-Line Preset. Buffer Clear is intended primarily for those who



have a buffer board installed in their printer. By pressing the ON LINE and the LF key simultaneously, the printer will read in all pending printing and throw it away. The printer will then emit a long beep and light the ready lamp to signal that a Buffer Clear is in progress. The Buffer Clear will stop when no data is received for two seconds. This is a very useful function and avoids the problem of having to shut the printer off and losing any print mode selections.

The other feature is an On-Line Preset that will work on most, but not

all, MX-80/100s. On-Line Preset allows you to press FF for a form feed and have the printer automatically go online when the form feed is completed. This eliminates the annoying wait usually required during the form feed before you can put the printer back online.

## SUMMARY

FINGER PRINT, like MXPLUS, is an easy, convenient way to access many of the different print modes of the Epson. It eliminates the need to run

software to set up the printer ahead of time, particularly if protected software is being run. FINGER PRINT allows you to change modes during printing without having to stop a program. Installation is simple and the documentation is excellent. The addition of the new features expand the capabilities of the old MXPLUS to make FINGER PRINT an excellent addition to the Epson printer.

*(Editor's Note: Dresselhaus has advised that Finger Print models will be available for the FX and RX series of Epson printers in December, 1983.)*□

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# THUNDERCLOCK PLUS

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Thunderware, Inc.  
P.O. Box 13322  
Oakland, CA 94661  
415-652-1737

\$150.00

Reviewed by Michael L. Weasner

## INTRODUCTION

One of the few complaints often heard about the Apple II or //e is its lack of a real-time clock. Such a clock has many uses, and some computer users would not be without one. Over the years several clocks have been available for the Apple, each offering certain features and prices. I recently purchased the THUNDERCLOCK PLUS; this decision was based on two factors: (1) since I already have modem and printer cards, I felt there was no need for a multi-function card with serial and parallel interfaces and a clock, and (2) I did desire to have a clock that appeared to be widely sup-

ported by available software, public domain and commercial.

Of course, price is always a factor in any purchasing decision. When all factors were added up, the THUNDERCLOCK PLUS was a clear leader. The surprising aspect of the decision was the ease of use of the clock functions.

## WHY A CLOCK?

I had some uses in mind when I made my decision to get a clock card. Two uses of prime importance were: (1) daily schedule of events, and (2) tracking actual log-on time of several time sharing systems. Both of these have now been implemented, and I am finding them to be of tremendous value. Other potential uses of a clock card are for timing any event, scheduling unattended computer operations, and interfacing with a home control device (i.e., BSR electrical modules). The THUNDERCLOCK PLUS can perform all these functions and more.

## EVALUATION

This review will be short because: there are no faults with the card or the operation of the clock; the card is well made; the various clock modes are easy to use from within programs; and the supplied software functions as described in the 55-page manual. The manual has a Table of Contents, Index, sample programs, tutorials, and lots of help for all levels of users. The only feature the clock lacks is a year value. But in most applications, this is not a crucial value but will require resetting the date for leap years.

There are several modes of display including 12- or 24-hour formats, Mountain Hardware format, or individual values for month, date, day of week, hour, minute, and second. All of these modes are available from Applesoft, Integer BASIC, or assembly language. For example, the following program

```
10 D$ = CHR$(4) : HOME
20 PRINT D$"PR#7" : REM
```

```

CLOCK IN SLOT 7
30 PRINT D$"IN#7"
40 INPUT " ";T$
50 PRINT D$"PR#0"
60 PRINT D$"IN#0"
70 VTAB 1 : PRINT T$

```

will print the string:

WED SEP 7 3:19:37 PM

in the upper left-hand corner of the screen. It is just that easy. Setting the clock is done with a utility program on the disk, and the card has switches that write-protect itself to prevent any program from clobbering the time setting. The speed of the clock can also be adjusted if necessary. Batteries are reported to last for three to four years. The card is warranted for one year.

Time-stamping files, when saved or written to disk, can be done with software available from Thunderware or other commercial sources. Several of the DOS enhancers reviewed in earlier issues of *Peelings* will stamp filenames as will programs that have appeared recently in many magazines. In fact, many programs that support clock functions have recently been published in CALL-A.P.P.L.E. The THUNDERCLOCK PLUS appears to have no incompatibilities with any other cards in my Apple (16K card, Micromodem II, Ultraterm, or Videoterm) and functions well in the Southern California Research Group Switch-a-Slot (its permanent home in my Apple system).

The BSR/X-10 interface of the THUNDERCLOCK PLUS is an op-

tional item and was not evaluated. It allows the Apple, under clock and software control, to control home appliances and other electrical devices.

## SUMMARY

Adding a clock to your Apple does more than just add a time and date display to your screen and printouts. It allows the Apple to perform additional tasks and assists you in managing time as well as information. The THUNDERCLOCK PLUS is definitely worth purchasing, and based on the software that now support it, it has replaced the Mountain Hardware format as the industry standard for Apple clocks. I have now joined those computer users who wouldn't be without a clock; how did I ever manage without it?□

## THUNDERWARE RESPONDS

We thank Mr. Weasner for his review of our THUNDERCLOCK PLUS and wish to add some new information that will be of interest to *Peelings* readers. APPLE Computer recently announced a new, much enhanced disk operating system for the APPLE II and //e called ProDOS which will be available to APPLE users in early 1984. APPLE has designed ProDOS to automatically recognize and use the THUNDERCLOCK for time-and-date stamping files and for a number of other system functions. The THUNDERCLOCK driver software is built into ProDOS, making THUNDERCLOCK the "Official ProDOS Clock".

Yours Truly,

Tom Petrie  
Vice-President  
THUNDERWARE, INC.  
415-652-1737

## FOR APPLE II PLUS, FRANKLIN, APPLE IIe Font DownLoader\*

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On-Disk (Specify Printer)

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\* Requires printer interface that adheres to Apple protocol (Tymac, Apple, Epson, etc.) (Will not work with Pkaso, Wizard and some others).



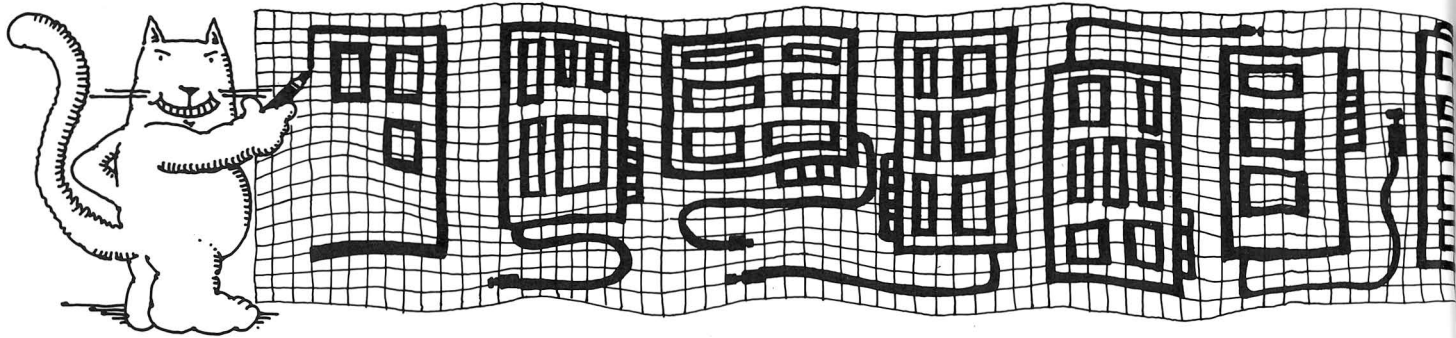
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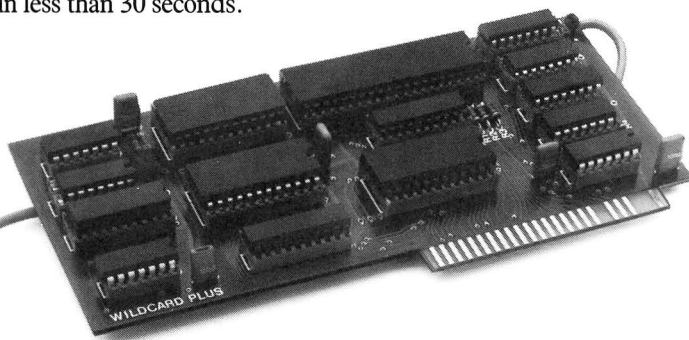
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# PROOF

No version number  
(formerly called VIP-II)

Copyright 1982  
by Mike Harvey  
Micro-Sparc, Inc.  
P.O. Box 325  
Lincoln, MA 01773  
(617) 259-9178

\$49.95

Apple II/e compatible

Rating: C+

Reviewed by Alan Shalette

## INTRODUCTION

PROOF is an accessory system for VisiCalc users. It can aid model development, documentation, and debugging by providing several different types of listings of spreadsheet formulas, assumptions/input data, and titles.

Unlike many other similar systems (see *Peelings II* reviews of VisiList in V2N2; Visicaids in V2N3; and The Consolidator in V3N9), PROOF can print spreadsheet contents in the same grid format that your VisiCalc model results are printed, as shown.

## HARDWARE AND SOFTWARE REQUIREMENTS

PROOF requires 48K of RAM, Applesoft, one disk drive operating under DOS 3.3, and a 40-column display. Use of a printer is preferred since the grid listing can only be printed and its other types of listings are best stored in printed form.

TABLE 1  
SAMPLE VISICALC MODEL

*DEMO*	QTR	QTR	QTR	QTR	YEAR
DESCR	1	2	3	4	END
REVENUE	28.00	30.80	33.88	37.27	129.95
COGS	20.00	15.40	16.94	52.34	104.68
MARGIN	8.00	15.40	16.94	40.34	80.68
R&D	2.10	2.21	2.32	2.43	9.05
ENG	1.80	1.98	2.18	2.40	8.35
MKTG	2.30	2.76	3.31	3.97	12.35
G&A	1.00	2.53	3.04	3.64	10.21
TOTAL	7.20	9.48	10.84	12.44	39.96
GROSS	0.80	5.93	6.10	27.90	40.72

If a 16K RAM card is present, the system will relocate DOS to it to make more main memory available for larger models.

The manual indicates Apple II plus, Apple II/e, and Franklin ACE compatibility.

## OPERATION

Upon booting up the system, you are given the choice of either view-

TABLE 2  
PROOF GRID LISTING

	A	B	C	D	E	F
1	"*DEMO*	" QTR	" QTR	" QTR	" QTR	" YEAR
2	"DESCR	" 1	" 2	" 3	" 4	" END
3	/--	/--	/--	/--	/--	/--
4	"REVENUE	28	+B4*1.1	+C4*1.1	+D4*1.1	@SUM(B4... E4)
5	"COGS	20	+C4*.5	+D4*.5	@SUM(A5... D5)	@SUM(B5... E5)
6	"MARGIN	+B4-B5	+C4-C5	+D4-D5	@SUM(A6... D6)	@SUM(B6... E6)
8	"R&D	2.1	+B8*1.05	+C8*1.05	+D8*1.05	@SUM(B8... E8)
9	"ENG	1.8	+B9*1.1	+C9*1.1	+D9*1.1	@SUM(B9... E9)
10	"MKTG	2.3	+B10*1.2	+C10*1.2	+D10*1.2	@SUM(B10... E10)
11	"G&A	1	+B10*1.1	+C10*1.1	+D10*1.1	@SUM(B11... E11)
12	"TOTAL	@SUM(B8... B11)	@SUM(C8... C11)	@SUM(D8... D11)	@SUM(E8... E11)	@SUM(B12... E12)
14	"GROSS	+B6-B12	+C6-C12	+D6-D12	+E6-E12	@SUM(B14... E14)

Menu-selected support is provided for parallel interface card printers, e.g., IDS, Centronics 737's or equivalent printers, and Epson MX-80's. A fourth option accepts user-entered control strings which should enable the use of a variety of other machines. Your printer interface slot can also be specified along with print density—10 or 16 characters per inch, resulting in either 80- or 132-column listings on 8 1/2-inch wide paper—if your printer supports this option.

ing seven screen displays explaining its operation or going on to its master menu. This is a nice touch for those of us who like to dive right into new software acquisitions without having to slug our way through manuals.

PROOF's main operations are performed using a cell lookup table constructed in memory when a new VisiCalc model is read. It then uses this lookup table to retrieve data from disk without having to store the data in memory. This technique allows PROOF to handle spreadsheets con-

taining up to 1200 filled cells in a 48K machine and up to 2,000 filled cells with DOS relocated to a RAM card. Since many/most spreadsheet cells are not normally filled with data, much larger models can be processed than would be indicated by simply multiplying the numbers of rows and columns in your model. For example, in two models I tested, the ratios of total to filled cells ranged from 1.9 to 3.1. On this basis, a 64K Apple might be able to handle models containing 4,000 to 6,000 total cells. Other data related to the two test models are as follows:

	Model I	Model II
Number of disk sectors	43	28
Number of rows	45	75
Number of columns	21	28
Total number of cells	945	2100
Number of filled cells	484	672
Ratio of total to filled cells	1.95	3.13

There are no other constraints on model size beyond the 255-row and 63-column limitations presented by VisiCalc itself.

Eight options are presented in the master menu; each is discussed over the following paragraphs. Their order has been revised from that displayed in the menu to facilitate discussion.

#### N)EW VISICALC FILE

Displays data disk catalog, reads a newly specified model and builds a corresponding lookup table.

#### A)NALYZE VISICALC FILE

Displays data disk catalog and determines the number of filled cells in a newly specified model.

#### S)ORT TO ALPHA COLUMNS

Unless this option is selected, the List and Print options will present cell contents in row order. This option will sort the lookup table to allow you to List and Print cell contents in column order.

Sorted models may only be used with List, Print, and Grid options. After Sorting, the model must be reloaded to use the Grid option or to

go back to row-ordered Lists and Prints.

#### L)IST TO SCREEN

Scrolls contents of all filled cells, showing row and column coordinates followed by cell contents. Either all cells or specified ranges of rows and columns may be displayed.

#### D)ISPLAY ONE GRID LOC'

Will display the contents of one specified cell.

#### C)HANGE PRINTER SPEC.

Allows selection of printer type, entry of control characters (if appro-

priate), selection of print density, and selection of printer interface slot number.

#### P)RINT LIST TO PRINTER

Same as List, but sends output to printer. Provides additional option of printing the contents of either one or two cells per line.

#### G)RID PRINT TO PRINTER

Sends matrix listing of either entire model or of contents of specified ranges of rows and columns to the printer. The Grid option prints models with six columns per page and automatically continues the model on subsequent pages. Printers with 80-column capacity will result

in column listings 10 print positions wide. Those with 132-column capacity will result in column listings 20 print positions wide.

Unlike List and Print, Grid will show empty cells.

## DOCUMENTATION

PROOF's documentation is provided in a small, spiral-bound manual—in addition to the computer-generated displays shown when the system is booted. The manual contains 18 typewritten pages. It capably describes each of the system's options, error messages, and demonstration models contained on the backside of the program disk.

## PERFORMANCE

PROOF does a very adequate job of producing the listings discussed earlier. Its operations are relatively straightforward and easy to understand. However, you'll need a lot of patience and high confidence in your disk drive's reliability to be satisfied with other key aspects of PROOF's performance. The most frequently displayed operating instruction is:

**NOTE: THIS STEP MAY TAKE SEVERAL MINUTES FOR LARGE VISICALC MODELS...**

Indeed they do. For example, listed below are major processing-option timings for the two test models described earlier (see Models I and II).

It's unfortunate that PROOF's unique feature, the Grid listing, takes so long to process. It's also unnerving that, since all data remains on the data storage disk, the drive runs *continually* once display or print process-

	Model I	Model II
Option	(Timings in Min:)	
N * (create lookup table)	2:35	3:37
A * (analyze cell contents)	0:38	0:59
S (sort to column order)	0:59	1:19
G * (print Grid listing)	12:33	19:07
P * (print cell contents— two cells per line)	7:30	(not tested)

\* Drive runs continuously during display or print processing.

ing begins. This accelerates wear and tear on your drive and makes you prone to I/O errors. The effect of this problem is heightened by PROOF's lack of an escape option once processing has begun. Instead, to stop a step after processing has begun requires hitting RESET, reloading the system, and starting all over. RESET must also be used to exit the system. Other operational drawbacks include:

- Paper-wasting triple-spacing of Printed lists (Grids single-spaced).
- List Option Display stops after

showing the contents of 22 cells, requiring the user to hit a key to continue. Continuous scrolling with an option to stop by hitting a key would be preferred.

- VisiCalc can operate with non-standard file names — i.e., with numbers as first characters. PROOF uses standard DOS disk access and requires standard names. You must exit the system to rename nonstandard files.
- Print option puts filename at top of first page; Grid does not.
- Although Grid will form feed to

a new page after completing a group of columns, it will not skip perforations when the number of rows exceeds the capacity of a page. List also writes over perforations.

## CONCLUSIONS

VisiCalc models in grid format. This factor alone may justify its price. However, beware of its operational drawbacks and be prepared for its propensity to consume large amounts of machine time and to accelerate disk-drive wear.□

## MICRO-SPARC RESPONDS

The review of PROOF is very encouraging overall, and we want to thank you for the opportunity to gain some exposure for PROOF. However, we are puzzled by the low overall grade of C+ in light of the review's positive tone, and I can only conclude that the mark is a result of the author's dissatisfaction with some aspects of PROOF'S performance. I'd like to clear up some misconceptions that the author has regarding the operation of PROOF.

First, the author expresses discomfort with the fact that the disk drive runs continuously while processing is going on. This is a feature which was intentionally included, and actually has the opposite effect of the one the author mentioned. That is, with the disk drive running continuously, disk speed is maintained. This has the effect of reducing the total time that the disk drive is active, since when processing text files, the Apple normally starts and stops the disk drive for each sector of information read. In addition, by keeping the drive running during the file read, the stress on the motor and head mechanism is reduced (by eliminating the start/stop). Thus, by keeping the drive on, we are actually reducing the wear on the drives.

Also, the author claims that printed lists are triple-spaced. This is in fact only true if the printer or printer card delivers an extra line feed with every carriage returns; most printers are configured otherwise, or have the option enable/disable the extra line feed.

The author takes issue with the fact that the Grid Print option does not skip perforations when the number of rows exceeds the capacity of a page. This is another intentional feature; in fact, when printing out reports for our own use on printers that can skip perforations automatically, we usually suppress the perforation skip. The reason for this is that it is much easier to read a report that is vertically contiguous than one that is separated at the paper perforation.

Again, we are grateful for the opportunity to gain exposure for PROOF.

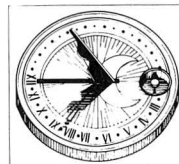
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# VISICALC DOCUMENTER

Version 2.0  
Desktop Solutions, Inc.  
P.O. Box 35659  
Houston, Texas 77235  
713-723-6170

\$49.95

Apple //e compatibility  
not known.

Rating: B+

Reviewed by Alan Shalette

## INTRODUCTION

VC-DOCUMENTER is an accessory system for VisiCalc users. Like MicroSPARC's PROOF, reviewed elsewhere in this issue, and several other packages referenced in that review, it can aid model development, documentation, and debugging by providing two types of listings of spreadsheet formulas, assumptions/input data, and titles.

VC-DOCUMENTER is unique in its ability to translate formulas into meaningful descriptions by using row and column titles instead of cell-coordinate references.

For example, consider the preceding sample VisiCalc model (Table 1).

VC-DOCUMENTER can translate either the entire model or a part such as column E (rows 8 through 18) in the "List All" report in Table 2.

Or VC-DOCUMENTER can translate (this part of) the model into the "Formulas Only" report in Table 3.

## HARDWARE AND SOFTWARE REQUIREMENTS

VC-DOCUMENTER requires 48K of RAM, Applesoft in ROM, one disk drive operating under DOS 3.3, and a 40-column display. Use of a second disk drive is optional.

Use of a printer is preferred in order to allow storage of model documentation. No provision is made to enter special printer-control strings. I was able to use Epson/par-

allel and NEC/serial printers with no difficulty.

## DOCUMENTATION

VC-DOCUMENTER's documentation is printed on 24 typewritten loose-leaf pages suitable for insertion in your VisiCalc binder. The writing is clear and easy to follow. The body of the user manual covers system requirements, each of the system's options, and error messages. Three Appendixes are also provided which discuss considerations for structuring row and column headings and give samples of the two types of VC-DOCUMENTER reports.

## OPERATION

VC-DOCUMENTER's operation is easily visualized by following its menu options as described below.

### File Name

Name of /SS file which, unlike VisiCalc, must conform to DOS file-naming standards (e.g., the file name must start with a letter and must be less than 30 characters long).

### Disk Slot #

Normal definition.

### Disk Drive #

Drive in which the data diskette is mounted.

### Column Address of Row Headings

Letter(s) corresponding to the first column containing row headings to be printed in formula definitions. To save time, this information should be researched and noted before running VC-DOCUMENTER.

### Label in Next Column, Also (Y/N)?

If "Y", VC-DOCUMENTER will use

TABLE 1

COLUMN-->	C	D	E	F	G
ROW NUMBER	SAMPLE VISICALC MODEL				
8			1981	1982	CHANGE
9					
10	GROSS SALES		1000	1500	500
11	COST OF GOODS SOLD		550	795	245
12					
13	OPERATING INCOME		450	705	255
14					
15	SELLING EXPENSE		100	150	50
16	GEN'L & ADMIN EXP		50	70	20
17					
18	NET INCM BEFORE TX		300	485	185
19					

TABLE 2

VC-DOCUMENTER

FILE'S NAME = SAMPLE I

ADDRESS: E18  
 FORMULA: +E13-E15-E16  
 1981 NET INCM BEFORE TX += 1981 OPERATING INCOME - 1981 SELLING  
 EXPENSE - 1981 GEN'L & ADMIN EXP

ADDRESS: E17  
 LABEL: -----

ADDRESS: E16  
 VALUE: 50  
 1981 GEN'L & ADMIN EXP =50

ADDRESS: E15  
 VALUE: 100  
 1981 SELLING EXPENSE =100

ADDRESS: E13  
 FORMULA: +E10-E11  
 1981 OPERATING INCOME += 1981 GROSS SALES - 1981 COST OF GOODS  
 SOLD

ADDRESS: E12  
 LABEL: -----

ADDRESS: E11  
 FORMULA: +E10\*.55  
 1981 COST OF GOODS SOLD += 1981 GROSS SALES \*.55

ADDRESS: E10  
 VALUE: 1000  
 1981 GROSS SALES =1000

COMMAND: /W1

COMMAND: /GOC

COMMAND: /GRA

COMMAND: /GC9

COMMAND: /X-/X>A1:>A3:

row headings spanning two columns,  
 starting in the column specified.

**Row Address of Column Headings**

Number(s) corresponding to the first  
 row containing column headings to  
 be printed in formula definitions.

**Label in Next Row, Also (Y/N)?**

If "Y", VC-DOCUMENTER will use  
 column headings spanning two rows,  
 starting in the row specified above.

**List Entire File (Y/N)?**

If "Y", the entire file will be printed.  
 An "N" response indicates that you  
 want to print only the part of the  
 model you specify (as illustrated in  
 Tables 1 and 2).

**Upper Left Cell (No Default)**

As in Visicalc's /P command, re-  
 quests location of upper left-hand  
 corner of area to be printed.

**Lower Right Cell (No Default)**

As in VisiCalc's /P command, re-  
 quests location of lower right-hand  
 corner of area to be printed.

# DIVERSI-DOS IS THE BEST

## \*\*\* NEW \*\*\* NEW \*\*\* NEW \*\*\*

**TLIST** — Lists BASIC files without destroying the  
 program in memory. Use TLIST to copy lines  
 from one program to another / Improved list  
 format without indents, for easier editing / Visible  
 control characters / Also lists program in memory  
 with improved format

**Insert/Delete Mode** — Makes program editing a  
 pleasure! Insert characters in the middle of a line  
 without re-typing. Also works for data entry!

**Keyboard MACROS** — Enter whole phrases with  
 a single keystroke! Make your own custom editing  
 keys, or redefine your entire keyboard (Dvorak  
 keyboard included)

**Wildcard file names** — Enter only the first few  
 letters of a file name (searches the directory for a  
 match)

**BSAVE** — "A" and "L" parameters are not  
 necessary (uses "A" and "L" from last BLOAD)  
 Recognizable ESCAPE and INSERT mode cursors  
 Lowercase DOS commands accepted  
 Catalog abort key  
 Lists text files to screen or printer

"Of all the DOS enhancement packages reviewed  
 in Peeling II to date, **DIVERSI-DOS** is the most  
 powerful in terms of its capabilities coupled with  
 its price. **DIVERSI-DOS** is the only product to  
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 — Peeling II Magazine

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 tremendously (see table).
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 to type ahead, as fast as you can, without missing  
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 before they are printed. Thus, your computer  
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 moved to a RAM card to increase the available  
 memory in a BASIC program.

**DIVERSI-DOS**, the QUADRUPLE utility,  
 requires a 48K Apple II, II+ or //e with DOS 3.3. A  
 simple, menu-driven installation program is  
 included on the un-protected disk. So what are  
 you waiting for?

	APPLE DOS	DIVERSI-DOS
SAVE†	27.1 sec.	5.9 sec.
LOAD†	19.2 sec.	4.5 sec.
BSAVE*	13.6 sec.	4.1 sec.
BLOAD*	9.5 sec.	2.6 sec.
READ**	42.2 sec.	12.4 sec.
WRITE**	44.6 sec.	14.9 sec.
APPEND**	21.3 sec.	2.3 sec.
*Hi-res screen ‡ 80-sector BASIC program		
** 52-sector text file		

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Card #: \_\_\_\_\_

Exp. Date: \_\_\_\_\_

**TABLE 3**

VC-DOCUMENTER

FILE'S NAME = SAMPLE I

```

E18:      1981 NET INCM BEFORE TX =+  1981 OPERATING INCOME -  1981 SELLING
        EXPENSE -      1981 GEN'L & ADMIN EXP
E13:      1981 OPERATING INCOME =+  1981 GROSS SALES -  1981 COST OF GOODS
        SOLD
E11:      1981 COST OF GOODS SOLD =+  1981 GROSS SALES *.55
    
```

### Print Option # 1: Type of Documentation Listing (Default = 1)

Two options are supported:

#### 1 — List All

As illustrated in Table 2 shown earlier. Excludes printing of all empty cells.

#### 2 — Formulas Only

As illustrated in Table 3 shown

earlier. Excludes printing of empty cells which contain only numbers (i.e., assumptions or basic data).

### Print Option # 2: 1) Column/Row or 2) Row/Column Labels (Default = 1)

Specifies the order in which cell identification labels are to be printed — i.e., row heading then column heading (as in Tables 2 and 3), or column heading then row heading.

### Print Option # 3: Heading Label Length (Default = 1)

Each cell identification label may be up to 64 characters in length with up to 32 characters from row headings and a like number from column headings. This option allows you to request shorter labels:

1 — Show maximum number allowed.

"X" — Specify the number of characters of row and column headings to be included (from 1 to 32).

### Print Option # 4: Number of Characters Per Print Line (Default = 80)

A number from 15 to 180 specifying the number of characters per print line.

### Printer Slot # (or S' for screen only) (Default = 1)

Directs the output to either a printer or the display.

### List Same File, Same Headings, Different Print Parameters (Y/N)?

Causes the system to recycle through output specification using the same

file, but with different options — e.g., to produce a "Formulas Only" listing if you have just produced a "Print All" report.

### Do You Want to List Another File (Y/N)?

When a report is finished, allows you to produce additional reports for the same model or for a new model.

## PERFORMANCE

VC-DOCUMENTER does an effective job of producing the listings discussed earlier: it's comparatively fast, with listings produced about as fast as your printer's speed; it's easy to operate; it's error free; and, unlike many others of this type of software, it puts labels at the top of listings.

As shown in Tables 2 and 3, VC-DOCUMENTER listings are produced in inverse order. VisiCalc's /SS,S command does the same thing (16-sector/DOS 3.3 version), but without formula translations. And, to be most effective, your model's row and column headings should be limited to only two cells each and should all be located in the same columns and rows, respectively.

Finally, it is disappointing that a package specifically designed to produce printed reports should be fairly oblivious to page formatting. Specifically, VC-DOCUMENTER, like many other nonword-processing packages, ignores perforations, does not number successive pages, does not accept margin specifications or printer control strings, and puts report titles only on the first page.

## CONCLUSIONS

VC-DOCUMENTER's operational efficiency compares very favorably with other VisiCalc model lists we've reviewed. Its formula-translation feature can be a valuable tool for deciphering and documenting complex formulas. This feature and its efficiency may put it at the front of the pack, but its formatting limitations are an important drawback.□





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# FINANCIAL TEMPLATES

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Copyright 1982

Robert H. Flast & Company

Six Peter Cooper Road

New York, NY 10010

(212) 323-2272

\$19.95 (\$10.00 if bought in combination with  
other of its author's utility programs or templates)

Equipment required: compatible with 16-sector  
VisiCalc.

Unlocked

Rating: B+

Reviewed by Alan Shalette

## INTRODUCTION

FINANCIAL TEMPLATES provides 26 financial templates for VisiCalc users which were patterned after corresponding Basic programs contained in *SOME COMMON BASIC PROGRAMS* written by Lon Poole and Mary Borchers (Osborne/McGraw-Hill; Berkeley, CA; 3rd Edition, 1977).

Templates on the diskette include:

- Future value of an investment.
- Future value of regular deposits (annuity).
- Regular deposit required to reach a future value.
- Regular withdrawals from an investment.
- Initial investment required to reach a future value.
- Minimum investment for withdrawals over time.
- Nominal interest rate on investments.
- Effective interest rate on investments.
- Earned interest table—single investment.
- Earned interest table—with regular deposit/withdrawal.
- Depreciation rate.
- Depreciation amount.

- Salvage value.
- Discount commercial paper.
- Principal on a loan.
- Regular payment on a loan
- Last payment on a loan.
- Remaining balance on a loan.
- Term of loan.
- Annual interest on a loan.
- Tax depreciation schedule (declining balance method).
- Tax depreciation schedule (sum of digits method).
- Mortgage amortization table.
- Days of the week.
- Days between two dates.
- Convert anglo to metric.

## HARDWARE AND SOFTWARE REQUIRED

To use FINANCIAL TEMPLATES, you will need a 16-sector (DOS 3.3) version of VisiCalc. Memory size required is not specified—outside of VisiCalc's 48K requirement. Other equipment specified in the VisiCalc manual should also apply.

## DOCUMENTATION

FINANCIAL TEMPLATES was not supplied with documentation other than a description of how to load a file containing an index of all the templates on the diskette and a notice that the diskette should be backed up. You will have no better idea of what each template does than you can glean from the cryptic titles listed above—unless you have access to Poole and Borchers' book.

Instead, each individual template contains brief data entry and calculation instructions consistent with those contained in the referenced book.

Thus, if you would like to know more about the equations and assumptions used in each of the calculations, you will need to buy (I paid \$12.50) or borrow the book.

## OPERATION AND PERFORMANCE

Most templates are nicely formatted to fill one 40-column display screen. Input data requirements and results are clearly identified, if not clearly defined (e.g., to distinguish between nominal and effective interest rates and between the difference between salvage value and resale value). Moreover, Mr. Flast decided to use both the cryptic template names and instructions used in the book. Both could be improved by including expanded definitions of terms and calculations used, in columns adjacent to the main display of each template or in the index template.

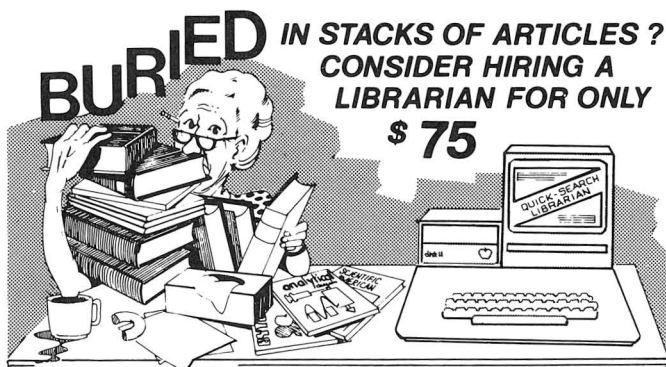
I tested each template against the sample data and calculations contained in the book and found several minor calculational errors. Most of these were differences in the third to fifth significant digits of numerical results; e.g., in "Earned Interest Table—With Regular Deposits/Withdrawals", the book's example showed a particular value as 870.17, whereas FINANCIAL TEMPLATES calculated 870.20. I consider these to be minor differences based on percentage variations. However, I would not expect the calculational results provided by either the programs listed in the book or those provided by FINANCIAL

TEMPLATES to exactly match with those provided by my mortgage bank or other bank statement.

## CONCLUSIONS

FINANCIAL TEMPLATES should be a valuable tool for VisiCalc users who are disinclined to enter the Basic programs contained in the Poole/Borchers book or who don't use hand-held calculators tailored for financial analysis (e.g., the HP-12C). Comparable capabilities are provided by several other packages such as Apple Barrel and, for more extensive financial analyses, Apple's VisiCalc Real Estate Templates.

If you intend to buy the templates, I suggest buying the Poole/Borchers book too. If you can wait, McGraw-Hill will be publishing a new book written by Bob Flast, FINANCIAL TEMPLATES' author, which will provide complete documentation of the templates. □



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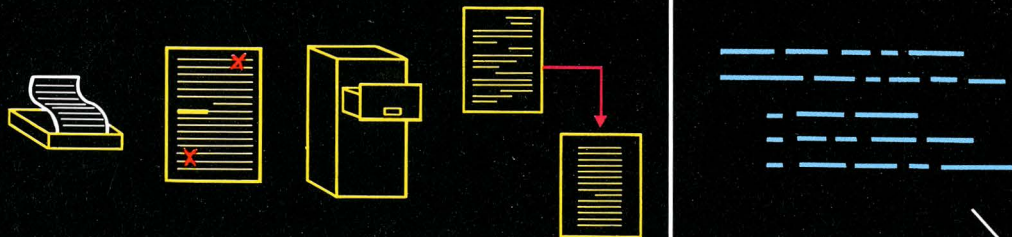
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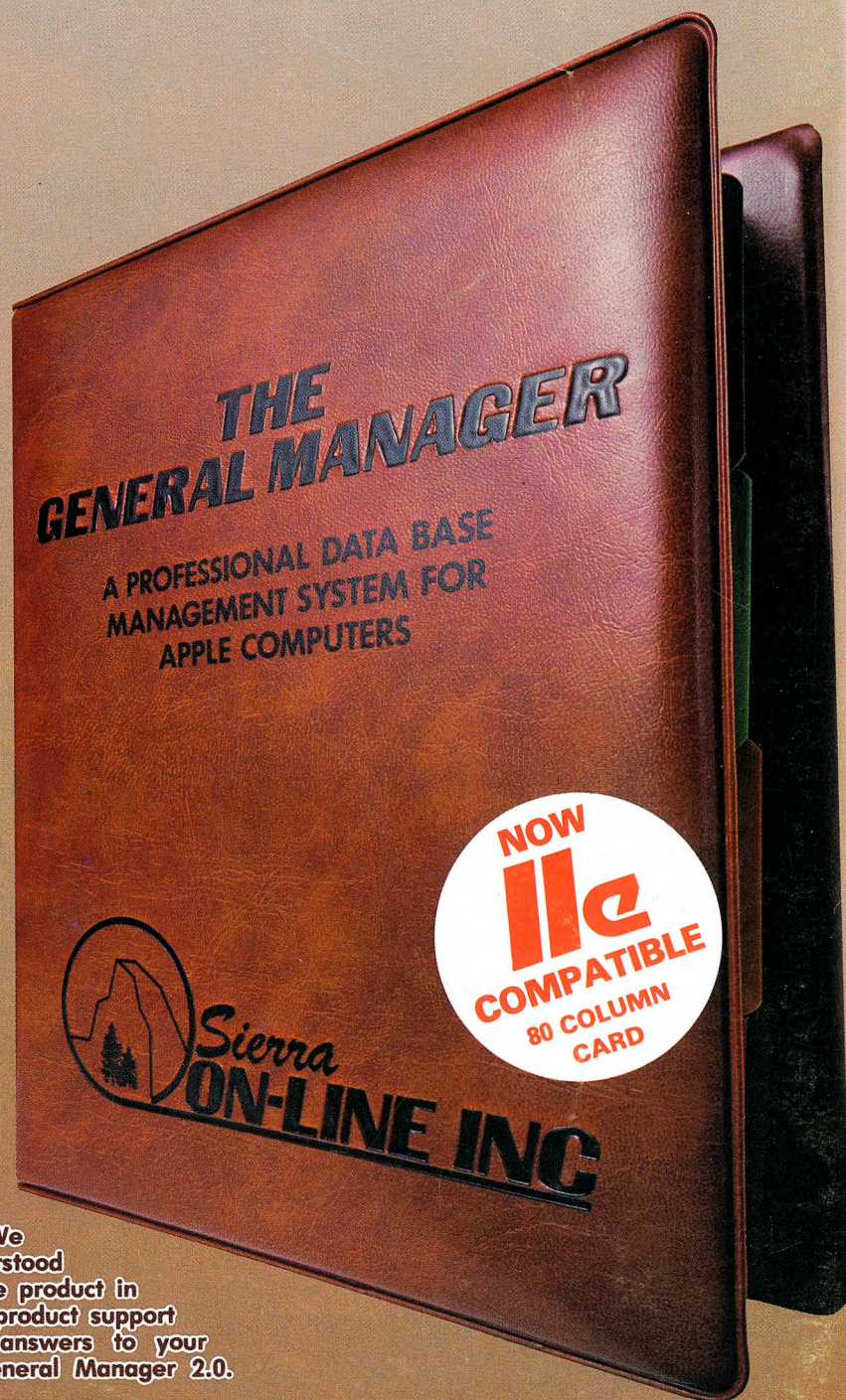


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