MSP 99
USER GROUP

THE MSP 99 NEWSLETTER

REVISIONS TO MAGICSPELL
By Jim Smieja

Here are some of the additions to my program that can be made if you have the Terminal Emulator II. Since I wrote the program in BASIC, it will run just fine with the TEII module, but to use the speech capability, you need to add several new lines.

You should add both opening and closing statements for access to the speech capability:

    105 OPEN #1: "SPEECH",OUTPUT
    2505 CLOSE #1

The variable that holds each word we are going to spell is A$(TRY). So if we want to have the word spoken after it is displayed on the screen, we simply add:

    875 PRINT #1:A$(TRY)

Now if we add the following line, we will also hear the words when being retested on the missed items:
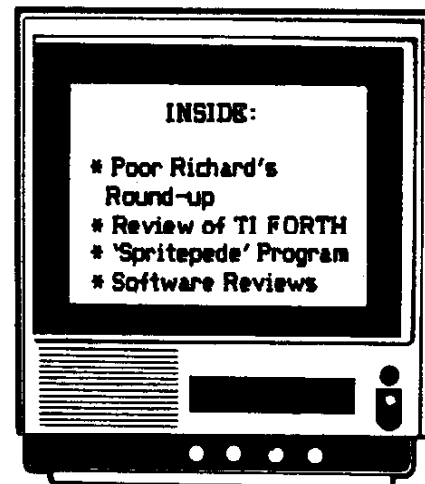
    1495 PRINT #1:WR$(X)

These few lines will allow the student to hear as well as see the spelling word. Please remember that the English language is full of quirks and some words may not sound exactly as they should. I have found, though, that the most will be reasonable close.

ANOTHER TI DONATION

The MSP User Group recently received another 'good-bye' gift from TI: a copy of the "Advanced Assembly Language Debugger". This is a software product that was announced prior to the decision to withdraw from the Home Computer market, and never manufactured. TI relinquished all claims to this software language and put it in the public domain. MSP User Group members now can purchase this software for a mere $8. Copies will be available at the next meeting.

The disk contains its own set of intructions, obtained by simply printing out the 'HELP' file. A six page document is then produced. The following excerpts are from this 'manual' and are included so you may have some idea of the usefulness of this gift from TI.

INSIDE:

* Poor Richard's Round-up
* Review of TI FORTH
* 'Spritepede' Program
* Software Reviews

The MSP 99 USERS GROUP meets each month for discussions and presentations that enable its members to be better informed about their computers. Users group members share and exchange information. Some members have a broad range of computer expertise; others are just beginning. We are not affiliated with or sponsored by any other group or company. Membership dues are $12 a year for a family, $10 for an individual, and $50 for a sponsor member. You're welcome to visit a meeting before you join. For more information, call or write us.

USERS GROUP MEETINGS are held the third Tuesday of each month at 7 p.m. at Dunwoody Industrial Institute, 818 Wayzata Blvd., Minneapolis, MN 55403.

MSP 99 USERS GROUP
P.O. BOX 12351
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The MSP 99 NEWSLETTER is published eleven times per year, on a monthly basis except during July, by the MSP 99 Users Group. Members are encouraged to contribute articles for publication. Opinions expressed are those of the writer and not necessarily those of the MSP 99 Users Group, its officers, editor, or members. Materials accepted by the editor for publication in the MSP 99 Newsletter, including software listings, are believed to be in the public domain. Newsletter articles may be reproduced by other users groups if appropriate credit is given to the author (if one is listed) and to the Minneapolis-St. Paul 99 Users Group.

DEADLINE FOR NEXT ISSUE: SEPT 18

COMMITTEE VOLUNTEERS

If you want to work on a committee (Education, Equipment, Program, Publicity, Software, Newsletter), or have an idea for a program, contact one of the officers.

COMMERCIAL ADVERTISEMENT RATES

Business firms that want to communicate with our members may do so by placing an ad in the newsletter. Rates are: Full Page (7-1/2 X 10-1/2) $40; Half Page (3-1/2 X 10-1/2) $30; Quarter Page (3-1/2 X 5) $22. Each ad must be camera-ready in sizes indicated and paid in advance. Inserts (printed by advertiser on 8-1/2 x 11) may be inserted in the newsletter at $20 per sheet. Contact the editor for information or to reserve space.

CHANGE OF ADDRESS

Before you move, please mail a change of address to the group at the above address.

* *

MSP 99 CALENDAR OF EVENTS

AUGUST 21 --
(TUESDAY)
7:00-9:00

HOUSEHOLD USES FOR YOUR TI-99/4A! We resume our regular Tuesday night meetings with an informative and fun program! How about letting your computer make the weekly menus? Or keeping a running total of family expenses? Lots of good ideas for using your TI-99/4A.

SEPTEMBER 18 --
(TUESDAY)
7:00-9:00

"COMPUTER FAIR"! Everyone participates in this one! Bring equipment and modules you want to demonstrate or swap to other MSP 99 club members.

* *

SUBGROUP MEETINGS:

ASSEMBLY LANGUAGE--First Tuesday of month, 7:00 p.m., Bryant Community Center, Bryant Ave. and 31st St.
Sept. topic: UCSD - PASCAL.

BUSINESS--Second Tuesday, 7-9 p.m., Norwest Bank, Hopkins. Call Bob DeMars (544-6219) or Dick Clemetson (926-8083). No August meeting.

EDUCATION--At monthly MSP meetings.

YOUTH GROUP--At monthly MSP meetings.
Pres.: Scott Morgan.

COMMITTEE CHAIRS:

Education--Marilyn McPartlin, 636-5663
Equipment--We need someone.
Newsletter--Bonnie Burton, 431-6064
Program--Dick Dunbar, 488-0153
Publicity--Dave Wunderlin, 544-8266
Software--Ed Neu, 425-8744

SPRITEPEDE

(Courtesy of the Sydney News Digest)

```
100 ! ****************
110 ! SPRITEPEDE
120 ! WRITTEN BY:
130 ! GARY CHRISTENSEN
140 ! OF TI.B.U.G.
150 ! ****************
160 CALL CLEAR :: CALL SCREEN(16):: CALL COLOR(2,5,5):: CALL
HCHAR(24,1,42,64)::
 CALL VCHAR(1,31,42,96)
170 DISPLAY AT(1,9)SIZE(12):"SPRITEPEDE"
180 FOR A=4 TO 109 STEP 5 :: FOR B=1 TO 7 :: GOSUB 200 :: NEX
T B :: NEXT A :: FO
R A=109 TO 4 STEP -5 :: FOR B=7 TO 1 STEP -1 :: GOSUB 200
190 NEXT B :: NEXT A :: GOTO 180
200 CALL SPRITE(#B,42,2,B*3+A,128,#B+7,42,2,B*3+A+16,128,#B+1
4,42,2,B*3+A+32,128
,#B+21,42,2,B*3+A+48,128):: RETURN
```

```
*****************************************
*                                       *
*           WARGAME REVIEW              *
*                by                     *
*           John M. DiIorio             *
*                                       *
* GAME: GALAXY                          *
* COMP: AVALON HILL                     *
* TYPE: MICRO-SOFTWARE                  *
* LANG: TI 99/4A  XBASIC                *
* BYTE: 16K RAM                         *
* COST: $16.00                          *
*                                       *
*      This is Avalon Hill's second     *
* release of a TI software game.        *
* (The first game was B-1 NUCLEAR       *
* BOMBER which will be reviewed         *
* next month.)  Avalon Hill has         *
* more than 40 software games and       *
* almost 100 BOARD games in their       *
* 'library'.                            *
*      GALAXY is a graphics/sound       *
* game of space conquest for one        *
* to four human players and TEX,        *
* the computer.  The humans select      *
* three to 26 planets, each from        *
* one to ten light months apart.        *
* Each planet generates from zero       *
* to eight ships per month (TEXs'       *
* planets), except for the humans       *
* planet, which gets ten ships per      *
* month.  Also, each planet gets        *
* a certain number of ships to          *
* begin with.                           *
*      The object of the game is to     *
* conquer all the planets.  This        *
* is done by launching a number of      *
* ships to attack a planet.  The        *
* defender goes first.  The number      *
* of attacking and defending ships      *
* plus their respective attack/         *
* defense percentages is displayed.     *
*      A simple game is ten planets      *
* that takes 50 months and about        *
* one hour.  After many games, a        *
* human can be bold and play all        *
* 26 planets and give the option        *
* for TEX to attack.                    *
*      Some good points: Keep ships      *
* on your Home planet.  Send ONE        *
* ship to inspect TEXs' planets.        *
* Attack the planets with the most      *
* ships per month even if you must      *
* lose the one's and two's ships        *
* per month planets.  Attack at         *
* least TWO to one.  GOOD LUCK!         *
*                                       *
*****************************************
```

POOR RICHARD'S
PERIPHERAL ROUND-UP

By Dick Dunbar

RED FACE DEPARTMENT: In the June column I mentioned the catalog I had received from TRITON   PRODUCTS,   along   with   the observation that I had never heard of them before. As you know if you read the rest of the June newsletter, and as I should have known if I had read all of the literature I had been exposed to, Triton is the chief reseller of the leftover 99/4A hardware and software from Texas Instruments. It would seem from their brochure that they are not confining themselves to just the leftovers, but are also handling at least some of the third party hardware that's on the market.

80 COLUMN SCREEN FOR THE 99/4A: The August issue of Home Computer Magazine (that's the third issue this year!) carried an ad by FOUNDATION talking about an 80-column 'intelligent terminal' card for the TI-99/4A   Peripheral   Expansion Box. Promised features are:

  * 24 lines of 80 characters, with a
    25th line for status information.

  * Any combination of reverse video,
    half intensity, double width,
    double   height,   and   blinking
    characters.

  * Complete set of display codes and
    line drawing characters.

  * Capable of replacing the RS232
    card for many purposes.

  * A price of $249.

    This was enough information to whet the appetite but not enough to satisfy, so I gave them a call to find out a little more about it.
    What I found out was that the company is currently waiting for a shipment of controller chips, due the end of July, to commence production on this card. I also found out that for prepaid orders received prior to the end of August, a copy of the Companion word processing program will be

A Review of TI FORTH
By James R. Dew

When Texas Instruments decided to halt production of the 99/4A Home Computer, an exciting project was underway at TI: the development of FORTH support for the home computer. To the great benefit of their customers, TI decided to make this FORTH system available to the general public by relinquishing all claims to TI FORTH, placing it in the public domain and distributing it to the various TI user groups. This software is called TI FORTH.

What is FORTH? FORTH is a programming language which seems too good to be true. Prior to using TI FORTH, I read several articles about it and the articles all made some amazing claims. After using TI FORTH, I can attest that most (if not all) of the claims are true. FORTH is easy to program. Programs can be written faster in TI FORTH than TI BASIC. FORTH code is small: the 32K memory expansion for the home computer allows very large, complex programs to be written. FORTH code is fast, almost as fast as assembly language and many times faster than either TI BASIC or Extended BASIC.

One of the best features of FORTH is that it is extensible. While FORTH is available for most computers (including the Commodore VIC-20 and 64, Apple and IBM PC), this article is mostly about the extensions to FORTH available in TI FORTH. Readers interested in learning more about the FORTH language are advised to read Starting FORTH by Leo Brodie (published by Prentice Hall) or to contact the FORTH INTEREST GROUP, PO BOX 1105, San Carlos, CA 94070.

So how good is TI FORTH? Like most FORTH implementations, there are some deviations from standard FORTH. The TI design team did an excellent job of documenting these and the documentation includes a detailed listing of differences, with page references to Brodie's FORTH book.

In general, however, TI FORTH is quite standard. It omits a few typically FORTH words such as 2DUP, but these are readily added into the language and in most cases, the documentation even provides the FORTH source for doing so. If you haven't used FORTH, this sounds very strange, but programming FORTH is really a matter of extending the language itself. Adding words to the language is the only way of programming FORTH!

Any review of FORTH implementation must start with the FORTH editor, an essential part of any FORTH

system. TI FORTH provides two such editors, one 40 column and the other 64 column, using TI bit map graphics to draw tiny characters on the screen. Except for display formats, the two editors are completely compatible.

Another great set of extensions in TI FORTH are the disk utilities. Extensions are provided to format and copy diskettes without having to use the Disk Manager module. This is a great timesaver, since one module (the Editor/Assembler Command Module) can be used for everything. The disk utilities are also great in another way: by studying the utilities, I have learned how TI files really work.

TI FORTH also provides complete access to the 99/4A file system. FORTH extensions are implemented to allow the use of all the low-level file commands. There are also FORTH extensions to allow easy control of a printer on the RS232 interface. I had to modify this slightly for my particular configuration, but the modification was simple.

TI FORTH provides listing utilities to list FORTH programs on the printer.

"ADDING WORDS TO THE LANGUAGE IS THE ONLY WAY OF PROGRAMMING FORTH!"

Another major extension of TI FORTH is floating point. FORTH does not provide floating point, although it is often added in FORTH extension packages. TI FORTH uses the 99/4A GROM routines which are used by TI BASIC. The FORTH extensions are therefore complete and powerful, very useful for scientific applications.

TI FORTH also includes a FORTH assembler for the TMS-9900 chip processor. This allows key routines to be coded in actual assembly language while being part of a larger FORTH program. The documentation is sketchy, so the Editor/Assembler manual is necessary to do much with this feature.

Along with the assembler, TI FORTH provides the ability of installing actual interrupt handlers! This allows a special program to be executed 60 times per second and could be useful for very special applications.

(TI FORTH, continued)

One of the best features of TI FORTH is a facility to save a FORTH program on diskette in pre-compiled bootable format! This allows the creation of special diskettes which can be loaded and executed very quickly. It is even possible to hide the fact that FORTH is used at all, a handy feature for software developers.

"WOULD I RECOMMEND TI FORTH? YOU BET'CHA."

In general, TI FORTH is a complete implementation which is very powerful and reliable. I can't imagine using TI BASIC or Extended BASIC when FORTH is available! For both home hobbyists and professional software developers, TI FORTH seems the way to go.

There are, however, two serious omissions in TI FORTH. First, there is no capability for controlling sound. This isn't as bad as it sounds. TI BASIC provides the SOUND statement, but SOUND provides only a small fraction of what the computer's sound chip can actually do. This was a good decision, because using all of the sound capability is fairly complicated. TI FORTH provides the fundamental tools that let you handle sound any way you like, but with a fair bit of work. Still, it would have been nice to have the same kind of simple SOUND capability provided in TI BASIC.

The other omission is support of speech. This is more serious, since there is absolutely no way of getting to speech in TI FORTH. This may have been a good decision anyway, since the only way to support speech would have slowed down all FORTH programs whether they used speech or not. (The reason for this is quite technical: FORTH's inner interpreter is implemented in the console RAM in the same place where the speech driver must be located. Creating "speaking FORTH" would be a nice project!)

Would I recommend TI FORTH? You bet'cha. There simply isn't a better way to get the most out of the TI-99/4A Home Computer.

(Editor's note: Jim wrote his article with with a word processing program he developed in TI FORTH.)

A THIRD PARTY SOFTWARE REVIEW

ASTROLOGY-HOROSCOPE MAKER
By Bonnie Burton

As part of the "what's your sign?" generation, I've waited a long time for someone to come out with an astrological program suitable for use with the 99/4A. Navarone Industries of Sunnyvale, CA, has produced such a program.

Requiring Extended Basic, 32K Memory Expansion and an 80 column printer, the program is a tool for the serious astrologist. It is not a game and would be useless to someone who lacks some knowledge of the subject.

ASTROLOGY-HOROSCOPE MAKER has two operations on the same disk (similar to TI-Writer). The first creates the horoscope file and the second operation prints the file. This arrangement allows the user to create any number of horoscopes at one time, save them and print them all another time, if desired.

The first section, creating the file, is presented in a menu form and asks specific questions required to cast an accurate horoscope. After you have input such birth data as time, date and location, you have the option of selecting up to nine different house systems. (Astrology is an inexact 'science'. There are differences of opinion as to which house method creates a more accurate chart.) In my opinion, a choice of nine is extravagant. I would have preferred two or three choices and put the memory to use in other ways.

The software program then determines the precise location of each planet automatically. It calculates house position, elements, declinations and dignitaries. This portion of the program is very thorough and precise. Essentially, it is a computerized ephemeris, eliminating the need for books of tables and lengthy mathematical calculations. While impressive, this part of the program is slow. (It takes approximately six minutes to calculate all this data - a long time if you're sitting in front of the computer.)

The print option allows you to print full wheel charts, listing relevant data on the bottom of the page. (See example.) The planets appear in their respective houses and the printout is eye-catching and appealing.

There are a few drawbacks, however. For example,

```
                                      MC
                                    05CN20
                          *      *      *
                      *             *            NE*
              05LE20 *              *         25 PL  *   05GE20
                    *               *         GE 15      *
                *       *           *         02 GE   *      *
              *       *             *            10  *          *
            *       *         *     *               *            *
          *       *             *   *                 *            *
   05VI20 *       *               * *                   *           *  05TA20
          *                        *                      *        *
              *       *           10  *  09    *       *      *
                  *       *          *  *  *  *  *  *  *
              *             *             *                 *
                  *    11  *      JAN 1 1900  * 08   *
           *             *   *      00:00 00 AM  *    *              *
                           *         ZONE=6         *
           *           12           ST6H 28M 3S          07         *
        05                 *        RAMC=97 0 48                   05
   ASC LI* * * * * * * * ** NATAL HOROSCOPE  ** * * * * * * * * * * AR DEC
   20                  *        MINNEAPOLIS,MN    *                 20
        *           01          LONG 93W25         06             *
              *             *     LAT  45N0      *
        *               *    *  EQUAL HOUSES   *       *           *
           *          02 *       TROPICAL      * 05   *
        *                    *       *    *    *              *
            *             *        03  *  04   *              *
              *       *           *     *                  *
                  *             *       *                *
   05SC20 *       *             *       *                *  * 05PI20
          *           13        *       *              *
              *      SA       *         *          * 42        *
                *    01    *09           *        * AQ     *
                * JU   *SA 09            *        * 06   *
                  *    *10 SA 20  49   *00 25 05    * VE *
       CARD FIX MUT    * UR 19 SA  SA  *CP CP  CP      *
   FIRE  0   0   4  05SA20 * NO 19   27  *06 10   14    * 05AQ20
   EARTH 3   0   0          *ME      SA  *MO SU     MA*
   AIR   0   1   2                       *   *   *
   WATER 0   0   0                   05CP20
```

                                      IC

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===========================================================================
PLANETS ABREV GEO    R  DECL.   ELEM.  +/- TRIP HOUSES DIGNI    ABREV ZODIAC ZIGNS
===========================================================================
 SUN/EAR   SU 10CP25   -23 03  EARTH  NEG CARD ANG 4             AR ARIES
 MOON      MO 06CP00   -21 53  EARTH  NEG CARD ANG 4   DETRI     TA TAURUS
 MERCURY   ME 19SA20   -21 56  FIRE   POS MUT  CAD 3   DETRI     GE GEMINI
 VENUS     VE 06AQ42   -20 14  AIR    POS FIX  SUC 5             CN CANCER
 MARS      MA 14CP05   -23 38  EARTH  NEG CARD ANG 4   EXALT     LE LEO
 JUPITER   JU 01SA13   -19 37  FIRE   POS MUT  SUC 2   RULER     VI VIRGO
 SATURN    SA 27SA49   -22 26  FIRE   POS MUT  CAD 3             LI LIBRA
 URANUS    UR 10SA08   -21 55  FIRE   POS MUT  CAD 3             SC SCORPIO
 NEPTUNE   NE 25GE02 R -24 40  AIR    POS MUT  CAD 9             SA SAGITARIUS
 PLUTO     PL 15GE10 R -02 21  AIR    POS MUT  CAD 9             CP CAPRICORN
 N. NODE   NO 19SA09   -23 00  =====================             AQ AQUARIUS
 ASCEND    AS 28VI41   +00 31  * PART OF FORTUNE 24VI17    *     PI PISCES
 MIDHEAV   MC 06CN26   +23 18  * EQUAT ASC. (EP) 07LI38    *     NAVARONE
 VERTEX    VT 13AR24   +05 18  * SU/MO ANGLE =25PI36             INDUSTRIES (C)
===========================================================================
```

■ Computer Broadcasting Company

Box 63 ▪ 511 11th Avenue South, Minneapolis, MN 55415

July 18, 1984

Joel Gerdeen
MSP 99
PO Box 12351
St Paul, MN 55112

Dear Joel,

We are pleased to announce the creation of the Computer
Broadcasting Company's "Computer Talk" Bulletin Board System.

In addition to providing computer users with information
regarding KSTP Radio's "Computer Talk" program, this new bbs will
be presenting information about area user groups.

Since we are new and have a lot of groups to keep track of, we
would be grateful if you could assign one of your members the
task of monitoring our bbs to make sure the information we
present about your group is always current.

Within a short period we will be adding E-mail to our system for
easier inter-communication. However, in the meantime, please
communicate with us via phone or mail.

As we grow, we will be adding more and more information and
services for your group so any help you can offer us now will
help accelerate the growth.

Finally, we would be very grateful if you could announce our bbs'
existence and phone number at your next meeting or in your next
newsletter. All members are free to use it. We would welcome
any suggestions on how we can improve our service to you and to
the computer community in general.

Sincerely,

Ray Douglas
President

RD:sep

(612) 332-5532 Corporate Office   ▪   **(612) 333-2541** CBC Bulletin Board System

(Poor Richard, continued)

included at no extra charge. Companion has received good reviews, favorably compared with TI-Writer, and lists for $79.95.

What I did not find out was what will be required to use the capabilities of the card, whether assembly language or possibly FORTH will be necessary, or whether it will be accessible through BASIC or Extended BASIC. However, Foundation is sending some literature about the card, so I may find out what we need to know soon. As soon as I can get details on this, I will report it.

My experience with Foundation (I have their 128K Memory card) is that they deliver the hardware they advertise, although perhaps a little slow on a new product. If they have to develop software, count on a good long wait! I'm still waiting for disk emulator software I was supposed to get last year.

> Foundation Computing
> 74 Claire Way
> Tiburon, CA 94920
> (415)388-3840

ANOTHER EXPANSION SYSTEM: TEX MICRO, Inc. has released a product called TIMPAC (TI eMulating Peripheral Access Controller), which supposedly includes everything you need to add 32K Memory, printers, and floppy disks to the TI-99/A. It is also reported to accomodate a speech synthesizer card(?), a hard disk controller interface, and an access cable to the console expansion port.

It had better do a lot — they want $499 for TIMPAC, a 'Disk Access Cartridge', a 'Texdisk' diskette and a manual.

This rather sketchy information was extracted from the HCM Product News. I plan to get more information from Tex Micro, and will report back if it sounds interesting.

> Tex Micro, Inc.
> Titusville, FL 32783-5366
> (305)267-4513

VIDEODISK / ANALOG INTERFACES: More information gleaned from the HCM Product News: MICROMAGIC SOFTWARE has introduced two new hardware products for the TI-99/A.

* The LVM-99 Videodisc Interface plugs directly into the console, and requires the MiniMem

cartridge. It interfaces the 99/4A to the Magnavox 8010, Sylvania 7200, or Pioneer VP-1000 videodisc players. Demonstration software and all cables and connectors are included in the price, which is $249.

* The ADM-100 Analog to Digital Interface also plugs directly into the console, but requires no additional expansion hardware, peripherals, or cartridges, and can be used with TI BASIC. It has a three-step attenuator providing for input ranges of 0-5, 0-10, and 0-50 volts D.C. Software to make the 99/4A function as a digital voltmeter is included in the price, which is $79.95.

The information again is sketchy. It's not stated whether these devices are pass thru design (which lets you 'daisy chain' other devices) or not, which is important if you have other peripherals.

> Micromagic Software
> 4129 Abercorn Road
> Knoxville, TN 37921

MULTICOM, AGAIN: In the June column I reported that MULTICOM was offering a stand-alone RS232 interface in addition to their previously reported 32K Memory units. Well, it seems that they are also offering a Combo Unit, which contains BOTH the RS232 interface AND the 32K Memory in a single stand-alone unit, with a list price of $259.95. The ads do not indicate whether it is a pass thru or not, but it probably is — their other stand-alone units are.

> MULTICOM, Inc.
> P.O.Box 1643
> Sandy, UT 84091
> (801)572-6272

END-OF-FILE DEPARTMENT: That's it for this month. I plan to devote next month's column to a review of the Foundation 128K Memory card. As I mentioned earlier, I have been waiting for disk emulator software for some time. It now appears that there is a good chance it may arrive soon, and I would like to include that in the review if at all possible.

See you in next month's Round-up!

(Astrology,continued)

you cannot preview your material on the screen
prior to printing. A hard copy is the only access
you have to your data, thereby eliminating some of
the software's usefulness as an ephemeris. The
ability to pop into the program to 'just check one
thing' would be useful but its absence is not a
serious drawback.

The program also lacks the ability to calculate
relationships between the planets. The plotting of
the data is only one part of astrological
calculations. Before interpretation of any
horoscope can take place, the aspects beteen the
planets must be considered. These aspects are
calculated as angles, using degrees; a procedure
the computer could easily perform. I consider the
lack of this option a serious omission. (The
TRS-80 has had a program for years that will do
this. C'mon programmers, what about the TI?)

I expected no chart interpretations and was not
disappointed. This is a highly subjective activity
most serious astrologists prefer to do themselves.
Two-bit interpretations are best left to the daily
newspaper.

ASTROLOGY-HOROSCOPE MAKER is very easy to use and
answers any questions in the accompanying 8-page
booklet. But it is somewhat pricey ($49.95) for
what it offers. (Navarone Industries, 510 Lawrence
Expressway, #800, Sunnyvale, CA 94086. Phone
orders: (408)866-8579. Major credit cards
accepted; catalog available.)

SUPER BUGGER

Super-Bugger is a stand alone program that may be
loaded by the Editor/Assembler LOAD AND RUN option,
or either TI-BASIC or EXT-BASIC CALL LOAD options.
NO special hardware is required, but this program
will operate only on the TI-99/4A with MEMORY
EXPANSION and a DISK CONTROLLER. The RS232 may
optionally be used to get a hard copy printout on
some operations.

The SUPER-BUGGER is a very sophisticated and
powerful debug tool which can provide functions
usually available on very expensive development
systems requiring special hardware. SUPER-BUGGER
allows you to actually step through your machine
language program, executing each machine instruction
one at a time. This enables you to examine the logic
of your program as it is being run. As each
instruction is executed, the symbolic interpretation
is displayed on the screen in the same format as it
occurs in your assembly source listing, providing a
trace of instruction execution.

Operation of the SUPER-BUGGER is syntactally
identical to the TI-DEBUGGER program, however there
are features provided by the TI program that are not
supported by SUPER-BUGGER due to memory size
limitations. The following is a summary comparison
of the two debuggers.

COMMAND	TI-DEBUGG	SUPER-BUGGER
A	Load Memory with ASCII	DISS-ASSEMBLE machine code to mnemonic
B	Breakpoint Set/Clear	Same except always two word breakpoints
C	CRU Inspect/Change	**Not Supported
D	**Not Supported	Dump memory to HARD COPY DEVICE
E	Execute	Same
F	Find Word or Byte	**Not Supported
G	GROM Base change	**Not Supported
H	Hex Arithmetic	**Not Supported
I	Inspect Screen Location	**Not Supported
K	Find Data Not Equal	**Not Supported
L	**Not Supported	Hard copy list device toggle on/off
M	Memory Inspect/Change	Same
N	Move Block	**Not Supported
P	Compare Memory Block	**Not Supported
Q	QUIT Debugger	Same
R	Inspect/Change WP,PC,&SR	Same
S	Step with special Hrdw.	Single step on any TI-99/4A
T	Trade Screen	Trades user screen with SBUG screen
U	Toggle Basic offset on/off	Same
V	VDP Base change	Run 'til VALUE = entered number
W	Inspect/Change Register	Same
X,Y,Z	Change BIAS	Same
>	Hex to decimal convert	**Not Supported
.	Decimal to hex convert	**Not Supported

TIDBITS

*** Correction to last issue's software catalog addition: joysticks are required to play the game GRAPHLAND (G07042). They are not optional. (GRAPHLAND was this year's software contest winner in the Extended Basic category.)

*** Another correction: This issue's 'Poor Richard's Round-up' refers to a free Companion word processing program with prepaid orders to FOUNDATION by the end of August. Please note prepaid orders must be received by AUGUST 15 to take advantage of this offer.

*** For those with modems, the Computer Broadcasting Company has started the "Computer Talk" Bulletin Board System. The new BBS telephone number is (612)339-2541 and it is free to all members.

*** Dunwoody Institute is offering a BASIC class this fall, starting in September. If enough members are interested, we could perhaps have a 'custom' or 'specialized' class. Call Joel Gerdeen (572-0148) or Marilyn McPartlin (636-5663) if interested.

*** One of our vendors, Specialist In: TI Home Computers, provided all those modules for use in June's presentation of educational software. Thank you.

WANT ADS

MSP 99 USERS GROUP
P.O. BOX 12351
ST. PAUL, MINNESOTA 55112

Address Correction Requested

9900

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USERS' GROUP
551 LARKWOOD DRIVE
MONTGOMERY, AL 36109

TIME SENSITIVE MATERIAL
POSTMASTER - PLEASE DELIVER PROMPTLY