VOL IV   No 8   AUGUST 1981

CALENDAR   CALENDAR   CALENDAR

WHICH	WHEN	WHERE	WHAT
PASCAL Note 1	Wed Aug 5 7:30pm	Minnesota Federal 9th Ave S Hopkins	Regular PASCAL Special Interest Group Meeting.
Fort Snelling Note 2	Mon Aug 10	Nakomis Community Ctr Minnehaha Parkway	Programming SIG Chuck Thiesfeld — Speaker
Nibble "Subscribers" Note 4	Wed Aug 12 7:30pm	Home of Ron Androff 1725 Crest Ridge Lane Eagan	Status and Discussion
REGULAR MINI'APP'LES Note 3	WEDNESDAY AUG 19th 7:30pm	**HENNEPIN** **SOUTHDALE** **LIBRARY** 7001 York Edina.	**COMPUSERVE** Demo Dorris Burndt/Blaine King Tri-Star News Service Mpls Star & Tribune. Also — Group Ed. Sessions Note, because of Library rules, there will be no disk sales at the meeting
Fort Snelling Note 2	Mon Aug 24	Nakomis Community Ctr Minnehaha Parkway	Programming Special Interest Group Meeting.
PASCAL Note 1	Wed Sep 2 7:30pm	Minnesota Federal 9th Ave S Hopkins	Regular PASCAL Special Interest Group Meeting.
Fort Snelling Note 2	Mon Sep 7	Nakomis Community Ctr Minnehaha Parkway	Programming Special Interest Group Meeting.
Nibble "Subscribers" Note 4	Wed Sep 9		
REGULAR MINI'APP'LES Note 3	WEDNESDAY SEP 16th 7:30pm	**UNIVERSITY** **MINNESOTA** **ST. PAUL** **CAMPUS** Near State Fair Room B45 Bldg 412	VOICE SYNTHESIZER Night Scott Zerby on Micro Mint Dale Heltzer on VOTRAX Maybe others!!! Serious and Hobbiest Applications — Be there!
Fort Snelling Note 2	Mon Sep 23	Nakomis Community Ctr Minnehaha Parkway	Programming SIG Dan Buchler on Text Stuff
Genealogy	Oct 10th	Minn. Historical Soc	Genealogy Conference.

Note 1. Contact- Keith Madonna
     2.   Dave Nordvall
     3.   Chuck Thiesfeld
     4.   John Schoeppner

MINI'APP'LES INFORMATION

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This is the Newsletter of Mini'app'les, the Apple II Users' group of the Twin Cities of Minneapolis and St. Paul.

Questions

Please direct questions to appropriate board member or any officer. Technical questions should be directed to one of the Technical Advisers listed here.

Membership

Applications for membership should be directed to the Membership Co-ordinator.

Dues are $10/year thru July; $5/year in July/Aug/Sept. After Oct 1st, $10 buys membership for current and next year. Members receive a subscription to this newsletter and all club benefits.

DOMs

DOMs (Diskettes of the Month) are available at meetings or contact Software Sales coord'r.

Newsletter Contributions

Please send contributions to the Newsletter Editor. Hard copy binary or text files (ASCII coded) are prefered, but any form will be gratefully accepted. Deadline for publication is the Wednesday before the 1st Wednesday of the month in which the item might be included. An article will be printed when space permits if, in the opinion of the Newsletter Editor, it constitutes suitable material for publication.

Advertising rates

Rates are as follows:
Full Page $30/issue
Half Page $20/issue

Circulation 450 (approx)

MEETING MINUTES JULY

Meeting was called to order at 7:35 by our president.

Old Business:
Terry Pinotti requests again that anyone cataloging club disks for him, to please finish up and return those disks to him.

New Business.

None.

Our next meeting will be back at the Southdale library again, but on the regular Wednesday this time.

This month several members had not received their newsletters before the meeting. This was due to the slowness of bulk mail and the combination of the third Wednesday occuring late last month and it being early this month. Thus a new deadline for the newsletter will be tried. Articles will be due on meeting night.

Meeting was adjourned at 8:20 pm.

Micro Mint's Speech Processor
by Scott Zerby

Using National Semiconductor's 'Digitalker' speech synthesizer system, Micro Mint's speech interface for the Apple II, TRS-80 or any micro with an 8-bit I/O port availible, is one of the cheapest and easist ways to let your micro speak out. The board is approximately 7 inches long, by 3 inches wide and contains:
  -a built-in power supply,
  -an audio amplifier for use
    with any 8 ohm speaker,
  -a digital interface to an
    8 bit port.
This interface is the link between the 'Digitalker' 3 chip system and your micro. One 40 pin chip is the speech processor itself, while the other two are mass-programmed ROMs which contain the vocabulary available to the speech processor. These two ROMs have 144 'expressions'. These include the entire alphabet, numerals, and several commonly used scientific words.

Usage with the Apple in either Basic, Machine language, or Pascal is very

simple. In Basic you simply 'POKE' the number of the expression you want spoken. The memory location you 'POKE' is determined by the slot in which the board resides (1-7). So for the Apple to say 'please'; POKE N, 120

If you want the Apple to say something other than one of the 144 words stored, it is possible to interrupt the speech processor while it is speaking and start it speaking another word. The effect is to make a new and different word or sound. This can be done with any combination of words. The total possible resulting words or sounds are limited only by your imagination.

Converting programs to use the speech synthesizer is sometimes difficult. Since there is no 'text-to-talk' subroutine, each separate word must be programmed in. This is easy if the program uses relatively few words, or if it uses the same subroutines over and over. However if you want to make something like an adventure game with a large vobualary it becomes difficult. However it is not hard to work with numerals so that a talking calculator would be simple to program, making double-checking of long additions easy for one person.

The board is available form several sources. The main source is:

Micro Mint Inc.
917 Midway
Woodmere, NY 11598

The cost presently is $159 for an assembled and tested syntheizer. If anyone has one, or is getting one, I have a couple of programs for use with the board. These include a space game, tic-tac-toe game, and a talking math drilling program. If you are interested, leave a message on the ABBS (929-6699) or call me at 571-7720.

For more information read "Build a Low-Cost Speech-Synthesizer Interface," by Steve Ciarcia, Byte, June 1981, pp. 46-68.

(Note from your Editor - A demonstration of this hardware will be made at the September *Regular* meeting. See Calendar on page 1. If there are any club members who have Voice Synthesizer systems, and, who would be willing to participate in our Sept. Voice Synthesizer program, please contact Chuck Thiesfeld at 830-5020.)

PRESIDENTIAL BYTES
by STEPHEN K. JOHNSON

1. See my story on WCCO TV's use of an APPLE II elsewhere in this newsletter.

2. Several samples of the new CDC diskettes were obtained and ramdomly distributed to some members. These are made by CDC and have a stiffer envelope than diskettes previously sold under the CDC label. Comments on these diskettes should be directed to Charles Mages (612/482-3660).

3. The last two meetings went very smoothly. Please try to get any announcements that must be made at the meeting to me in writing prior to the start of the meeting. This will give me time to better organize same. A phone call warning me of or telling me what you will be giving me would help.

4. Remember that an item for the newsletter doesn't have to be long. If you want to find others with a shared interest or help with a problem just write it down and give or get it to Dan Buchler.

5. In a couple of months we will have to make a decision about our meeting place. Comments on the last two new meeting places we have tried are welcomed and encouraged. We need your input. Its your club and we would like to make decisions on what you, the member, wants.

6. The NIBBLE SIG and others are doing quite well. How about starting more special interest groups. Just place a notice in your newsletter to let people know of your special interests.

7. Support the local computer store of your choice. They have done a big part in making this club what it is today.

who are lawyers, on this subject. Please call me if you have any information or can be of any help.

9. I want to welcome Chase Allen as our Education Coordinator.

10. I have received a copy of a new book 'Beneath Apple DOS'. I hope to do a book review on this book in the future.

11. Rumours of a DOS 3.3.1 have started. Somthing about being able to use @ function to switch between 3.3 and 3.2 . Fact or fiction, I don't know, but it sounds possible.

12. Thank yous to Bill DeCoursey and Chuck Thiesfeld for their parts in the July meeting. Bill's demonstration of the DG-65 Video Digitizer was very interesting. Chuck's education part was full of new ideas and information.

APPLE'CATIONS
by S. K. Johnson

Did you know that WCCO-TV channel 4 uses an APPLE II as one of its weather forcasting tools? I recently had the unique chance to visit WCCO's weather center for a first hand demonstration by meteorologist Mike Fairbourne of their APPLE II system, color weather radar, and various computer and color graphic systems.

WCCO-TV has an APPLE II+, dual DISK II's, an APPLE GRAPHICS TABLET, a clock card, two color monitors, one special interface card, and a special black box. The special black box does several things. First, it allows the system to use sixteen HIRES colors. Second, it allows a higher resolution HIRES screen to be used. (exact number of dots wasn't given to me) Third, it translates this HIRES video into a signal that WCCO-TV can broadcast. An additional special sync signal is also required and fed into the system.

The special interface card, that plugs into one of the expansion slots, is used along with special software to collect weather data from upto 100 different stations directly from the lines to the weather service teletypes. This data

need to get more information on incorporation. The Twin Cities TRS-80 Users Group gave us a copy of their ARTICLES OF INCORPORATION and by-laws as an example of what they did to incorporate. We still need incorporation info from any club members,

consists of temperature, wind speed and direction, barometric pressure, and relative humidity for each reporting station. Up to two hours of data can be collected before it must be dumped.

Any desired items from this data can then be graphically plotted as 3-D bar charts or plotted on a national, regional or local map. These bar charts or maps can then be used as one of the ways in which data is displayed when you watch the weather section of the news. Because the plotting is done on an electronically stored map, 10:15 pm data can be used for the 10:20 pm weather show. If this was done manually 9.00 pm data would have to been used.

The special software by Color Graphic Weather Systems also allows the user to create special charts or maps with the use of the graphics tablet. Areas of these maps can be colored in and labeled with text and weather symbols. These maps are useful for indicating areas for which a severe weather watch or warning has been issued.

One of the advantages of this APPLE II weather tool is cost. It costs at least 10,000 dollers less than another graphics system which WCCO has that doesn't do as much as the APPLE II.

Mike Fairbourne also demonstrated other computer graphic tools that they have and use. The color radar really interested me. they have the ability to dial up color radars in other cities. We had a chance to dial up Fargo and look at a thunderstorm in progress. The systems for receiving satellite pictures were also amazing. One receives pictures and prints then so clear they look like actual photographs. Another graphics system allows the meteorologist to color enhance the satellite pictures. He can 'paint' the ground green, the great lakes and oceans blue and also draw in weather fronts, highs and lows and add text where desired. This helps add contrast to the pictures so details can be clearly seen.

WCCO-TV also has a terminal that can be used to call up and print up-to-date weather information in a pseudo graphics (using standard text characters) mode for various ares of the country.

WCCO-TV's application of an APPLE II really impressed me. I wish to thank WCCO-TV and Mike Fairbourne for taking time and allowing me the privilege of a first hand demonstration of the equipment in their weather center.

TURNING THE PAGES
with David E. Laden

BYTE -- JUNE 1981

Byte's topic for June is **Operating Systems.**

Logo for Personal Computers by Harold Nelson. Pages 36-44.

Ciarcia's Circuit Cellar: Build a Low-Cost Speech-Synthesizer Interface by Steve Ciarcia. Pages 46-68. A construction project for the Apple or TRS-80.

Four Word Processors for the Apple II by Keith Carlson and Steve Haber. Pages 176-190 and 196-204. The following word processing packages are reviewed: Super-Text II by Muse Software, Write-On! by Rainbow Computing, Datacope Scribe by Datacope, and EasyWriter by Information Unlimited Software.

The Impossible Dream: Computing 'e' to 116,000 Places with a Personal Computer by Stephen Wozniak. Pages 392-407. Programs written in assembly language and Integer BASIC.

COMPUTE! -- JUNE 1981

Apple II High Resolution Character Generator by Peter Gehris and Ken Reinert. Pages 58-63. An Applesoft Program is used in conjunction with shape tables.

How Do I Fit A 16K Program Into A 6K Space? Simple - You Don't by J.F. Johnson. Pages 64-66. The author discusses the technique of moving Applesoft programs to other areas of memory.

Ever Expanding Apple Power by Mitchell Bushin. Pages 66-67. A combination of Integer BASIC and assembly language to add "special function keys."

CREATIV⋯ ⋯UTING — JUNE 1981

The Anadex DP9501 by Gary Mellar. Pages 22–25. The Anadex printer is reviewed.

Apple Picture Packer by David Lubar. Pages 128–138. These assembly programs allow you to pack Apple high resolution pictures.

Caesar's Watch by Paul Raymer. Pages 166–169. Applesoft program listing included.

In addition to the above articles and Chuck Carpenter's Apple-Cart column, there are a number of software reviews as follows: Fantasy Games, Computer Warfare, The Warp Factor, and Apple Graphics Utilities.

INTERFACE AGE — JUNE 1981

Exercise Your Stock Options by Edward Garner. Pages 100–101 and 152–15 This program is written in Applesoft.

Colorful Graphics and Text Program by Robert Moskowitz. Page 102. This is a review of Paddle-Graphics by On-Line Systems.

KILOBAUD MICROCOMPUTING — JUNE 1981

Plan Your Retirement On Easy Street by G. R. Brieger. An application for VisiCalc.

To and Fro with Apple's Inverted Decimal Code by Don Lancaster. Pages 98–101. Includes two Integer BASIC programs.

Poking the Apple's Screen by Patrick C. Moyer. Pages 102–103.

Multiplying by 1's and 0's by Leo J. Scanlon. Pages 110–120. This article covers the task of multiplication in machine language. Example programs are written for the 6502.

On Guard by Robert M. Hirbernik. Page 122. This is a reset protection circuit for those with older style Apple keyboards.

MICRO — JUNE 1981

Beginning with the June issue, Micro expands its coverage to include

the 6809 microprocessor in addition to the 6502. Also beginning this month is a special section called Apple Bonus which will feature "extra" articles on the Apple.

Musical Duets on the Apple II by Rick Brown. Pages 17–24. The article includes a two-tone machine language routine which uses both the internal speaker and the cassette out jack. Supporting programs are written in Applesoft BASIC.

Macros for Micros by John Figueras. Pages 45–47. This is a macro assembler introduction.

Create a Data Disk for DOS 3.2 and 3.2.1 by Glenn R. Sogge. Pages 49–51.

Apple Color Filter by Stephen R. Berggren. Pages 53–54. This is a short machine language program to filter out high resolution colors. The demo program is written in Applesoft.

Serial Line Editor for the Apple by Wes Huntress. Pages 59–63. This machine language routine adds several editing features to Applesoft input.

Amper Search for the Apple by Alan G. Hill. Pages 71–77.

Integer Flash for the Apple by Richard C. Vile, Jr. Pages 83–87.

I want to make a final comment on Pascal. In May I purchased a FULL-VIEW 80 board made by Bit 3 Computer Corporation. I am completely satisfied with the product but I would like to pass on one piece of information that is not brought out in their advertising. With installation of the 80 column card in my Apple I can display 24 80 column lines on the monitor and I can display the Pascal HIRES graphics page on my TV at the same time. This was a very pleasant surprise. I have heard that this is also true for some of the other 80 column boards on the market. I am surprised that the people marketing these boards have not emphasized a point like this. For example you could have a game being played on the HIRES graphics on the TV and the instructions displayed on the monitor. Note, the Bit 3 board can also display the Pascal graphics by writing a ctrl-w to the output file.

EPSON PRINTER NEWS

by Daniel B. Buchler

1. DOT GRAPHICS - Latest rumour puts deliveries into the 'Fall'. We know the hardware exists - see June Newsletter. Maybe there is a supply problem somewhere - see below.

2. The latest batch of Epson MX-80s came through with their internal ROM slots populated with 3 2716s Integrated Circuits. These are 16k-bit Programmable Read Only Memories which contain the program for the internal Microprocessor. Previously, Epson had been using a single 2732. We enquired of Epson about this and were told that the firmware had not changed. Since 1 2732 is usually cheaper than 3 2716, we must assume that they have a supply problem with 2716s.

3. Our local distributor and their representatives (dealers) are supplying TYMAC interfaces rather than Epson interfaces to hook the Apple to the printers. The TYMAC card uses a better quality Printed Circuit board than that of the Epson. With the appropriate software the the high order bit may be turned on, so that Block Graphics may be enabled.

    POKE 1273,255 Block-Graphics ON
    POKE 1273,127 Block-Graphics OFF

The above assumes printer in Slot 1.

The same function is achieved on an Epson Interface board by addition of the jumper wire described in the article by Lou Adornato (May edition of Mini'app'les). The following POKES are used with that modification:
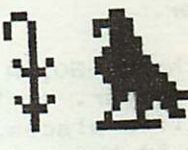
    POKE -16295,0 Block-Graphics ON
    POKE -16296,0 Block-Graphics OFF

TYMAC distribute with their disk a program to dump the HIRES screen to the Printer using Block Graphics. This is similar to the program published in the article by Chuck Thiesfeld (April Mini'app'les) newsletter. In this case a single

pixel (dot on the screen) is represented by

```
***
***
***
*** on the paper.
```

This author has written an INTEGER BASIC program which will take a BASIC string of up to 11 characters and, using any HIGHER TEXT large character font, will print those letters in the string using Block Graphics. As above, each HIGHER TEXT dot (from a 16 x 14 matrix) is represented by a 4 x 3 grid on the paper. So the letters are rather large.

If anyone is interested in this program, please contact me. (You must have a copy of HIGHER TEXT in order to use the program.)

4. Al Peterman is soliciting a response from anyone who might be interested in Platen feed for the MX-80. Orange Micro, a mail order house in California, offers a drop-in quality unit, with pin-feeds attached, for 9 1/2" wide paper. Al has one unit on hand for demo. If we can get together a group purchase the price could be under $60. List price is $75.

5. MX-80 TABbing - See Separate article entitled 'TABS & TAB-STOPS'

6. An Epson MX-80 Newsletter is being started. The first issue can be obtained for the price of an eighteen cent stamp. If your interested, spend your stamp and see what is being offered. Simply send it with your name and address to:

Frank Bordon
1017 Trollingwood Lane
Raleigh, NC
27609.

TABS & TABSTOPS
By Dan Buchler

Several persons have asked questions about TABS and the MX-80. Note a lot of the following applies to most dot matrix printers.

First of all, you must understand how TABS relate to APPLESOFT or INTEGER BASIC. An APPLESOFT 'HTAB n' is like a POKE 36,n-1.
That is, the Apple Monitor's current cursor position (CH or 36 decimal) is updated according to the value of 'n'. In order to make use of the feature, one must have access to CH. CH is a memory location. Only a program running in Apple memory can determin what value CH is at any moment. The printer is at the wrong end of the printer cable to figure out what CH is. We'll come back to this later.

In the MX-80, A TAB is like a tab on a typewriter. You set tab-stops at specific places, then hit the TAB key to move to the next tab-stop.

Well, in the MX-80, you set the tab-stops by sending the sequence:

ESC 'C' T1 T2 T3......... NULL

where ESC is an Escape character (27)
T1 is the first tab-stop
T2 is the 2nd tab-stop
T3 is the third, etc
NULL is the Ascii code 00

All the 'T's are single Ascii characters, the code for which represents the absolute column number of the tab-stop. For example, to set a tab-stop at col 33, you send the character whose Ascii code is 33 (an '!' in this case). Lets show an APPLESOFT

example of setting tab-stops at columns 21, 41 and 61.

PRINT CHR$(27);"C"; CHR$(21); CHR$(41)
                    ; CHR$(61); CHR$(0)

You can set up to 80 stops in a line! Setting tab-stops automatically clears any previously set stops.

To use the tab-stops just set, you simply send a TAB character {Control I or CHR$(9) }. This is equivalent to hitting the TAB key on the typewriter.

Example:
PRINT "START AT COL 1"; CHR$(9);
      "NOW AT COL 21" ; CHR$(9);
      "NOW AT COL 41" ; CHR$(9);
      "NOW AT COL 61"

Two peculiarities should be noted.

1. To Tab successively past 2 tab-stops, one must have a non-tab character between successive tabs.

   Example CTL-I CTL-I will appear as one TAB only to the EPSON. CTL-I SPACE CTL-I will work as intended.

2. The first line of CTL-Is will be ignored. Therefore one must issue a dummy tab-line at the beginning of text.

   If you have a text editor, the CTL-I can be usually imbedded in the text. For example, 4 lines of the Calendar on page 1 of this newsletter look like the example below, where:

   I is a CTL-I
   N is a CTL-N for wide character ON
   T is a CTL-T for wide character OFF

Example of use of Tabs in Text
Part of calendar announcing next meeting.

N REGULAR T I WEDNESDAY I N HENNEPIN T I N COMPUSERVE T Demo
MINI'APP'LES I AUG 19th I N SOUTHDALE T I Dorris Burndt/Blaine King
Note 3 I 7:30pm I N LIBRARY T I Tri-Star News Service
   I   I 7001 York   I Mpls Star & Tribune.
   I   I Edina. I Also - Group Ed. Sessions.
   I   I Note, because of Library
   I   I (See map inside) I rules, there will be no
   I   I disk sales at the meeting
   I   I

Finally, I mentioned that we would relate to APPLESOFT tabbing. It is theoretically possible to write a special printer driver program for the MX-80, which could be installed in firmware on an interface card, and which would:

(a) Set Tabstops at columns 11, 21, 31, 41, 51, 61, 71

(b) If CH is incremented through a Tab-stop value by use of TAB n or POKE CH, n-1 , then issue a Tab (CTL-I)

Unfortunately, this would buy you nothing!! This is because the rate at which the print-head moves is constant. So sending tabs would not speed up the printing over sending spaces (as is done by most driver firmware). Tabs for the Epson are entirely a 'formatting tool' as per the example of the Calendar.

Save That ATHS All Time High Score

by David Nordvall

On July 6 Chuck Boody talked to our Programming Sub-Group about his "Le Mans" program (NIBBLE Vol 2, No 2) and on using standard sub-routines when writing programs. This lead to several ideas, some of which will be discussed in future articles.

While many interesting techniques were used in the Le Mans program, the one I want to consider now is how a program can change itself.

One problem I've had with Basic Games is "WHAT SHOULD BE THE GOAL"? One goal might be to make the All Time Highest Score (ATHS).

How can the ATHS be carried along each time the game is loaded or run? One way is, in the middle of playing the game, to save the new ATHS to the disk. Two methods come to mind.

1. Open a text file and save the ATHS.
2. Save ATHS as part of the program.

Using the first method requires having two files for each game. This might work, but the high scores would be easy

to lose. The second method would keep the ATHS as part of the program. Lets discuss how this might be done. The current value for a BASIC variable is not saved with the program. To save that variable, the value must be included as part of the program in an APPLESOFT statement.

A small understanding of how a program is stored in memory is needed. I will not go into great detail and would recommend Creative Computing Sept, 1980 P 176 for a short explanation of Apple's memory.

The first thing to do is type -

```
FP c/r
0 X% = 00000 c/r
```

The % means that X% is an integer. This sets a high limit of 32767 for the ATHS. Line 0 is used so we know where to find X% in memory (i.e. the first statement).

Now type:
```
CALL-151 c/r
```

and after the * Type:
```
800.80E c/r
```

```
0800- 00 0E 08 00 00 58 25 D0
0808- 30 30 30 30 30 00 00 00
```

With Applesoft in ROM, $800 (2048) is the start of program memory and is 00. The next two bytes; 0E 08 at $801 & $802 respectively, contain the location of the next APPLESOFT line (or end of program). The next two bytes; 00 00 contain the current line number, 0 in this case. 58 is Ascii code for X. 25 is the Ascii code for %. D0 is the Ascii code for '=', and the next five 30's represent five zeroes. These are the 0's for the constant '00000' in line 0. We now know where in memory the value that is assigned to X% will be stored - $808-80E. (2056-2060 Decimal) The next byte 00 is the end of statment marker and then 00 00 is the end of program marker.

Now type:
```
LIST c/r
```

and take a look at line 0 as it is now.

O.K? Now type:
```
 POKE 2056, ASC("1") c/r
 POKE 2057, ASC("2") c/r
 POKE 2058, ASC("3") c/r
 POKE 2059, ASS("4") c/r
 POKE 2060, ASC("5") c/r
 LIST c/r
```

Our program now reads:

```
 0 X% = 12345
```

We haved changed the program! If it were saved, X% would have a new value.

Lets write the sub-routine to save the ATHS from a program.

```
 0 X% = 00000: Z$ ="0000": D$ =CHR$(4)
```

Initialize variables:

```
 51000 REM SAVE HIGH SCORE
        USE GOSUB WITH SC% = TO
        THE LAST SCORE
        I & A$ CHANGED IN THIS
        SUB-ROUTINE
```

```
 51001 IF SC%> X% THEN RETURN
```

> If last score made (SC%) is less than the current ATHS (X%) a return is made with no change.

```
 51002 A$ = RIGHT$(Z$+STR$(SC%),5)
```

> The score is turned into a string five long filled in with leading zeros. We now have to poke in each character of the string into the memory locations found earlier at 2056 to 2060.

```
 51003 FOR I = 1 TO 5 : POKE 2055+I,
       ASC(MID$(A$,I,1)):NEXT: X% = SC%
```

> Each character is poked in and then X% is set equal to the new ATHS.

```
 51004 PRINT D$;"SAVE 'GAME NAME'"
        :RETURN
```

> The whole program is saved to disk (with a new line 0) and then execution returns to the main program.

To use this routine, capture lines 51000 to 51004 in a text file. Key in line 0 and then EXEC in lines 51000 to 51004. In the program set the score made

in the last round equal to SC% and GOSUB 51000. See ""GAME NAME" ON ONE OF THE FUTURE DOM's.

Next month: a Capture Program to capture by line numbers.

Pondering Pascal Odds and Ends
by Daryl Hammond

Back in the May issue of this newsletter there was a Pascal program named JOYSTICK that had the last several lines left off. Because this danger exists any time you publish a program, I have decided not to include any more programs in this column. Instead, I will use this space to document the use of any new programs I write. The program will be contributed to the club Pascal library and will be distributed from there. I think that this will be a better utilization of resources all around.

This month I would like to talk a little bit about UNITs and file I/O. In 'NIBBLE' issue number 6 there was a Pascal program to dump the HIRES graphics page to an IDS 440 Paper Tiger printer. I typed in this program, and after one minor correction the program worked. The program's author then said that he would leave it up to the reader to implement this as a Pascal UNIT. I grabbed my Pascal reference manual, decided what kind of UNIT I wanted, wrote the code, typed it in, and ended up with compile errors. After spending a lot of time trying to correct these errors, I rewrote the code using a different type of UNIT and tried the process again. Eventually I managed to compile something, but I was never able to get a main program to successfully call it.

I put the code aside until the first meeting of the Pascal special interest group. There I learned that John Schoeppner had tried to implement a 'NIBBLE' program as a UNIT and that he had the same experience as I did. This made me feel good knowing that it couldn't possibly be human error that was at the root of the problem.

Eventually I upgraded to Pascal 1.1 and read in one of the new manuals that

I/O was now supported from Intrinsic UNITs. I dug out the program and tried to compile it. It still failed to compile, although this time the errors were different. I once again put the program away.

Last June I decided to give it one last try. After a couple of hours of trial and error I finally stumbled upon the method of getting file I/O out of an Intrinsic UNIT. I had been defining the file variables in the IMPLEMENTATION part of the UNIT. This is where variables local to the UNIT are defined. Since I was issuing the REWRITE, RESET, and CLOSE statements in the UNIT itself I thought the file variables should be defined there. I was of course wrong. File variables must be defined in the INTERFACE part of a UNIT even if the calling program isn't aware that any I/O is going on. With this small change the UNIT now works beautifully.

I have since reread all the Pascal information on UNITs and nowhere can I find any reference to this 'small' point. In fact the only reference to files in UNITs is in the 'Apple Pascal Update' manual under problems fixed where it says the following: 'You can now declare files in Intrinsic UNITs.'

Enough complaining: on with the documentation. The TIGERSTUFF UNIT consists of three parts: the 'NIBBLE' HIRES page to Paper Tiger dump, a HIRES page dump to disk, and a load of the HIRES page from disk. The last two pieces of code are by Jo and Charlie Kellner of Apple computer, but I am unable to tell you where they were first published. To use this UNIT you need to include the following line after the program line:
USES TURTLEGRAPHICS TIGERSTUFF.
The procedures are called with an IDS440(number) where number is a value from 1 to 12; HIRESSAVE(filename), and HIRESLOAD(filename). The IDS440 procedure will generate 12 different sizes of output depending on the parameter passed. Values of 1 through 4 have a height of one third the page; values of 5 through 8 have a height of two thirds the page; and values of 9 through 12 take up the full page. Each height has four separate widths corresponding to the four line lengths available on the Paper Tiger. The UNIT

is set up to open the printer file if it is not already open. This means that you can let all I/O take place in the UNIT or you can open the print file in the calling program. For example from the calling program you could issue a REWRITE(TIGER,PRINTER:) to open the file and then you could issue a PAGE(TIGER) to advance to the top of the next form. The 'filename' in the other two procedures is any valid Pascal file name including the volume name if necessary.

TREASURER'S REPORT
by Marilyn Thomas

May 18th Balance   1933.30

May 18th - June 18th Expenditures

Checks Printed	16.25
Printer Ribbon	7.25
April Newsletter	383.27
Apple Orchard (IAC)	37.50
Bulk mail account	80.00
Diskette copying	40.00
MECC order blanks	6.97

	571.24

June 18th- July 15th Expenditures

Newsletter	202.61
Mailers for DOMs	25.00
Diskettes for MECC sftw	75.00
MECC manuals	30.50
Postage - Secretary Treasurer Membership	61.80
Hennepin Co. Lib. rental	5.00

	399.91

INCOME

May Interest	9.17
June Interest	6.57
Membership and other income during May	446.00
Membership and other income during June	237.00

	698.74

Ending Balance July 15th, 1981   1660.89

IN THIS ISSUE

DOM#5 FOR SALE

DOMs will not be sold at the August meeting because of Library rules.

However, DOM's may be ordered by mail from:

        Hugh Kurtzman
        11622 Live Oak Drive
        Minnetonka, MN 55343

See page 2 for instructions.
If you send Hugh an order before the meeting with payment, he will deliver them to you at the meeting and there will be no delivery charge.

UNDER 18 USERS

Are you under 18?

Do you like to program the Apple?

- - - - - - - - - - - - - - - - -

How about sharing ideas and programs.

We could form a group to meet before the monthly meetings - or on Saturdays.

Interested ?

Contact -   Stephen Edwards (age 11)
            4941 Newton Avenue South
            Minneapolis,
            Minnesota   55409

            922-3341

            (out of town Aug 8-24)

APPLE ORCHARDS

We have several unclaimed Apple Orchards, which were prepaid:

Fall, Winter, Spring:-

J.Kolacke & W. Scaggs

Winter, Spring:-

O.Eittreim & D. Beihoffer

Spring:-

D. Fischer, W. Benbenels, Software Ctg., T. Rassen, M. Hobbs, R.Gates

We also have extra copies of Spring and earlier Orchards. They will be available at Sept meeting.

MINI'APP'LES
13516 Grand Avenue South
Burnsville
Minnesota, 55337