

BITS, BYTES & PIXELS

LIMA 99/4A USERS GROUP



NOVEMBER 1989 VOLUME 5 #9

REVISED FUNNELWEB 80 COLUMN QDAV NOW AVAILABLE

We have received from Tony McGovern a revised enhanced 80 column Funnelweb quick directory (file QDAV). This cures the problems with trying to R(un) assembly software from the disk directory and sometimes getting an EA? or LL? error. We are sending this to all our friends known to have 80 column systems and who use Funnelweb. Any user group or out of town member of the Lima UG can obtain this new QDAV from us by sending a disk and paid return mailer to the Lima UG, P.O. Box 147, Venedocia OH 45094.

****DONE****

AVAILABLE VIDEO TAPES OF REGULAR MEETING SERIES

These VHS videos are available to any paid member by sending a blank tape and \$1 return postage, or by sending \$5.

Sept 1989 meeting- HOUSE OF THE RISING SUN, PD music with graphic enhanced by Ray Kazmer. QD40, the as yet unreleased 40 column equivalent of Funnelweb's QDAV enhanced quick directory.

Oct 1989 meeting- XHi v3.41 HARDCOPY, step by step instructions on how to use this utility to print gigantic NYART pictures. BIBLE TRIVIA by Steve Degears, probably the best such program in our library.

****DONE****

LETTER TO THE EDITOR

Dear Charles,

I have been reading your articles with great interest and wanted to make a couple of (hopefully) helpful comments. Regarding the use of a VCR to tape output from the TI, (article in Oct. 89 issue of BB&P) I have been doing that for quite some time but not lately because 80 columns don't come out too well with composite video. That cuts down on the usefulness of this method for demonstration purposes. What I wanted to tell you, however, is not related to video. You don't have to buy a monitor cable to get video and audio from the TI to VCR. You can make it from a few feet of shielded audio cable, a 5-pin male DIN plug and 2 RCA phone plugs. The pin-outs for the DIN plug are

- 2- video signal
- 3- video ground (shield)
- 4- audio ground (shield)
- 5- audio signal

Also, if you use the line output from a component type cassette deck to feed audio to the VCR you will get a better impedance match and much improved audio. Those outputs for earphones or speakers from a cassette recorder don't match the impedance of the audio input on a VCR - it works, but....

The decks don't have a built in mike but all the ones I have owned or seen have a mike input. Almost any cheap mike will do better than the built-ins and the advantage is that you can then get the mike close to the speaker's mouth to keep room noise and reverberation to a minimum. You can still Y in audio from the TI if that is desired though there may be a problem with levels between the mike and the console. Anyway, just thought I'd tell you what I found that helps with audio on video tapes.

Also read your update (Oct. 89 issue of BB&P) on XHi and the HARDCOPY tutorial. Well done! (Except for that small boo-boo where you say 7 7 7 is black.) I offered to edit the docs for Alexander and he's all for it. I'll make sure that instructions are more explicit and cut out some of the theory which doesn't mean anything to those who do not have the 9938 manual. That will keep me busy for a while.

Enough for now. I hope you enjoy your AVPC as much as I enjoy mine.

Lutz Winkler

EDITOR'S NOTE: Lutz is a recent Micropendium author and helps with software testing for DIJIT system's AVPC card. The pin outs for the above described cable have been published before. However, I am a real klutz when it comes to making such things. I tried twice to solder my own AVPC monitor cable with parts from Radio Shack and each time managed to ground out some of the soldered leads to the shield of the DIN plug. I ended up purchasing my cable from DIJIT. The cassette recorder system of adding video audio to a video tape of 99/4A output does work for the Lima group. We have used this system to make a video of two of our monthly meetings. There is somewhat of a problem with a simultaneous Y audio input to the VCR from the 99/4A and from the cassette recorder. The volume of the 99/4A audio is reduced and somewhat hard to hear. Yes I goofed. Black shows on the monitor with R G B intensities of 0 0 0. The "Alexander" mentioned is Alexander Hulpke, author of XHi. Lutz is the unnamed author of the docs for some very well known TI software. His rewrite of XHi's instructions should make it much easier for the average person to use this fine software to it's full potential.

Charles Good

****DONE****

EDITOR'S NOTE: The following article was received directly from the author Tony McGovern, senior author of Funnelweb. It has been published in the Hunter Valley UG newsletter and describes a revised text editor Tony is writing that will form part of the next Funnelweb revision. I have beta testing versions of this editor in both 40 and 80 column versions. New features I like include optional continuous display of tab settings in the bottom ruler (80 column version only), the ability to create two sets of tabs and alternate between them, and the automatic capitalization of assembly code when using the EA editor. You type the entire line in lower case, using SHIFT to create upper case at appropriate places in the comment part of each line. Each time you press <enter> the assembly, and only the assembly code of the just completed line shifts to all upper case. Neat!

TI-Writer Once Again

 Tony McGovern - HV99
 September 1989

Several years ago I wrote a HV99 Newsletter article entitled "TI-Writer under the Hood". As far as I know, this general overview of its Editor's internal operation, as distinct from all the how to use it articles, still seems to be the only published discussion seen here of the Editor's internal workings. This is not a very good reflection on the state of information sharing in the TI-99 community, as quite a few people must have studied its workings over the years, even if only a few have ever seriously attacked it.

Recently I resumed work on a substantial rewrite of the Editor in preparation for updating Funnelweb to Vn 4.20, and while the details are fresh in mind I will write about the operation of the buffer manager in the Editor. For a gentle introduction dig out your old HV99 and read the original article again. This time we will go into a lot more detail, at the level of talking about the routines used, even if we still stay clear of detailed coding.

To remind you of how it goes, the hi-mem segment of CPU RAM contains some buffers, the buffer manager code itself, and starting at >A410 the pile of squished lines growing upwards and the line table growing downwards from >FFCB. When these meet up you have the dreaded "Text Buffer Full" condition. Each entry in the line table is a pointer to the squished text record in the Edit buffer pile corresponding to that line number used as an index into the line table. Records are only ever added to the top of the Edit buffer, and if a line is deleted it is removed and the pile collapsed down so there are no gaps left.

The buffer manager code as bequeathed to us by TI contains 4 major functions called as BLWP procedures and a small cast of supporting routines. The main procedures are, to give them TI's labelling, GETLN, INSTLN, UPDTLN, and

DELTLN. As you can see from the names these are line oriented. The minor routines are

BINDEC - converts a line number in binary form to the 4 digit decimal you see down the side of your screen.

CKLIN - given the line number it returns the line table and edit buffer pointers and the length of the record.

CKROOM - this is the one that returns the 'Text Buffer Full' if it isn't satisfied.

MOVMEM - removes a record from the edit buffer pile by dropping down all the records above it in a mass move of the Edit buffer contents.

SQUISH - this is the one we talked about in last month's Assembly programming contest, that does run length encoding of text lines before they are placed on the top of the Edit buffer pile. SQUISH, and the unsquisher in GETLN, have had a functional update in that the encoding has been improved slightly to give greater apparent buffer capacity. The improvement varies depending on the document file from none at all, through about 3% for a file like this one, to the 5-10% range for assembly source files. Buffer capacity is never decreased. As before buffer encoding is purely internal to the Editor.

These services are called on by the main routines as needed. I will start from the simplest function (not necessarily the simplest code) in looking at how these work. All the buffer management functions in the standard TI-Writer are performed by these routines, and as we shall see, in very inefficient fashion because the basic services are all line oriented.

GETLN - this procedure fetches a specified line from the Edit buffer for purposes such as refreshing the screen buffer, for Find String etc, and for Saving to disk. It uses CKLIN to find the record in the Edit buffer and then unsquishes the record as part of the service. At the level of detail coding this was the sloppiest effort by TI on any of the routines. I have left the function alone but have refined the code extensively. At the intermediate level the original code is inefficient in that it copies the line from the Edit buffer into the squish buffer before unsquishing to the destination buffer, where it could have been done directly from buffer to destination and now is of course.

INSTLN -- whenever a new line has to be added to the buffer, the INSertLiNe procedure is called. This uses SQUISH to encode the line into the squish buffer, and it is then copied at the top of the Edit buffer pile, with CKROOM testing for "Buffer Full" before this is done. Then the new pointer is inserted into the line table and all pointers above it shuffled along to make room. Nothing too much needed updating in this routine.

UPDTLN -- when you edit a line and changes are made, it has to be replaced in the Edit buffer by the UPDateLiNe procedure. This fetches the data for the existing line with CKLIN, SQUISHes the new line, and then checks the length against that of the existing line. If this is unchanged the record is written back over the earlier version without further ado. If the lengths don't match then it has to delete the existing line and insert the new line. A subtle improvement on the original is that it now uses only the increase in length when it calls CKROOM.

DELTLN -- when you use <ctn-3> or <ctrl-N> to delete a single line DELeTeLiNe does the job. For normal documents this is the most expensive operation of all, because when a line is deleted from the Edit buffer the whole buffer above where that line was stored must be moved down. The reference in the line table must also be deleted and the rest of the table moved along, with pointers to any record that has been moved adjusted appropriately. Yes, all that goes on every time you delete or even just edit a line. Since the line table has only a 2-byte word aligned entry for each line (to give the CPU memory address of the actual record) it is usually much shorter than the Edit buffer. However just how much of the Edit buffer has to be moved depends on past history. A well ordered buffer is one in which the records start from the bottom at >A410 in order of their line numbers. A file freshly loaded from disk is in this state. Editing any line enough to change its length will, as we have seen already, end up with it pulled out of sequence and placed at the top of the pile.

TI-Writer uses these buffer manager routines in the form that we have described them, always in a line at a time fashion. The most annoyingly slow function of all in TI-Writer is Delete Lines and this was the one I decided to attack first as it is also called by other functions. Why is it so slow? The reason is that each time a line is deleted, it is done as a separate task and a complete mass move of the Edit buffer and update of the line table is performed for deletion of that line. Code polishing improved this noticeably, but a new approach is clearly needed. So a new procedure was added.

DLBLOC -- when given a range of line numbers to delete this keeps checking successive lines to see if they form a contiguous block in the Edit buffer. Each such block is deleted as a single unit from both Edit buffer and line table. So with a well ordered buffer even large blocks are now deleted almost instantaneously. You could imagine a large buffer in the opposite of a well ordered state - then the process would proceed a line at a time, but usually there is some degree of block ordering. What you can see is that TI's original method is guaranteed to give the worst possible result every time. Oh well, they invented GPL too! DLBLOC is now also called from Reformat when it has finished making a reformatted copy of a paragraph to get rid of the original paragraph, and so Reformat is now speedier.

Move Lines and Copy Lines are also very much slower in TI-Writer than one might reasonably expect them to be. Once again this is because line by line services are used to construct block related functions. Apart from speed a bad failing of Move Lines is that it can give rise to a "Text Buffer Full" condition. If you think about it this should not occur as no text is being added. It happens because TI-Writer implements Move Lines by first doing a Copy Lines - which is where the full buffer disaster may strike, and then deletess the original lines, adding insult to injury by doing it one at a time always. At this stage DLBLOC had already speeded things up very noticeably, but clearly something much better is needed. In principle all that is necessary is to shuffle around blocks of the line table, and the Edit buffer need not be altered at all. So a new general purpose support routine, MVLINS, was written that could be called as whole or part of buffer functions.

MVLINS -- this is a routine that does the line table block shuffle. It is written as a generic routine, and the block limits are pre-ordered by the calling procedures, William came off his Amiga for long enough to make an initial suggestion on how to do it in linear time in block size, and I think the resulting code is the most elegant piece of 9900 code I have yet written.

TI-Writer did Copy Lines by using GETLN to fetch each line and INSTLN to add a copy to the Edit buffer and line table. Once again this is about as inefficient a method as could be dreamed up, and made worse by all the unsquishing and resquishing involved. A further bad feature is that if the buffer fills during the process you are left with a partially copied mess.

CPBLOC -- the obvious solution here is to do direct copying of the lines from their existing position in the Edit buffer to append them to the end of the buffer, and to add new pointers to the end of the line table. In this process a new entry point CKCOPY to CKROOM is invoked which checks for room in the buffer before copying each line. At this stage the copy process can still be abandoned leaving everything as it was since nothing has yet been done inside the previous Edit buffer and line table limits - only additions to the ends. If all is satisfactory then the end pointers for the buffer and line table are updated. The Edit buffer is now in fine shape but we have a whole block of line pointers out of position, unless they were originally meant to be added at the end. But all it takes now is to call MVLINS with the right pointers and the job is all done.

An aspect of Copy Lines that bears a little thinking about is that the new approach would make it possible to do a Copy Lines with the "After" line number in between the "From" and "To" line numbers. This could be done because the copy of the block is made before any reinsertions are made, but it is not implemented because the Copy Lines and Move Lines call a common routine to take down the line numbers and do range

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checking. The conditions for Move Lines are more restrictive of course.

A further modification to the buffer manager code which has not yet been incorporated, is to abandon the fixed squish buffer and float it at the top of the Edit buffer, with appropriate modifications to the code. There is no net gain in buffer capacity, but since lines are always added to the top of the Edit buffer (except for the direct replacement in UPDTLN) it will mean that the squished line is already in place without having to be copied into position again. Strictly speaking it is only the direct replacement path in UPDTLN that forces provision of an explicit squish buffer, since you cannot tell that a replacement line is the same length until it has been squished. The other major area besides the buffer manager that will bear looking at is the Load/Save module. The change just discussed will help this along by reducing overhead in the file reading process. Another way to help it along was discussed as an aside in the Living with Spiders series on interfacing to Funnelweb published in the HV99 newsletter many months ago. This is the technique used in the E/A Utilities object loader, and extensively exploited in the LINEHUNTER utility program that has been part of the Funnelweb package for what seems like very long time now. The idea is to use the full DSRLNK only for the initial access to a device, usually a disk DSR, saving the CRU base address and the entry address, and using these directly for future accesses to the same file. Linehunter gets its speed by keeping track of these separately for both MAIN and COPY files.

The revised buffer manager has been incorporated in the 40 column version also, and the speed-up is such that it now seems impossible to lose a keystroke on end of line automatic wordwrap. It is still just possible to lose a repeated character in the AVPC version, but remember that this has to write up twice as much on the screen in between each keystroke, and do it via the 8-bit bus to the PE-Box as well. I must compare this against the Mechatronics 80-col unit sometime. Another upgrade to the 40 column version is that <ctrl-Y> now functions as a full margin release as has been the case in the AVPC version.

Another new feature which is proving its worth right now in writing this document is the provision of dual tab settings. The command line entry "DF" is now obsolete as SD does the job better, and has been replaced by "ST" for Swap Tabs, which swaps the current tab set with an alternate set. So when I want to write inset paragraphs all I have to do is go to command mode, ST, and Enter. Both tab sets are now saved with the document and if an old document with only one tab set is read in this is made the initial alternate set also. In the AVPC version the current tabs show on the line 26 ruler when called for editing by T or ST. Pressing <ctrl-> cleans the ruler line to numbers only. I have also added a NTSC/PAL toggle from <ctrl-N> in the command mode. The control key may change but it seems a worthwhile inclusion (assuming your monitor will handle it) as I find it

easier on the eyes to read the less elongated screen characters with less "lininess" to the display. Interlace mode becomes pretty horrendous though at 50 Hz frame rate. I still have to sort out why the output from the 9938 seems so much worse than standard IV.

Users of the Programmer's Editor will find a whole new mode of operation. In the Word Processor pressing <ctrl-O> toggles the cursor between the solid word-wrap shape and the hollow cursor to indicate fixed mode. Previously the Pgm/Ed allowed only a modified form of fixed mode to give E/A compatibility of saved files and to make sure no reformat could ever be done on program source files. Now <ctrl-O> toggles in a diamond cursor to indicate that you are in assembly source mode (ASMode from now on). It has always been a nuisance switching between upper case for the assembly code itself and to lower case for the comments. In ASMode you may leave the alpha lock off, and type both code and comments on the same line in lower case, with <shift> needed only for capitals as in normal typing. It doesn't matter that the assembly instructions are in lower case because ASMode converts them to upper case before updating the line in the Edit buffer. I recall from the brief look we had at My-Word for the Geneva a year or more ago that a "C" could be added to the tab line to control conversion to upper case. Atrax Robustus would never be satisfied with anything so inflexible. What ASMode does is to parse partially each line as an assembler source line. Comment lines are ignored, and the line parsed for the first three fields (two if no label starts in the first column) separated by blanks. Some error checking is done to catch a couple of common typing errors that can be difficult to find by eye. It indicates these by giving a little audible error bloop as the line is converted, and ceases case conversion at that point to make it more obvious. In the Opcode field only alpha characters are allowed as all legal opcodes and directives contain only these - it dislikes things like LI or SOCB. In the Operand field ASMode leaves any entry between single quotes unaltered - it is not allowed to touch your text data strings. It also checks for an uneven number of single quotes. Further it notices any "." not part of a text string and lets you know - as in LI RB.6 for instance. There are a couple of minor bits of anomalous behavior, but they are only incidental and very occasional, and a fix is not a high priority in assigning code space. It bleeps on the filenames in COPY directives, which in standard TI Assembler syntax are indicated by normal double quote marks and usually contain one or more "."s not isolated within single quotes. Some opcodes do not have an operand field, and if these also carry comments the first word of the comment, if any, will be treated as if it were the operand field and converted to upper case. Most commonly these are the RTWP opcode and the RT pseudo-instruction. Usually the function of these is so limited and obvious that they don't deserve a specific comment, but no harm is done anyway. In practice neither problem is a real bother, but if they do grate on any sensitivity just turn ASMode off, or never turn it on in the first place.

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This new ASMode code is written over the Reformat code on the way in so that it will no longer be reasonable to have immediate re-entry to the Editor interchangeable between Word Processor and Program Editor. In fact instant reentry is a very marginal feature at best, and may end up being omitted altogether if it gets in the road of more desirable features.

***DONE**

NEW EPROM FOR THE DIJIT AVPC

DIJIT systems has a new EPROM for its AVPC card that solves some of the software problems AVPC users have had. This EPROM easily fits in a socket on the AVPC card and is available to current owners for \$10 including postage directly from DIJIT. It is not necessary to return the old EPROM. I (Charles Good) can personally report that with the new EPROM in PAGE PRO and EZ-KEYS PLUS now appear to work OK. The following is quoted from DIJIT's "AVPC Note #3, Sept. 1989". I can also state that the modes described below DO NOT appear in the color bar when using a CorComp disk controller.

"POWER UP EPROM v2.0-- POWER UP 2 is the result of our continuing efforts to improve the AVPC. although the previous version has served us well for the last two years, we have discovered that some improvement could be made to broaden compatibility with existing TI programs. For example, the P-Code Editor now works and the annoying little screen "artifact" in TELCO has disappeared. Moreover, other TI programs such as COPY-C and COMPANION word processor now appear to function satisfactorily.

"Basically, POWER UP 2 eliminates the interrupt handling and disk buffering problems that existed with some programs. This does not mean that all TI software will now run. There are still some "incurable" programs out there which are fundamentally incompatible with the Yamaha V9938 an very little can be done about them. Our advice is to find newer substitutes for the older incompatible programs an to try new programs before you buy them.

"POWER UP 2 allows the AVPC to boot up in either of two modes. The default mode is "AVPC MODE" which appears in the color bar of the opening screen. This mode is required to run advanced programs. It will however, also run most existing programs.

"The secondary mode of operation is the "TI-99/4A MODE". This mode is entered by holding down [CTRL]+[SHIFT] keys during either hardware reset or software reset. Notice of this mode will appear in the color bar of the opening screen. Experimentation may be necessary to determine which TI programs require this mode in order to run. Beta testing has determined that programs such as COPY-C, COMPANION, and even PAGE PRO work better in this mode. Caution, don't use this mode for 80 column or advanced graphics features of the AVPC or a lock-up will occur.

"Since the "TI-99/4A MODE" of POWER UP 2 serves the same purpose as SET99/4A, discard this program. Using SET99/4A with POWER UP 2 will result in a lock up." ***DONE**

QUOTE WITH COMMENT

The following quote is from an article by Corey Sandler on page 60 of the Oct. 89 Computer Shopper. The article describes a Japanese electronics shopping district.

"Another popular operating system for home computers in Japan is MSX-2, the latest version of the MSX program that has been predicted to sweep the American home market for about five years ago. Current MSX systems accept cartridges for a wide range of Nintendo-like games as well as home office programs."

The MSX-2 standard uses the 9938 video chip, the same chip that controls the video displays of the Geneve and of 99/4A systems that include an AVPC or Mechatronics 80 column card. It is nice to know that my AVPC system resembles some of the most modern and currently popular home computers in the world!

***DONE**

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TI99/4A and GENEVE SUPPLIERS

This is a list of TI and Geneve dealers, manufacturers, and publishers. It is updated from a list published in the Sept 87 issue of the Mid South 99er newsletter Tidbits. Many of these are "Ma and Pa" businesses and run out of people's homes and because of this it has been our experience that phone calls are often answered evenings and weekends as well as normal business hours. Comments in parentheses are those of Charles Good.

Tenex (monitors, printers, some TI software)

P.O. Box 6578
South Bend IN 46660
800-348-2778
219-259-7051

Joy Electronics

P.O. Box 542526
Dallas TX 75354-2526
800-422-3892 in Texas
800-527-7438 outside of Texas

L.L. Conner Enterprise (Same or next day shipment of hardware or software if in stock, phone often answered evenings and Sundays, excellent service)

1521 Ferry St
Lafayette IN 47904
317-742-8146

Asgard Software (Largest software publisher in the TI/Geneve market, also quarterly magazine and several books, extensive free catalog, phone most likely to be answered evenings and weekends)

P.O. Box 10306
Rockville MD 20850
703-255-3085

Texaments 53 Center St.

Patchogue NY 11772
516-475-3480 voice
516-475-6463 24 hr BBS

Competition Computer Products (Good selection of unused TI brand modules and software, also used hardware. They quickly replace anything they sell that turns out to be defective.) 2629 W. National Ave.

Milwaukee WI 53204
800-242-7902 in Wisconsin
800-662-9253 out of Wisconsin

Triton (nice free catalog)

P.O. Box 8123
San Francisco CA 94128
800-227-8900

Texcomp (large catalog mailed 1st class if you send them \$2)

P.O. Box 33804
Granada Hills CA 91344
818-366-6631

Bud Mills Services (Horizon ramdisks, P-Gram cards)
166 Dartmouth Dr.
Toledo OH 43614
419-385-5946

Tigercub Software (extensive very cheap library of PD software plus original software)

156 Collingwood Ave.
Columbus OH 43213
614-235-3545

Great Lakes Software

804 E. Grand River Ave
Howell MI 48843
517-546-0566

Hunter Electronics

4 N. 370 Pine Grove
Bensenville IL 60106
312-766-9503

Disk Only Software

P.O. Box 244
Lorton VA 22079
310-340-7179

800-736-4951 (credit card orders for Asgard and JP software)

Not Polyoptics

P.O. Box 4443
Woodbridge VA 22191
703-491-5543

Quality 99 Software

1884 Columbia RD #1021
Washington DC 20009
202-667-3574

Myarc Inc (Geneve computer and hard disk controller card for TI and Geneve and other hardware.)

P.O. Box 140
Basking Ridge NJ 07920-1014
201-766-1700 and 205-854-5843

Trio+ Software

P.O. Box 114-A
Liscomb IA 50148

The Bunyard Group (Hardware manual)

P.O. Box 62323
Colorado Springs CO 80962-2323
719-488-2572

Midwest Engineering (copy of Horizon Ramdisk)
203 Arcadia Dr.
Vernon Hills IL 60061
312-362-9034

Alboes Computer/Suppliers
6298 Hamilton Rd.
36 Main Street Village
Columbus GA 31909
404-327-4900

LaFlamme Wrigley
5480 Canotek Rd Unit #16
Gloucester Ontario K1J 9H6
Canada
613-745-2225

Insebot Inc.
p.O. Box 29160
Pt. Orange FL 32029

Genial Computerware (Now sells ONLY Barry Traver's
magazine-on-a-disk. Barry is kind of slow in answering his
mail. It is probably best to phone.)

835 Green Valley Dr.
Philadelphia PA 19128
215-483-1379

JP Software (Sales of all other titles that used to be
under the Genial Computerware name, free catalog.)
2390 El Camino Real #107
Palo Alto CA 94306

Rave 99 (enhanced keyboard for /4A, and ramdisk) 112
rambling Rd.
Vernon CT 06066
203-871-7824

CorComp
2211-6 East Winston Rd.
Anaheim CA 92006
714-956-4450

CaDD Electronics (Sales of a GramKraker look alike)
52 Audubon Rd.
Naverhill MA 01830
603-895-0119

Queen Anne Computer Shoppe
6102 Roosevelt Way NE
Seattle WA 98115
206-522-6558

Pilgrim's Pride
5 Williams Ln.
Northboro PA 19040
215-441-4262

Braatz Computer Services
719 E. Ryrd St.
Appleton WI 54911
414-731-3478 (order line)
414-731-4320 (after 6PM)

Harrison Software (The HARRISON word processor, music,
and games.)
5705 40th Place
Hyattsville MD 20781
301-277-3467

Ramcharge Computers (Original TI modules, other software
and hardware, phone evenings.)
6467 E. Vancey Dr.
Brookpark OH 44142
216-243-1244

DIJIT Systems (the 80 column AVPC card)
4345 Hortensia St.
SanDiego CA
619-281-2667 (voice)
619-278-8155 (BBS)

Jim Leshar (Used software hardware and parts.)
722 Huntley
Dallas TX 75214
214-821-9274

McCann Software (TPA and TGA)
P.O. Box 34160
Omaha NE 68134

Micropendium (The best commercial publication, monthly 48
page issues, \$25/yr.)
P.O. Box 1343
Round Rock TX 78680
512-255-1512

Computer Shopper (\$21/yr, mainly MS-DOS stuff but with a
regular TI column, extensive user group list, and lots of ads
for monitors printers ribbons and misc hardware.)
P.O. Box F
Titusville FL 32781

9640 News (newsletter on a disk for Geneve owners)
C/O Beery Miller
5455 Marina Cove #1
Memphis TN 38115

FOR REPAIRS OF TI BRAND HARDWARE AND CARTRIDGES:
TI will still exchange, for a flat fee, any broken
consumer products ever made, in or out of warranty, that bear
the TI brand name. This includes toys, watches, calculators,
and 99/4A computer hardware and modules. Call either of
these numbers for a specific price quote and shipping
instructions. Exchanged products have a 90 day warranty.

800-TI-CARES
806-747-1882 (ask for consumer service)

DONE

VIDEO TAPE DEMO OF THE GENEVE

Don Alexander, of the Macon Georgia U6 has prepared a two hour VHS video taped demonstration of the Geneve and of some of the software written especially for this computer. This demo was recorded with Don's verbal commentary directly from the Geneve to a VCR using the Geneve's composite color output. This is not the highest resolution possible for the Geneve, but it is the kind of output that can be sent directly to a VCR. The resulting video picture is adequate to show the Geneve do its stuff.

Don says that he will be glad to send a copy of this Geneve demo to any user group for the cost of postage. Interested user groups can send a VHS tape and \$1 for return postage to Don Alexander, 635 Villa Crest Ave, Macon GA.

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COMMENTARY "The Orphan That Grew Up"
By: Andy Frueh, Lima U6

About 6 years ago, TI abandoned the computer market. To their credit, they were a driving force behind the formation of the many user groups, and they did support us a little with some public domain software.

It seems ironic when you think that the Commodore VIC 20, the 4A's top competitor, and the one of the reasons TI pulled out of the market, isn't around while the 4A has flourished.

I know several people who had laughed at the name "TI-99/4A" only to be impressed when they saw what MY relatively simple system (no 80 column cards or RAMdisks) could do. I've heard several comments that some programs I have would be considered great on a "clone" or another "big" name system. For example, a track copier like Turbo Copy would take about 7 minutes to copy a SS/SD disk, on an IBM. The TI can do that in around 1 minute. An IBM track copier probably wouldn't even have the "format" or "Compare" functions that Turbo has. And Turbo is free.

I think we all owe thanks to the several dealers and many programmers that have remained loyal to the 4A. The TI is reaching it's "golden" years. When it was released, it was considered one of the best computer on the market. Today, it's STILL as good as anything on the market. Just when we think we've pushed it to the limits, we find a better way (or as Jim Peterson would say "We've found another way to skin the cat.").

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4A Hints and Tips
By: Andy Frueh, Lima U6

This time out, the tips and hints steer away from programming. Instead, these are more of a collection of hints for recreation than for programming.

A while back in one of our newsletters, the codes to start the adventure, Savage Island 2 was published. One is SAY 123 and the other is SAY 474. However, using SAY 474 means that it is impossible to solve the game. The reason is, using SAY 123, you are given a bandana to wear. This was carries over from part 1, as far as the program is concerned. If you use SAY 474, you aren't given anything. I won't give it away competely, but you use the bandana to solve the game.

If you are trying to replace the lithium battery in the Mini-Memory cartridge, wear eye protection. I have heard of cases wear a soldering iron hit leakage from the battery, and it exploded. Usually, hot solder coated the protective glasses that were being worn. DON'T BE STUPID! Please play it safe and invest in goggles.

Here's a quirky routine. I don't know if it works for all cartridges or consoles. If O=21 then you are in Extended BASIC.

```
10 RANDOMIZE (0)
20 O=INT(RND*100)
30 PRINT O
```

And this one's just pretty.

```
10 CALL CLEAR::A$(1)="ABCDEF6FEDCBA"::FOR I=1 TO 7::CALL
CHAR(72-3,RPT$( "0",2*I-2)&"FFFF",47*30303EFF7F3E1E04)::
A$(I+D=SEG$(A$(I),2,12)&SEG$(A$(I),2,1))::NEXT I
```

```
20 CALL SPRITE(#5,47,2,180,180,-23,0,#6,47,2,80,100,-23,0)
:: CALL CALL MAGNIFY(2)
```

```
30 FOR I=1 TO 12::PRINT A$(I+(I>7)*2*(I-7)
&A$(I+(I>6)*2*(I-6)) :: NEXT I :: GOTO 30
```

For those of you who have Legends from ASGARD, even though the manual says you can threaten and be diplomatic towards monsters, don't. Most parties will be killed by a monster who likes to fight.

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