THE BOSTON COMPUTER SOCIETY
TI99/4A USER GROUP
PRESENTS
THE SIXTH ANNUAL
NORTHEAST TI FAIR

SATURDAY APRIL 6, 1991
10:00 AM TO 4:00 PM

SEE USER GROUPS FROM ALL OVER MASACHUSETTS
AND OTHER PARTS OF THE COUNTRY
DEMOS OF NEW HARDWARE AND SOFTWARE
EXHIBITS AND DEALER DISPLAYS
AND MANY GUEST SPEAKERS

FAIR IN THE CAFETERIA
WALTHAM CENTRAL MIDDLE SCHOOL

55 SCHOOL STREET
WALTHAM, MA. 02154

DIRECTIONS:
FROM RT 128 (US 95) TAKE EXIT 26(RT 20) TO WALTHAM CENTER, TAKE LEFT ON TO LEXINGTON STREET(CITY HALL ON RIGHT) CROSS SCHOOL STREET, THEN BEAR TO THE RIGHT AND CIRCLE BACK TO THE SCHOOL. CAFETERIA IN BACK OF SCHOOL.

FOR TABLE INFORMATION CONTACT:
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14 EAST STREET
AVON, MA 02322-1913

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BOSTON, MA. 02108

Hardware

Q & D HARDWARE MODS

Steve Burns
Bluegrass 99'ers

Sometimes a simple straightforward solution is the best. Here are two examples of quite different problems that I solved in similar ways. Both took only seconds and have worked quite well.

The first problem was one that is common to nearly everyone who owns a TI and expansion box. The heavy connector and "firehose" cable that plugs in to the side of the console frequently comes loose when the console is moved. This fix requires only a small piece of adhesive backed Velcro. Cut two small strips to fit on either side of the connector and place them as shown in Fig.1. The Velcro will help prevent the "firehose" from pulling loose, even when the console is scooted all over the desk. This is cheap, easy and makes no permanent modification to either console or cable.

Another problem I had was using pinfeed labels with my NX-1000 printer. Although the printer should have handled them with no trouble, they kept jumping off the pins and jamming. The NX-1000 depends on little plastic covers to hold the labels on the pins. I took some adhesive backed sponge rubber (such as is used for weatherstripping) and placed it on top of the plastic pin covers so that when the rear printer cover is snapped in place, it prevents the little pinfeed covers from flipping up (see Fig.2). The lables now feed through flawlessly.

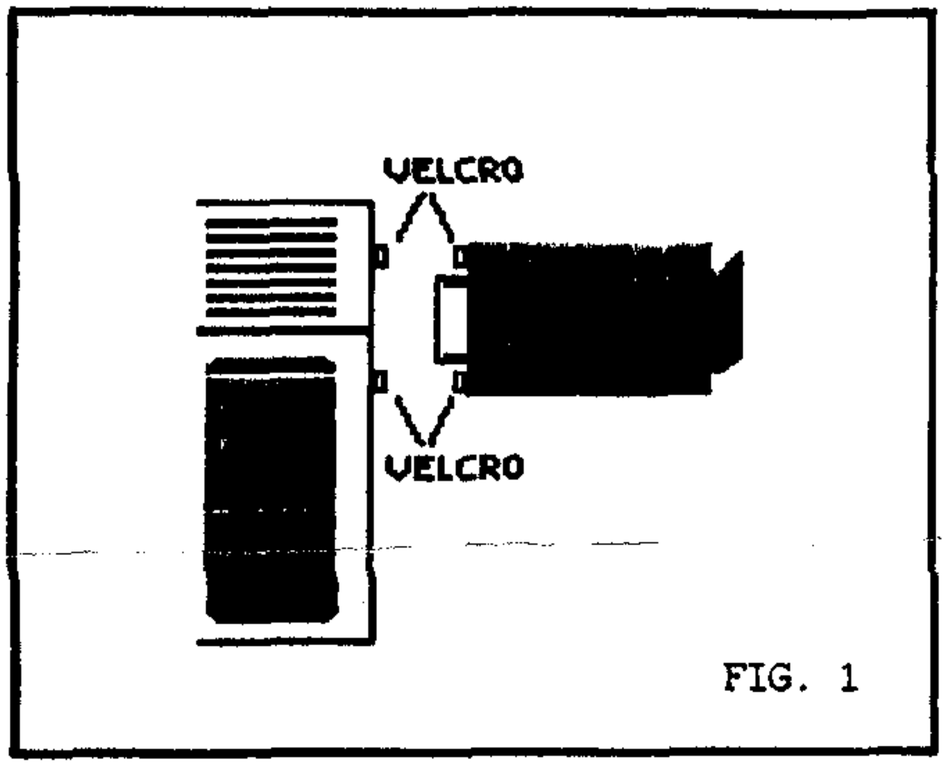


FIG. 1

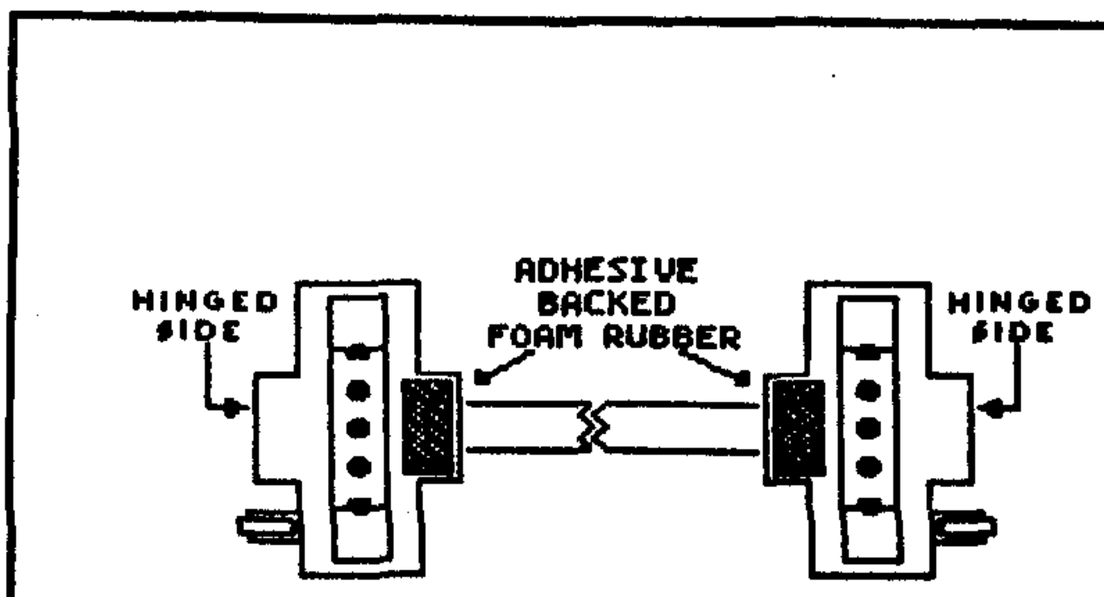
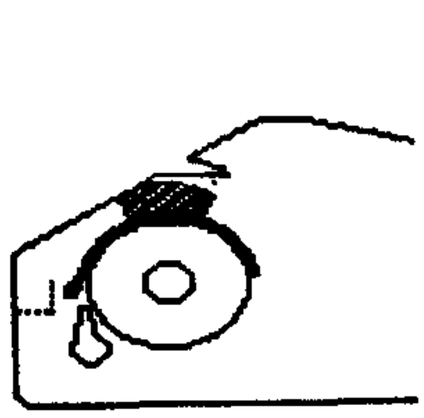


FIG. 2



SIDE VIEW
FIG. 2

~~~~~~~~~~~~~~~~~~~~~

W-AGE/99 * NEW-AGE/
99 * NEW-AGE/99 * N
EW-AGE/99 * NEW-AGE
/99 * NEW-AGE/99 *

~~~~~~~~~~~~~~~~~~~~~

* by JACK SUGHRUE, Box 459, East Douglas, MA 01516 *

#14

GENTLEMAN GENIUS

Of the two tags, Gentleman and Genius, I think the former gets my approbation concerning the best way to describe John Willforth. My wife, Elaine, agrees. For John is first a real gentleman; and that is what you think of before realizing he's also a genius. Gentlemen, I think, are rarities today, even among TIers; though I've discovered more in the 99er ranks than in other walks of life. People like Charlie Good, Jim Cox, Jim Peterson, Barry Traver.

Geniuses, though, are a dime a dozen in the computer world, and most of them are far from civilized.

An example, small but significant: Lots of TIers have been to my home, all of them treated to Elaine's gracious welcome, her extended hospitality in the matters of food and lodgings, so they get to know her and discover, too, that we two rattle alone around our hut, now that our four tykes have leapt into the grownup world, returning us to "couplehood" these past two years. So any female voice answering our phone will be Elaine. But John is the ONLY "adult" TI person who will acknowledge Elaine's existence on the phone. He always says, "Hi, Elaine, this is John Willforth," when she answers, just as if she's not a non-person. Sometimes they converse so long I have to pry the phone from her fingers so I can get to talk to John.

With others who've been here, however, it's usually "Jack there?" when she answers, without even mentioning who they are.

I don't know. Maybe I'm old fashioned, but I still believe a lot in courtesy and friendliness and the acknowledgment of the existence of someone I've met.

Anyway, John's old fashioned in this way, too, and I like it: 19th Century values in a 21st Century mind. It's fun being in tune to someone as family oriented as he is. He talks about his wife (Fay) and his three daughters with such joy that you know love and sensitivity are a VERY LARGE part of his nature.

My wife and I talk about John so much that my son Matthew and his wife (Carolyn) wanted very much to meet him. The last time he came over for dinner, we had the "kids" over, too, and all of us enjoyed his pleasant, witty company all evening.

John's a talker. That's a compliment. And he can converse about almost anything but literature (as he claims he doesn't have time to read novels, thus leading to the time-worn argument in THIS house that all the major social changes in the world have been brought about by fiction ... and so on). It's fun arguing with John because the conversation is stimulating and he's still your friend in the end.

John's logical. He even tries to use logic with his teenagers (which probably makes him illogical, when you think about it).

He's hardworking (to a workaholic degree, I think) at some pretty heavy duty electronic wizardry. John even has a calculator on his watch, which he uses.

He writes well. His articles on printers, as well as the long-term articles on hardware (and software) are lucid, practical, and scary: SCARY in the sense that he takes apart consoles and P-boxes and anything else mechanical, electrical, and electronic that he can get his hands on and performs vivisectionist surgery on their innards. He seems to be able to radically modify anything, from computer chips to his backhoe and assumes everybody else should be able to do so.

Whew! Not me. My hands shake when I have to dump my pencil sharpener or fill my stapler.

But John's made me a believer. One evening he came up to my computer room, still chatting about his family, and, while carrying on the conversation, took apart my working P-box. Completely! Screws, nuts, bolts, fans, stuff, whachamacallits, and thingamajigs. Then he reversed my fan, explaining that it would keep my box cool (maybe even cooler) while it would cut down the noise to one-third. It did. We turned on other P-boxes in the room and compared them to the fix.

He also told me where and how to order floppy drives and how to install them (5.25 and 3.5 operate with no cable modification on the TI). I learned that I could buy any IBM compatible half-height disk drives and put them in my TI. [ERM Electronic Liquidators (1 800 776 5865)] for fully warranted reconditioned drives. I called, bought two Panasonic DSDD ($29 each!!!!), installed them myself, just like a computer grownup. Though they also sell cables and disks (for as low as .15 each DSDD), I ended up getting a Power Y cable for internal power connector ($.99) and an AT-HDDR cable set for double connector to controller ($2.89) and a whole lot of other things from another company he recommended: National Computer Accessories (916-441-1568). So, thanks to John, I was able to convert my setup on my school system from one SSSD to two DSSD at a cost of around $60! And does that make a LARGE difference in my ability to do TI things in my classroom. As a matter of fact I'm writing this at school on my quiet P-box, DSSD system and it! Everything works great. (Remember, we're talking about John teaching me, the man who has to use a manual to open a jar of peanut butter. You readers are chuckling over this "big" hardware deal, but John opened up new worlds to me. I plan to confidently upgrade another system soon and maybe even do a user group demo.

Which brings me back to John's generous spirit. While at a training session in Connecticut some months ago, John willingly came to our M.U.N.C.H. in Worcester, Massachusetts, one evening and shared some great insights and answered all kinds of questions, including some about things he had written as newsletter editor of the West Penn user group, which he founded many years ago to reach out to users outside the Pittsburgh area.

He was also the hit of the New England Fayuh that same week. Everyone there was thrilled to meet the man they all knew through his writings and references to his work by others. He ended up being the biggest TI star at the whole event. People at the fair were in awe of him and still talk about his visit, yet I've met very few humbler men.

Now, back at my desk at home, I'm using a console John modified a while ago and recently gave to me. It has a plexiglass cutaway of the interior housing of a Zenoboard containing a clock, speech, 32K, E/A, XB, ADVENTURE, TIW, DM, and a system Pause button. All switchable. I feel as though I died and went to TI Heaven.

The man's a genius, no doubt, but more important, he sure is a warm and sensitive friend. To me, it's worth owning a TI just to have met John Willforth.

(If you use NEW-AGE/99 please put me on your exchange list.)

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THE OTHER GUYS vs TI-99/4A

by

Richard Lynn Gilbertson

Little do most us know just what we have in this TI-99/4A. So it made sense to write about it. First off just what do these other guys have, well more memory and a faster processor. They also have fantastically huge program packages to do their work. They have hundreds of companies with support lines and so many different versions of the same machines and software too, that it quite boggles the mind to count them. The other guys have years of major research invested into every software package and so many different operating systems for disk and processing data that it would take several books just to list the names.

Ok what does the TI-99/4A have to compete with that? Well hold on to your hat, the 99 does have several things and none of these are by any means minor.

First off lets get into a little history. When one of the other guys stores data onto a disk like say "STORE THIS" what you will find on the disk is "STORE THIS crlf" now the "crlf" means it's universal among the other guys for Carridge Return and Line Feed. So every line of data on the disk has to have this at the end: "crlf" to tell the computer that this is the end of the string of data. Now the 99 has a simpler approach, "0ASTORE THIS" is how the 99 does the same thing. The "0A" stands for 10 in hexadecimal and you can see being at the front instead of at rear of the string means you don't have to read the whole line to see how long it is. The other guys have to load the whole line and make the computer count how long it is, while the 99 just looks at the first one and knows how long it is. If you are searching a disk you can see why it takes so long for the other guy.

The history of why that is comes from the concept the other guys system uses which was conceived in 1953. The 99 uses a concept from 1975. And yes the other guys have not changed because if they did all the software written would have to be totally re-written. Also forget them doing it any time soon. I should also mention that this system of ours is already being used on newer main frames.

Today I was asked if the 99 was compatible with the other guy and as usual was quite insulted. Let me show you why. Go ahead and ask another guy when was the last time he got out his Soldering Iron and added something unique to his system. First off he will look at you like you are truly crazy. Then he will ask 'what do you mean unique?!!'.

Say 'Unique like a interrupt switch to halt everything and do something else previously loaded. Or just stop what you are doing and do nothing. Or do a total reset and start over.' He will reply 'Oh yea, I can do that last one.' and he is right he can only do the last one. His software has to do the others, the 99 is already built for those and doesn't care if hardware or software causes it to happen. Or ask the other guy to load and run his very best Telecommunications, Word Processor, Disk Manager, and Assembly Compiler from one disk with out changing disks. Honestly he will say 'You can't get all that on one disk!', reply 'Really! I can do it on mine. And I still have room for almost a third more.'

Also mention that most of the other guys you've shown your 99 to really love your telecommunications program. (Telco)

How about Operating Systems? The other guy on most of them has to load one before he can do anything. First off what are the advantages of this, one is for a particular application this will allow you to have the fastest program loaded possible, and the second is it will be as small as possible for the application. Disadvantages? History should be explained now as the advantages are distorted. Back in 1950 the concept of loading a new Operating System to speed things up was the best solution to lack of memory. Also it had the other advantages mentioned and it made sure the system was running at peak ability. But that is also where all the trouble started. You see if you want to run something else you'll load it someplace that is already being used. This means you will have to load a program that moves it out of the way, so you can load something else, then you can load this other program.

Does it require much thought to see it is similar to digging a hole and filling it with the dirt from another hole so you can re-dig the original hole. That is not even without mentioning the fact that the other guy may on some systems have as many as three types of Operating Systems, and they are not compatible with each other even though they are all written for the same computer.

So the 99 doesn't have a problem of crashing while loading the third program because it is too large. It knows the 2nd program used up all the space. The 99 uses what's called Relocatable Code, which means it just loads where there is space left, and knows how how much mememory is left. This is Artificial Intelligence. The 99 does not have to ruin everything in memory to see there is a problem, the other guy has to reboot from scatch.

Expansion of the system over time on the other guy also requires a history lesson. For lack of a better term we will say the other guy has a 'HARD CODED' system. I got that term from a Computer Science Professor as he coined it on the air. Hard Coded means that you can't run any programs from the area dedicated to the disks or the RS232 or other peripherals. You can't load anything there or even move anything there without special hardware and software. The 99 only has one Hard Coded area, the operating system. The other guy has several and can't move them to another location, remember they are Hard Coded (physically located by hardware).

Let us say we want to add 1 Meg of memory to a fully expanded system the guy has. Sorry no can do, Hard Coded. For the 99 that is no problem as it can without any modifications at all talk to 128 devices, so just make it a device and add it on. An example is the 192K Vidio Display Processor (9958) added to the 99. It can be upgraded and increased in size also. And the GRAM/GROM port for cartridges can talk to 640K of GRAM/GROM but turned into a device could be expanded to a unbelievable 4095 Meg or 4 Gigabytes. This is without even mentioning the RAVE Card which is an other guy approach to expansion, but that is only 3.5 Meg maximum for the 99.

Five years from now I'll have my TI-99/4A and will still be adding devices and Cards to it. The other guy will have gone through two systems by then just to stay current with expansions. I mentioned one thing the Professor said. He also said that current Mini and Micro computers are similar to shoot-and-throw-away cameras.

The Tamira, 990/10, TI-99/4A, and NXT are the only Memory to Memory transfer, Memory Mapped Memory, and Memory to Memory Archetechiter computers ever built. So I don't think he knew about the TI-99/4A or it's relatives. All the rest are all like the 'Hard Coded' machines he mentioned, why do you suppose they have to replace the mother board for the simplest upgrade? 1950's concepts in the 1990's!! Does the other guy really have that much on the TI-99/4A? We shall see, we shall see!

THE FUTURE TI-99/4A

GPL/Assembly and the future TI-99/4A approach to Software/Hardware.
~~~~by~Richard Lynn Gilbertson~~~~~~
GPL (Graphics Programming Language)

Well there are many things that can only be done in GPL. And as Assembly Language programmers know many of the subroutines built into the console lead right back to the GPL interpreter. Making them useless for pure Assembly approaches that would like to use them. My approach is to imbed Assembly into the GPL code and branch to it only when speed is required. GPL is great for what Texas Instruments designed it for, which is set-up, menus, and for storage. Programing wise GPL always leads back to GPL, while Assembly has to exit to the original start up screen, or to other Assembly Language programs. When creating programs GPL takes less memory space to do the same thing as Assembly. That is becuase GPL is a BYTE orientainted language and Assembly is a WORD (two bytes) orientainted language. I use both languages, but for speed I need the Assembly. For control I use GPL. So Assembly is good for speed, and GPL is good for menus, storage, set-up, and controlling the whole thing in a orderly fashion. You need gobbs memory to get that out of Assembly.
Future projects may include adding TE2 speech to Extended Basic. Or may include a better GRAMO operating system by eliminating Cassette and replacing it with Mouse routines.
Looking at some news letters I fournd TI-99/4A MEMORY ARCHITECTURE by John F. Willforth. It shows where all MEMORY MAPPED PORTS are including FastRAM, Sound, VDP, Speech, and last but not least GROM/GRAM.

History: Texas Instruments decided that if they sacrificed 8 bytes they could gain 40K of GROM/GRAM. Now there are 16 banks so that is:
40K times 16 banks equals 640K.

It requires little thought to see that if each of the 16 bank lines went through a PAL chip that made 4 more per normal bank that you would get:
PAL:::BANKS:::1BANK:::TOTAL
004 * 00016 * 0040K = 2560K
~~~~~~~~~~~~~~~~~~~~~~~~ 1/4MEG
OR:
PAL:::BANKS:::1BANK:::TOTAL
016 * 00016 * 0040K = 10240K
~~~~~~~~~~~~~~~~~~~~~~~~ 1MEG
OR:
PAL:::BANKS:::1BANK:::TOTAL
256 * 00016 * 0040K = 163840K
~~~~~~~~~~~~~~~~~~~~~~~~ 16MEG
OR up to:
PAL:::BANKS:::1BANK:::TOTAL
32768*00016 * 0040K = 20971520K
~~~~~~~~~~~~~~~~~~~~~~~~ 2048MEG
FINNALLY:
PAL:::BANKS:::1BANK:::TOTAL
65535*00016 * 0040K = 41942400K
~~~~~~~~~~~~~~~~~~~~~~~~ 4095MEG

I'm not an electronics wiz, I am a programmer. But I've had a few discussions with those who do know it can be done. And I've read the comments of the engineers that designed the TI-99/4A. This seemed exactly where they were going. Consider Assembly and GPL all being run from the original operating system that is already in the TI-99/4A! Now that IS IDIAL COMPATIBILITY!!!!!
The TECHNICAL TRAINING COURSE OUTLINE which is in my library of books to have. This book is mostly the development outline of the TI-99/4A, 4B (yes, 4B), and the TI-99/4X (99/8). Now having read it several hundred times with no electronics talent I have found that the only difference between the 4A and 4B is three (3) jumper wires and one (1) chip. W.Germany is suppose to send us the data (5 months ago) of how it is done.

continued

THE FUTURE TI-99/4A

(continued

The 4B has twice the load/save speed of the 4A. The 4B does'nt need the VDP to transfer disk to memory, it goes straight to CPU memory. Also it's 100% compatiable with the 99/4A. The 4B software sets up a PAB like the 4A, but the 4A uses the VDP to transfer the data, so the 4B can run the 4A software.
I just wanted to mention that from the average users point of veiw, he just wants to load and go. GPL combined with Assembly and hardware modifications like the 99/4B are the types of approches that will never create a bottle neck. Most of the hardware made for the TI is an attempt toward that. But it seems there is a real lack of knoweldge of GPL and what it is best at. Also as the console has most of it's memory devoted to it, trouble only occurs when you are trying to avoid GPL in Assembly. Programs written in Assembly can be re-written to run from GPL and little change is needed. Imbedded Assembly run from GPL saves the area it runs from, runs, restores the area and continues. You can call it, use it, and return the to Extended Basic program just where it left off. Now I will admit that this method would slow down the original Assembly program. But we want convenience, speed, and compatibility! Not just speed. Besides this is exactly the kind of stunt we can do that the rest of Computers around can't do.
WE DON'T LOAD A DIFFERENT OPERATING SYSTEM!
OUR OPERAING SYSIEM IS BUILI IN!
NUFF SAID! RICH

WINDOWS 9640 VERSION 2.0

WINDOWS 9640, Version 2.0, is now ready for release. WINDOWS 9640 picks up where Version 1.0 stopped and now adds support for non-WINDOWS compatible programs.

WINDOWS 9640 now allows DISkASSEMBLER, HyperCopy, The Printer's Apprentice, and others to run without the prior restrictions that were required with the earlier version. Each of these non-WINDOWS 9640 programs can be swapped in and swapped out at will to bounce between one program and another.

In addition an EDITOR by Peter Muys, released in 9640 NEWS, works flawlessly with WINDOWS. Now run up to 7 copies of the same program (memory providing) with each containing its own file. If you're an assembly language programmer, this means you can be working on up to seven source files, save them, toggle to MDOS from inside WINDOWS, run your Assembler/Compiler of your choice, and if an error occurs, immediately toggle back into your source file and make the change. No more reloading your editor and then reloading the document to use it. It will already be in memory, but the source code must still be on floppy for the assembly/compile process.

System Requirements

Version 2.0 requires the following:

80 column monitor
Myarc mouse or Logitech serial mouse
Geneve 9640
Additional memory allows more programs to run....

To Update your V1.00 or V1.01 copy of WINDOWS 9640, send $10 (to include a new manual and disk) and a letter with your serial number or $25.00 if you don't own WINDOWS 9640 to:

Beery W. Miller
P.O. Box 752465
Memphis, TN 38175-2465
U.S.A.

NEXT MEETING TUESDAY MARCH 12, 1991. COME TO THE FAYAH APRIL 6, 1991!!!

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NEW-AGE/99	Jack Sughrue	476/7630	

IMPORTANT NOTICE TO NEWSLETTER EDITORS AND THE T.I. COMMUNITY.....

Jack Sughrue, author of the NEW-AGE/99 articles in many newsletters, is temporarily unable to continue with the series, which he expects will be resumed in a few months. He wishes to apologize to his readers for this unexpected delay.

FEBRUARY MEETING. My thanks to Walter for taking over as acting treasurer, he did a great job. Lou did a demo, Bruce delivered the Disks of the month and there were 12 members present.

MARCH MEETING. Corson plans to do a demo showing how TI files can be converted to DOS and used in an IBM, or in this case a Mac, computer. This should be very interesting. We have been given a limited number of tickets which will get membes a $1.00 discount on admission to the "Fayah". Walt will have the tickets, please only take them it you intend to use them. Copies of the map? which the BCS supplied us last year will also be available.

RAFFLE. Every month we have a raffle to help defer the cost of the monthly hall rental. The number of prizes awarded depends on the number of tickets sold. This month we have some TI T-Shirts, disk holders and some games for prizes. If you have some old things you no longer use how about some donations for the raffle, our prize chest is getting low!!!

LIBRARY NOTICE. Please return any items borrowed from our library. If you can not come to a meeting or give these items to someone who will be at the meeting.

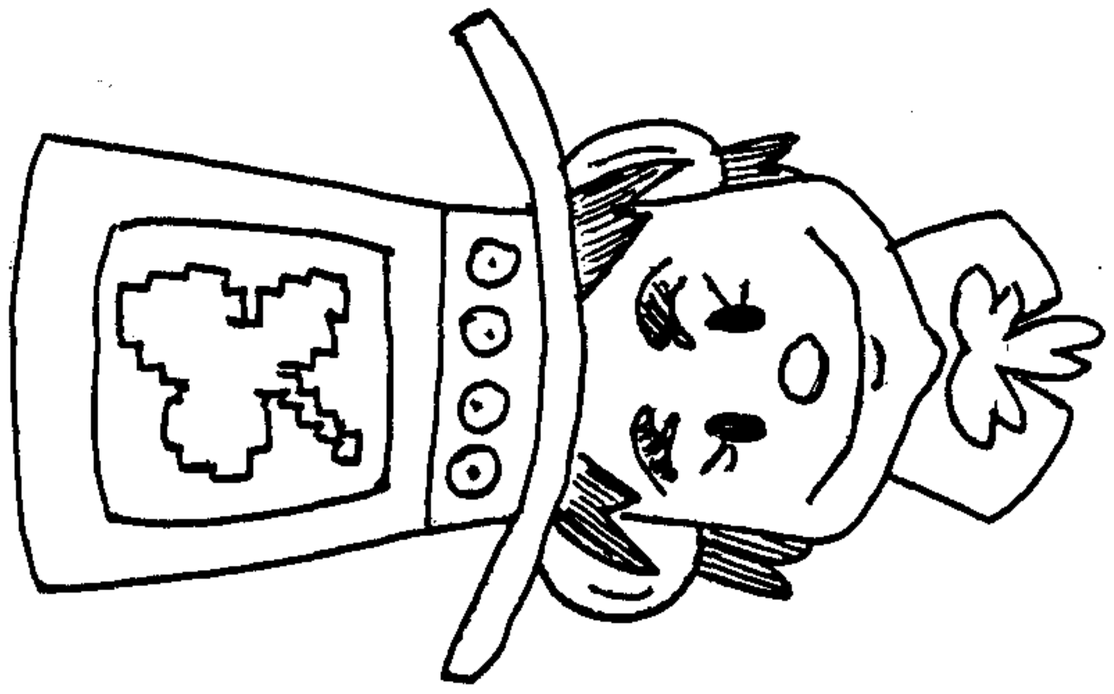
REPRINTS. Reprints are permitted as long as credit is given to M.U.N.C.H.

ARTICLES. I am always looking for articles for this newsletter, anything which interests you will probably interest other members of the TI community, so please share your ideas and opinions with all of us.

DISK LIBRARY. The disk library will be at the meetings from now on. We have copies of all disks in the library and they are available to members for just $1.50 each.

FOR SALE. The group has a TI Count Business Software package available for sale. If interested contact Jim Cox at the above numer or the club address.

DISK OF THE MONTH. The DOM for this month is the latest updates to the TIPS Version 1.7. This two disc set will sell for $1.50.



HAPPY ST. PATRICK'S DAY

MARCH 1991

Mass Users of the Ninety-nine and Computer Hobbyist

Monthly Newsletter Version 10.03

M.U.N.C.H.
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FIRST CLASS

Next Meeting MARCH 12TH.

POSTMASTER: Forwarding and Address Correction Requested.