CLEVELAND AREA TI99-4A
USER GROUPS NEWSLETTER

MAY, 1988

Another great month for a newsletter editor! Keep those articles coming. There's lots more talent out there with interesting information to contribute.

I guess I went a little overboard last month when I said the person who wrote the 9900 assembly manual for the 4/A lives in Westlake. Glenn says he knows enough he COULD have written the manual. At any rate, Marty Smoley now has his name and address, and we will make every effort to get him involved with one of our groups.

We again had an interesting guest, and I understand now new member, at NorthCoast. He is Ron Walters of Aurora. He is a dealer for the Horizon Ram Disk (the GENEVE version). I believe I am correct if I call him Dr. Walters. We were told he holds some of the patents on the CAT SCAN and is tops in his field for digitizing pictures in the medical field. He is working on some applications for the medical field with the GENEVE, and as a secondary fallout, these applications will be available to you and me as ordinary computer users.

Asked WHY he chose the GENEVE, when it was obvious he could have chosen ANY computer out there, he said he did not like IBM, and the AMIGA (evidently his second choice) was too hard to work with. He did not even mention the MacIntosh or the Atari machines. He said the 9900 was very easy to use and the PEBox made it easy to test his applications without fear of ruining the motherboard or tearing up the machine to get to the areas he needed to work on. He stated he would be able to produce a digitizer for the GENEVE and 99/4A for about half the cost of others on the market. I wasn't taking notes when someone asked him about resolution, but I did hear something about 16 million

different colors!! He feels there are great possibilities for other applications. This is not vaporware as these applications are already in the testing stage. We are surely fortunate to have Dr. Walters become a part of our group and hope that we can help support him in his efforts.

There are some smaller groups around the country holding on by their fingernails. Let's hope they can hold on a little longer and we may have the last laugh yet.

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EXECUTIVE NOTES - TI-CHIPS
MARY PHILLIPS

Attendance at the April meeting was good. The meeting room at the library had the characteristic odor of fresh paint, but looked good. Lack of drapes at the window was only a minor inconvenience.

Glenn Bernasek urged everyone to build the club's treasury by buying raffle tickets each month. The prize offered in April was a choice of ten disks or "TI-Basic Tutor." Anyone who has anything to donate for a raffle was urged to contact glenn.

John Parker reported that the membership numbers are staying steady and growing slightly. He attributed some of that to the new mail-in renewal policy and increased advertising.

There was a lengthy discussion of the Ohio Users Group meeting to take place in Lima, Ohio, on May 21. About half the group thought they would like to go and approximately the same number wanted to have a meeting too! The question was - how to do both on the same day?

After some consultation with library personnel, all agreed that the meeting date for May would be changed to Saturday, May 14, at 9:30 a.m. Those who want to go to Lima on the 21st will be free to go.

The TI-Chips tutoring session will go on as planned, however, on May 21. The library printed up numerous advertising sheets to be distributed wherever we can in the neighborhood. The advertising is quite attractive and will hopefully bring some interested children and their parents in to learn about the TI and computers in general.

Mark McCauley gave a demonstration and review of "Telco Emulator, V 1.3". The program is excellent for communication through a modem. It is a vast improvement over other similar programs. John Koloen in "Micropendium" calls it "a new terminal standard."

Andrew Martinson had taken up the challenge to borrow and demonstrate/review programs available from the Thalmers. He demonstrated and reviewed two game programs. The first "Towers" is a challenging flight simulator which he enjoyed very much. The second, "Missile Wars", was a game in which he quickly lost interest.

Time was set aside during the meeting for talking, shopping, tutoring and fix-up. Following that period, the raffle took place. The winning ticket-holder was Matt Andel, who chose the ten program-filled disks.

Don't forget the new meeting date for May - Mary 14 at 9:30 a.m. Reminders will probably be mailed.

NEAT TRICKS WITH FUNNELWRITER
by Jim Mekeel
NorthCoast 99'ers - Cleveland, Ohio

How many times have you typed in a document and then wished that you had the lower case letters in upper case and visa versa? If you wanted to change them, you had to retype that portion of text. But a trick will save you this work.

While in editor mode, position the cursor over the start of the text that you want to change. Then press:

<ctrl> <;> to change to upper case

-OR-

<ctrl> <.> to change to lower case

just allow the function to auto repeat as many times as necessary to change that portion of text. Sure saves alot of work!

GOBBLER
(A Homemade Game)
By Glenn Bernasek - TI-Chips - Cleveland

The versatility and power of the TI-Basic built into the TI-99/4A never ceases to amaze me. I guess that's why, after nearly five years, I'm still as eager as ever to sit down and write programs for my 99/4A. If it weren't for my program writing, I would never have discovered the capabilities of my TI/99/4A.

My latest effort is a game called "Gobbler". It is written entirely in TI-Basic, and showcases character positioning, random function and IF-THEN-ELSE testing. As you run this game, you will become more aware of the versatility and power of the built-in Basic of the TI-99/4A.

The introduction screen to GOBBLER is pretty much self-explanatory, and the game is designed to run by itself. However, some of the coding in the program could use some explanation. Lines 100, 120, 130 and 140 are extra long, and here's the method I use to fool the 99/4A into accepting more than four (4) screen lines of code per line number. (There are other methods availaable to do this, but this is the one I use.) I enter a FULL four (4) screen lines (being careful not to leave open quotes), call up the line number, cursor over to the last character and press <FCTN/2> to insert characters into the next line. This way I can enter up to six (6) screen lines of code per line number.

The game screen display is set up between lines 180 and 340. The GOBBLER, open doors and poison stars are placed into random position in lines 410 through 650.

Lines 660 through 910 tell the GOBBLER how to move. As I said before, the GOBBLER'S movement can be automatic or keyboard controlled. (This is the nice part about GOBBLER.) You have a choice of watching it play by itself ir guide the GOBBLER's movements with the keyboard.

Line 960 keeps count of the GOBBLERS in reserve, and line 980 keeps track of the score. Lines 540, 610 and 990 take inventory of GOBBLER food remaining. If the food supply has been completely used up, the game will end.

The last set of lines, 1000 through 1300, control the sound and "coincidence" features of GOBBLER. These lines actually run the game.

The coding printout is in twenty-eight (28) column format, therefore, what you type is what you will see on the screen. It's only 128 lines long, so the typing isn't as formidable as you might think. Why not give it a try? It's fun to watch and fun to play. There are times I would swear that this program develops a form of A.I. while it is playing itself. Also, something funny (strange) happens to the OPEN DOORS as the game progresses that I didn't program in. They disappear (close). Don't ask me how this happens. Let me know if you can figure it out.

```
100 REM   "GOBBLER" BY G.W.B
ERNASEK - FEBRUARY 9, 1988 -
COPYRIGHT (C) 1988 G.W.
BERNASEK (ALL RIGHTS RESERVE
D).
110 CALL CLEAR
120 PRINT "GOBBLER PLAYS BY
ITSELF, BUT"::"YOU CAN CONTR
OL GOBBLER'S(@)"::"MOVEM
ENTS WITH THE <E>,<S>,"::"<D
> AND <X> KEYS.")::
130 PRINT "EACH BLACK BOX IS
 GOBBLER"::"FOOD WORTH 10 PO
INTS, BUT"::"WATCH OUT -
THE STARS(*) ARE"::"POISONO
US AND THE OPEN"::
140 PRINT "DOORS(O) WILL SEN
D YOU TO"::"PLACES UNKNOWN."
::"HAVE FUN!"::"(PRESS A
NY KEY.)"
150 CALL KEY(0,K,S)
160 IF S=0 THEN 150
170 CALL CLEAR
180 FOR X=2 TO 23
190 CALL HCHAR(X,2,30,30)
200 NEXT X
210 R$="<E>,<S>,<D>,<X>   *'
S=POISON"
220 S$="RESERVE @'S: 8     S
CORE: 0"
230 FOR J=1 TO LEN(S$)
240 CALL HCHAR(1,J+1,ASC(SEG
$(S$,J,1)),1)
250 NEXT J
260 M$=" END OF GAME.  PLAY
AGAIN?Y/N "
270 T$="0"
280 LR=1
290 LC=1
300 N=56
310 F=660
320 FOR I=1 TO LEN(R$)
330 CALL HCHAR(24,I+2,ASC(SE
G$(R$,I,1)),1)
340 NEXT I
350 RANDOMIZE
360 GOTO 410
370 CALL HCHAR(LR,LC,32,1)
380 CALL HCHAR(R,C,63,1)
390 LR=R
400 LC=C
410 R=INT(RND*22)+2
420 C=INT(RND*30)+2
430 CALL GCHAR(R,C,XX)
440 IF XX=64 THEN 410
450 IF XX=79 THEN 370
460 IF XX=42 THEN 960
470 IF XX=30 THEN 980 ELSE 1
180
480 RO=INT(RND*22)+2
490 CO=INT(RND*30)+2
500 CALL GCHAR(RO,CO,XX)
510 IF XX=64 THEN 560
520 CALL HCHAR(RO,CO,79,1)
530 IF XX<>30 THEN 560
540 F=F-1
550 IF F<1 THEN 1040
560 RX=INT(RND*22)+2
570 CX=INT(RND*30)+2
580 CALL GCHAR(RX,CX,XX)
590 IF XX<>30 THEN 630
600 CALL HCHAR(RX,CX,42,1)
610 F=F-1
620 IF F<1 THEN 1040
630 LR=R
640 LC=C
650 GOTO 680
660 M=INT(RND*4)+1
670 ON M GOTO 740,760,780,80
0
680 CALL KEY(0,K,S)
690 IF S=0 THEN 660
700 IF K=69 THEN 740
710 IF K=83 THEN 760
720 IF K=68 THEN 780
730 IF K=88 THEN 800 ELSE 56
0
740 R=R-1
750 GOTO 810
760 C=C-1
770 GOTO 810
780 C=C+1
790 GOTO 810
800 R=R+1
810 IF R>1 THEN 840
820 R=23
830 GOTO 920
840 IF R<24 THEN 870
850 R=2
860 GOTO 920
870 IF C>1 THEN 900
880 C=31
890 GOTO 920
900 IF C<32 THEN 920
910 C=2
920 CALL GCHAR(R,C,XX)
930 IF XX=79 THEN 370
940 IF XX=42 THEN 960
950 IF XX=30 THEN 980 ELSE 1
180
960 N=N-1
970 IF N<48 THEN 1020 ELSE 1
160
980 T$=STR$(VAL(T$)+10)
990 F=F-1
1000 IF F<1 THEN 1040
1010 GOTO 1180
1020 CALL HCHAR(LR,LC,32,1)
1030 CALL HCHAR(R,C,64,1)
1040 CALL HCHAR(11,2,32,30)
1050 CALL SOUND(150,110,1)
1060 FOR J=1 TO LEN(M$)
1070 CALL HCHAR(12,J+1,ASC(S
EG$(M$,J,1)),1)
1080 NEXT J
1090 CALL HCHAR(13,2,32,30)
1100 CALL KEY(0,K,S)
1110 IF S=0 THEN 1100
1120 IF K=89 THEN 170
1130 IF K<>78 THEN 1100
1140 CALL CLEAR
1150 END
1160 CALL SOUND(50,110,1)
1170 CALL HCHAR(1,15,N,1)
1180 CALL GCHAR(LR,LC,YY)
1190 IF YY<>63 THEN 1220
1200 CALL HCHAR(LR,LC,79,1)
1210 GOTO 1230
1220 CALL HCHAR(LR,LC,32,1)
1230 CALL HCHAR(R,C,64,1)
1240 IF XX<>30 THEN 1290
1250 CALL SOUND(50,1000,1)
1260 FOR I=1 TO LEN(T$)
1270 CALL HCHAR(1,I+27,ASC(S
EG$(T$,I,1)),1)
1280 NEXT I
1290 RE=INT(RND*3)+1
1300 ON RE GOTO 480,630,630
```

I know the story about the little boy who cried wolf, and I know that on many occasions I have said "This was a good meeting", but, this meeting was really unbelievable. Now some people who were there will probably say, "This guy is nuts", because those people probably think parts of the meeting were boring. However, I look at things from a utilitarian angle, and therefore, what we get accomplished is very important to me. "We realy got some things accomplished!" As I watched the discussion part of the meeting it seemed to me that our group was turning into an organization. There were times in the past that it seemed to me that we had an audience. People who came to be educated, entertained, and amused. Oddly enough most of the faces I see are still familiar, but the attitudes are not the same. The members got seriously quiet. We discussed important club problems. And, we even got ten volunteers to help as special librarians for the Disk Library. If our club keeps going like this, both the TI 99/4A and the NorthCoast 99er's have a great future. The demonstration on Multiplan (by Steve Bagstad) was excellent. Steve went through all the basics of Multiplan; how to get started, how to move around in it and set up your spreadsheet, and how to print out your finished product. Many people came to the meeting especially for this demo, and there was an interesting question, answer and general discussion period after the demo. Thanks Steve, I really enjoyed it. As for money and memberships, which go hand in hand, we had several members renew, and several new users decided to join up. The increase in membership and an extra effort by all our members to keep things rolling made for another good financial report. Jim Mekeel stated that we have broken the thousand dollar mark and for the first time we have free checking. We don't expect it to stay over a thousand because we really haven't paid the bills yet, but April 16, 1988 should be remembered as one of the great NorthCoast Meetings.

ITEMS OF INTEREST

(1) LIMA TI MULTI USER GROUP CONFERENCE AND SWAP MEET. Saturday, May 21, 1988, at the Lima Campus of Ohio State University. This event was extensively discussed at the meeting. Several of our members are planning to attend this conference and represent the NorthCoast 99er's. They are going as part of a group which will include several members from TI-Chips which will be headed up by Chips President, Glenn Bernasek. "I like this joint effort idea." People like Jim Peterson (Tigercurb), and Bud Mills (Bud Mills Services, Horizon Ramdisks) will be there.

(2) This is a reminder to members and local people. The North Coast Computer Fair will be held again this year. It will be the weekend of October 1st and 2nd at the Euclid Square Mall. This is NOT put on by the NorthCoast 99er's, and is NOT a TI fair. However, it is an interesting show and will cover everything from Commadores to IBM's. Therefore, if anyone would like to set up a display on behalf of the NorthCoast 99er's, let us know. The last day we can reserve a booth is May, 31st.

OUR DISK LIBRARY

We are on the verge of making some major improvements to our library. We now have ten new librarians, and we are looking for more. The idea is that each librarian will take a section of the library. This will normally be the section of his or her choice, and there may be more than one person helping on a particular section. If that person has chosen UTILITIES for example, the main librarian will send copies of all utility programs we receive to that person. That sublibrarian will r the program, examine it and catalog it. He or she will 1 essence do everything necessary to take raw incoming programs and integrate them into our existing library. Copies of their work will then be transferred back to the main librarian who will supply copies to our members, as in the past. "VOLUNTEERS" We would like to have a few more volunteers to work on different sections of the library. If you don't know anything about what we are doing, that's no excuse. We are all just beginning this task and I don't have any idea what I am doing, so we can learn together. Please volunteer. One of our recent volunteers Donald Owen, is presently in charge of the disk library catalog (hard copy). If you purchased a catalog in the past, you are entitled to the currently available updates. If you cannot make it to the meetings to pick up your updates, send a self addressed stamped envelope to Don at 6329 Meldon Dr., Mentor, Ohio 44060. Also, we have complete catalogs available on a spuratic basis for $8.00 each. You can place an order for one and pick it up at the following meeting. The catalogs weigh one pound twelve ounces, so sending them by mail will be expensive. We are also attempting to circulate the name and address list among all the members. You could possibly contact a member near you who attends the meetings, and arrange for them to pick up a copy for you. If you are not one of the catalog owners, I don't want you to be left out. I am making extra copies of the freeware section of the catalog. This will consist of about four or five pages covering the newest and so popular software in our library. You can pick up a copy at the regular meetings (FREE) or send me a note, and two 25 cent postage stamps and I'll mail them to you. In the future I also plan on sending software by mail to members who can't get to meetings, if you are willing to pay for it. As you may or may not know, we presently charge a copy fee of $1.00 per disk, we supply the disk. This disk can be a flippy which allows you to get two sides if your system is single-sided single-density. We can mail you one disk for 75 cents, or three disks in the same mailer for 1.00. Therefore, you can order six sides, which would be on three disks for four dollars. "That's cheap."

DID I FORGET YOU?

Many people have asked me for help, information, or hardware in the past. I know that I have lost or mislayed my notes, and that I have forgotten to supply them with the help they needed. If I have forgotten you, please drop me a written note or card to refresh my memory. I will try to help with your problem.

THE NEXT NORTHCOAST MEETING

I cannot go to the LIMA CONFERENCE. I will be at the next meeting. However, I do not know who will be at the meeting to bring and set up equipment etc. We are supposed to have a demo by Harry Osterman, on Certificate, but as I write this article I cannot be certain Harry will be there. If he doesn't show up, we'll demo something for you. Come on down to the next meeting, pick up the freeware list, and volunteer for something.

See you all at the next meeting. Marty

HARDWARE TIPS

The Extended Basic Cartidge: If you have an .xtended Basic Cartridge that has gone bad for some reason, this info may help. I killed my Ex Basic recently. While soldering some new "pieces parts" on my console main board, I crossed some wires. "I'm always in a hurry." When I turned the power on I already had the Ex Basic in the Grom Port. "Mistake!!!." I fed some current directly back into the Cartridge and zapped it. After a sEvere anxiety attack, and real depression, I thought, "HEy, this is the beginning of another project." Well, the project has been about two months in the making and I'm ready to let you all know the results. Extended Basic Cartridges are fixable and the parts may not cost a lot, depending on how bad you crashed it and if you can solder. One other consideration is this. If you have to replace all the chips in the cartridge it will cost around thirty dollars. You can probably pick up a used cartridge for around twenty. Since I'm out to put some mileage on my new soldering iron these things never bothered me. So, lets go. NOTE: You're doing this at your own risk. If you have any problems arising from this article, I don't want to hear about it.

Try to open the cartridge as neatly as possible. You can glue it back together later, but it would be better if the original snaps worked. When you get the PC board out you'll see eight chips. There are two piggyback chips at one end of the board you won't see unless you have unsolder them. The next thing to do is ...eck the PC board and every solder joint to make sure that all the connections are good. If you find a cracked line or a poorly soldered leg on one of the chips, repairing it may solve all your problems. If we haven't accidently found the problem so far, we'll move on to the heavier stuff. There should be a 74LS00 and a 74LS74 at one end of the board. If you are lucky, replacing these will put you back in business. Just de-solder them, pick up two new ones at your local electronics supply, (they should cost less than fifty cents each), and solder the new chips back in. Then without bothering with the cartridge case, plug the board back into the console and see how lucky you are. In my case this was no help at all. The next step in this pr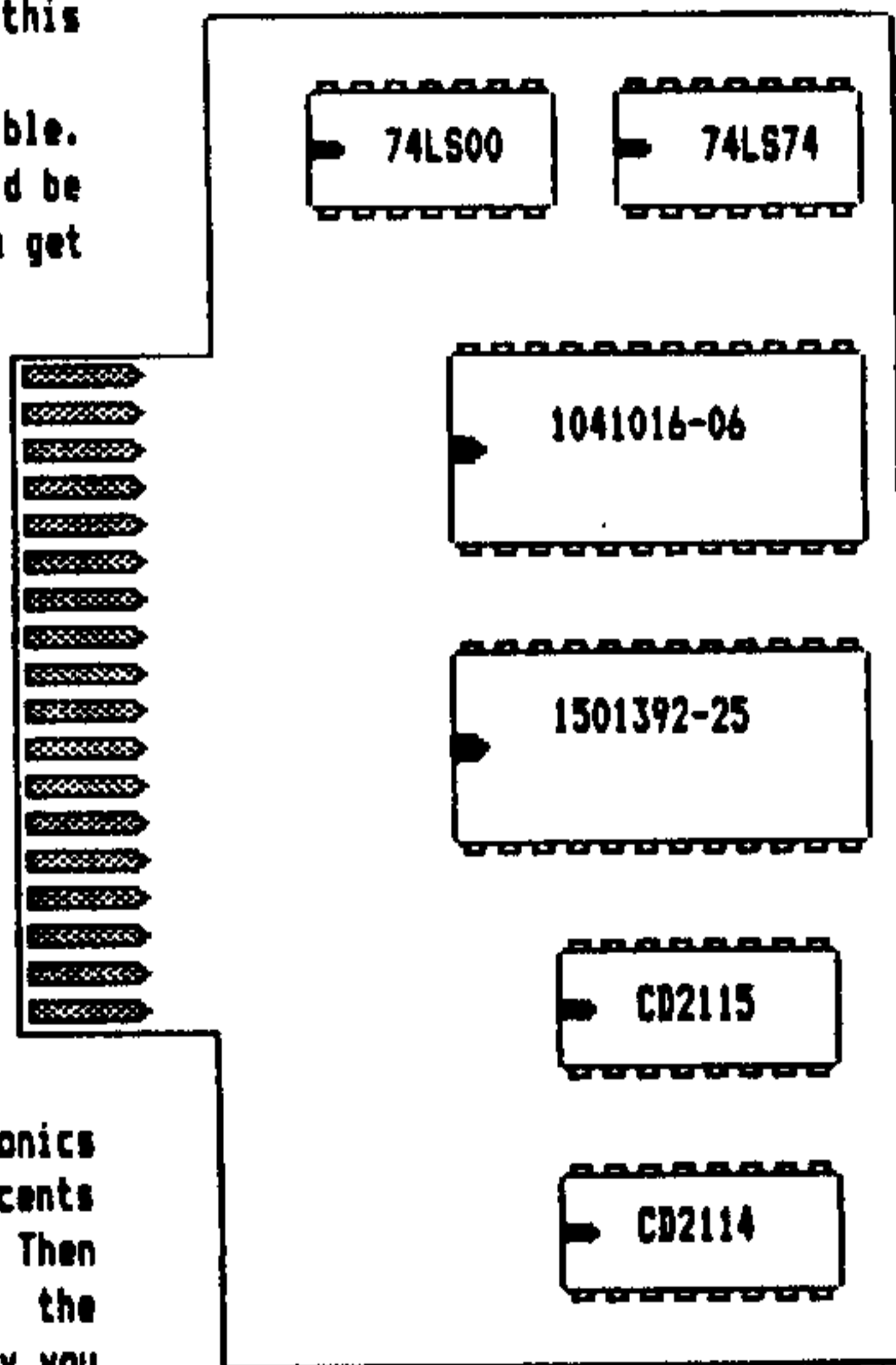oject is to replace the two large chips on the board. These are ROM chips and appear to be quick to fail in any adverse situation (static charge, etc.). The chip closest to the 74LS74 is listed as ROM,EXT.BASIC part number 1041016-0006, and the one next to it is ROM,EXT.BASIC part number 1501392-0025. Their prices are $6.80 and $5.60 respectively. These parts and others can be ordered from TI by calling (806)741-2265 or (806)741-2268. These are not toll free numbers. Replacing these two chips fixed my problem, and after doing a small amount of investigation, plus analyzing my own situation, it is my uneducated guess that replacing these four chips will fix the cartridge in at least 80% of the cases. I put a substantial charge of current back through the cartridge and did not hurt the piggyback GROM chips at the other end

of the board. So, replace the two large ROM chips and see if the cartridge works. I really hope it worked because we are now passing into the area where it would have been cheaper to pick up a good used Ex-Basic for $20.00. If it still doesn't work, it's time to replace the GROMS. They are available from TI at the same phone number and they sell for $3.60 each. The way they are tied together if one has been damaged they are probably all damaged. Toward the ROM, the top GROM is 2115, this is TI GROM,EXT.BASIC 1015960-3115. The one it is piggybacked over is 2122 (TI GROM,EXT.BASIC 1015960-1122). The top GROM next to it is 2114 (TI GROM,EXT.BASIC 1015960-1114), and the chip it is piggybacking is 2113 (TI GROM,EXT.BASIC 1015960-1113). If you are replacing the GROM chips, I recommend you do them all at once. If you try to add in one new chip at a time to isolate the problem, the soldering and desoldering could damage your new chips and you'll never find the problem. The resistor, and capacitors you see scattered around the printed circuit board will practically never fail, so don't worry about replacing that stuff. Here are some tips for electronic work. Use a low power soldering iron (15 Watt). Hold chips or a PC Board by the edges, like a photograph. Try to not put your fingerprints all over the circuits or chip legs. Do not wear clothing that has caused you to get a static shock from the refrigerator door in the past. There is a notch or mark at one end of a chip to designate pin one, or the chip direction. Be sure you do not put a chip in backwards. Whenever you remove chips from a PC board use a vacuum type desoldering tool to remove all the solder from around the chip legs. "There have been times when I desoldered a leg, resoldered it, and then desoldered it again, in order to get a clean desolder job." Use long-nose pliers to wiggle and loosen every chip leg. If the legs are not all free and you pry the chip off the board, you will damage the board. The chip should be loose enough to almost pick it off with your fingers. When soldering any electronic part, do not heat the part with your iron, and feed in the solder, this will over heat the chips. You should keep your iron clean. Hold the iron in one hand and the solder roll in the other, with the item to be soldered on the table in front of you. Putting the end of the solder roll against the hot iron, accumulate a very small drop of molten solder on the end of the iron (don't do this directly over your project, place the iron against the part to be soldered for one or two seconds or until you see the molten solder flow around the wires or parts to be soldered. Do not hold the iron against the parts you are soldering any longer than necessary, and do not reheat a chip leg over and over. If you must replace the piggyback GROM chips, squeeze the legs of the top chip together until they fit tightly over the bottom chip, and then solder the chips together first. At that point solder the pair of chips to the board.

Have fun. Marty.

74LS00

74LS74

1041016-06

1501392-25

CD2115

CD2114

There are several ways I can take the apparent lack of inquiries sent to me regarding the inner workings of TI-BASIC. It could be that there aren't many 99'ers out there who are interested in learning how to program their 99/4A in TI-BASIC, let alone debug or customize a program for their TI-99/4A. Or it could mean that some of us just don't know what to ask! After all, if you don't understand the basic of TI-BASIC, how can you be expected to know what to ask or where to begin for that matter. If this is the case, try your hand at programming you TI, and let me know if you get stuck or if your routine's producing some surprisingly unexpected results. This could be where I might come in handy.

The lack of response could also signify that everyone knows everything there is to know about TI-BASIC, and there's no need to have anybody writing a question and answer column when nobody has any questions to be answered. (I seriously doubt this is the case.) One last possibility is that you're saying to yourself, "Is this guy for real?" Well 99'ers, I am "for real", and I will be more than happy to share the knowledge I've gained through the years (and am still acquiring).

In example, do you remember my mentioning the power of the TI-BASIC IF-THEN-ELSE statement and the flexibility of the DATA statement in my last column? Well here's the information I had promised. First, let's take a look at the IF-THEN-ELSE statement, as it is used in TI-BASIC.

Did you realize that the TI-99/4A was, for the longest time, one of the few computers on the market to allow the ELSE option' That's right. IF you were attending programming seminars or classes in BASIC, you would have probably heard the instructor make a statement such as, "Built-in Basic does not normally allow a conditional comparison to go beyond the IF-THEN step. Therefore, the ELSE option is normally reserved for other high-level languages such as FORTRAN." This, of course, couldn't be further from the truth when in comes to the TI-99/4A. The built-in IF-THEN-ELSE capability of the 99/4A is indeed one powerful routine. Not only can you make the traditional TRUE/FALSE test, but you can effect an immediate branch to an alternate address if the test should fail. An example of what I'm getting at is as follows:

Let's say we want to see if two items are alike. If they are; then go to Place "A" and do something. If not; then go to Place "B" and do something else. This is how the above sentences would look as a program routine without the ELSE option.

```
100 IF X=Y THEN 130
110 LET X=Y
120 GOTO 100
130 END
```

As you can see, not having the ELSE option limits you in the latitude you might want or need to have when you are constructing a routine. In this case, the X=Y statement must immediately follow the IF-THEN comparison. Otherwise,

you would need to sort a GOTO in order to branch to an alternate area in the program. This would result in a mess looking like:

```
100 IF X=Y THEN 120
110 GOTO 130
120 END
130 LET X=6
140 GOTO 100
```

Now here's where the power of the IF-THEN-ELSE statement comes in.

```
100 IF X=Y THEN 110 ELSE 120
110 END
120 LET X=Y
130 GOTO 100
```

As you can now see, I can branch to anywhere in the program I wish, and I can accomplish this with much fewer instructions. The end result is a savings in memory usage and a quicker running program.

There are several IF-THEN-ELSE tricks I've learned. Such as the "compound" IF-THEN comparison, which combines many lines into one statement, and the "USELESS GOTO TEST" using the IF-THEN-ELSE line observation. If you're interested, please let me know.

Now, let's get to the DATA statement and how you can "custom design" your DATA statements to suit your needs. The purpose of the DATA statement is to provide a method of data storage, rapid retrieval and easy screen editing. Items are entered into DATA statements as "fields" separated by commas. Each item (or field) is "read" from the DATA statement one at a time. As each item is read, the computer looks for a comma punctuation after each item to set a "hold flag" at this spot and be prepared to read the next item on command. If there are no more items to be read, and a read command is issued; then an error condition is created. To avoid this problem, we must either be very careful to match the number of reads with the number of items or insert a "dummy" end-of-file item at the end of the DATA statement. This item can then be easily tested for, therefore, preventing an error condition.

Let's see how a DATA statement and read sequence is set up. We want to record and read a private phone book (containing names, phone numbers and cities). Let's say, for brevety, we have only three friends: Joe Blow at 256-4519 in Cleveland, Jane Schmoe at 433-6629 in Parma and Sam Smithee at 886-2176 in Euclid. There are several ways we could set up our data reading routine. The following examples show how a DATA statement routine could develop.

```
100 READ NAME$,PHONE$,CITY$
110 IF NAME$="E" THEN 140
120 PRINT NAME$,PHONE$,CITY$
130 GOTO 100
140 END
150 DATA Joe Blow,256-4519,Cleveland
160 DATA Jane Schmoe,433-6629,Parma
170 DATA Sam Smithee,886-2176,Euclid
```

```
180 DATA E,E,E
```

Notice that line 100 reads the items (fields) in groups of three, line 110 tests for end-of-file, lines 150-170 contain our phone book data and line 180 is a "dummy" end-of-file line. Now let's make this a little neater.

```
100 READ NAME$,PHONE$,CITY$
110 IF NAME$="E" THEN 140
120 PRINT NAME$,PHONE$,CITY$
130 GOTO 100
140 END
150 DATA Joe Blow,256-4519,Cleveland,Jane Schmoe,
    433-6629,Parma,Sam Smithee,886-2176,E,E,E
                                       (Euclid)
```

You'll notice that I combined all DATA into one line. This serves to conserve memory and decreases execution time. However, the data in line 150 will be a little more difficult to edit. Now let's take this routine one step further and see how we can optimize our programming.

```
100 READ NAME$
110 IF NAME$="E" THEN 150
120 READ PHONE$,CITY$
130 PRINT NAME$,PHONE$,CITY$
140 GOTO 100
150 END
160 DATA Joe Blow,256-4519,Cleveland,Jane Schmoe,
    433-6629,Parma,Sam Smithee,886-2176,E
                                     (Euclid)
```

We've added one more line, but the routine will run even faster. This is brought about by looking for only one item for the end-of-file indicator (NAME$). This is just one example how powerful and flexible the TI/99/4A can really be.

By the way, if you would like to run this routine repeatedly, without typing RUN every time, just change line 150 to read RESTORE 160 and add a line 155 to also read GOTO 100. The usage of DATA statements is limited only by your imagination and organizational logic.

Give these examples a try. If you have a problem, drop me a line, and I'll be happy to help!

C.T. TIBS
13246 HARPER ROAD
STRONGSVILLE, OH 44136

CALENDAR MAKER
DEANNA SHERIDAN - NORTHCOAST 99ERS - CLEVELAND, OH

I picked up a program from Edu-Comp at the March meeting to print graphic calendars. This is written by Chris Bobbit of Asgard and Ben Johnson and distributed by Asgard. I was fascinated to find that it utilized PICASSO files!!! I wrote a review of the program and discussed the possibility that Asgard would be coming out with the commercial version of PICASSO. Since then, I received a TENEX catalog which indeed does advertise PICASSO v.2.0 and a companion utility disk.

There has been much controversy through the news-letters whether this is or is not a fairware program. Some people have insisted that if you have a copy, you destroy it, because it was NOT intended as fairware. This past month a couple of newsletters have even hinted that PICASSO itself is based upon a commercial TI drawing program in cartridge that was dumped to disk. The only one that came to mind was Paint 'n Print, and it is indeed the one that is mentioned the most.

In fact some of the information I recently received would indicate that we possibly have a PICASSO-GATE on our hands. The whole thing has been badly handled and those of us who sent Mr. Heino money directly seem to be the ones left out in the cold. It seems that some are after Asgard to refund their money (highly unlikely), so we are left with a choice of taking a pirated copy or paying twice for essentially the same piece of software. So, if you have not sent your money to Mr. Heino, please do not now. Order the commercial version from Asgard and hope it doesn't get pulled because of possible copyright violations.

There isn't much to review CALENDAR MAKER simply because it does it's job very well and is extremely user-friendly. You can create your first calendar without even reading the manual with no problem. It allows up to 40 small graphics or text per month (if printed on a one month at a time basis vs. entire year). The top half of the page can be any picture or graphic you have put together in PICASSO. You could even print the top half in one color and the bottom in another! It comes with several graphics, and you can add your own. You must convert an ARTIST INSTANCE to Calendar Maker's format with a utility which is provided. They explain this will make the printing go faster than with the INSTANCE format. Soon we will have disks of all the same graphics in these different formats! You can save your calendar, but only one to a disk and you can make as many work disks as you like. There are several fonts which can be used for the days and text and several types of outline borders for the calendar. Evidently a utilities disk is planned which will let you create your own fonts and borders.

This is strictly a "for fun" program for the graphics phreak. It was $19.95 from Edu-Comp or you can order directly from Asgard.

Back to Picasso. The printing program to print the Picasso pictures will allow you to chose the number of overstrikes from 1 to 4. As you will recall, when I reviewed PICASSO a couple of months ago, one of the drawbacks was that for desktop publishing, the printing just was not sharp enough to be suitable. Calendar Maker is written in Extended Basic with some Assembly Calls. I was able to isolate the lines which pertained to the PICASSO files and have created my own PICASSO Printing Utility which I can use separately from Calendar Maker and bypass a lot of unnecessary setups to just print out a PICASSO file. Give me an old-fashioned, slow, unprotected Extended Basic program any day that I can adapt to my needs rather than a speed demon that only lets you do half of what you want!
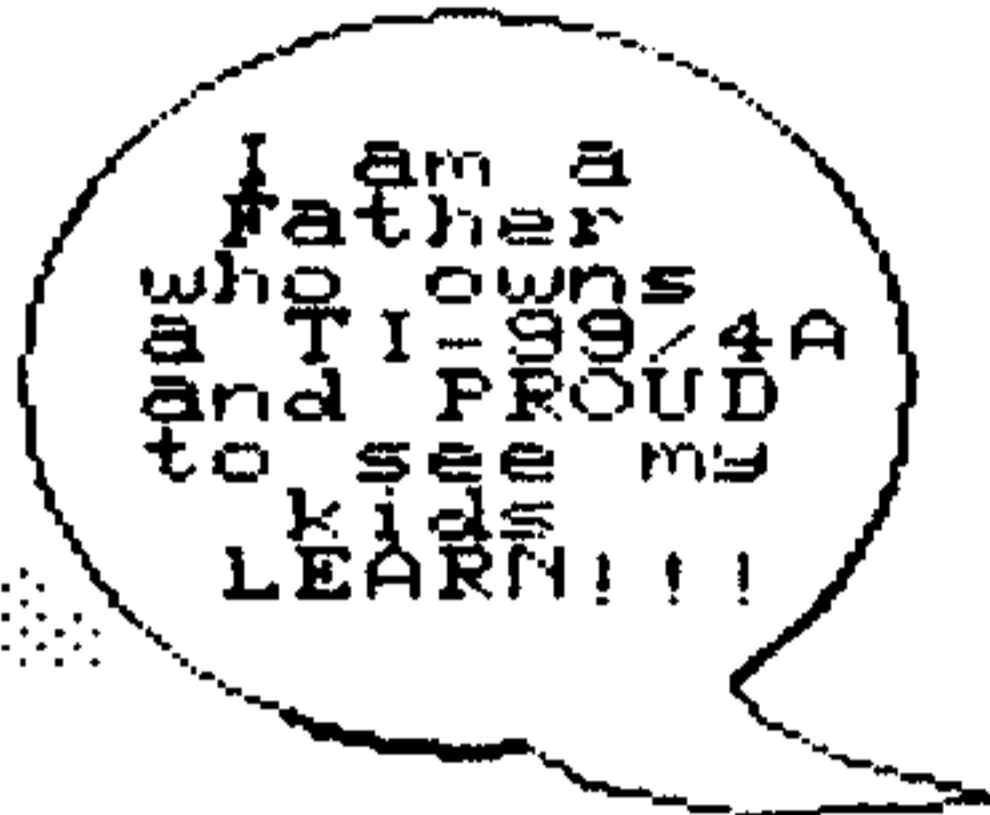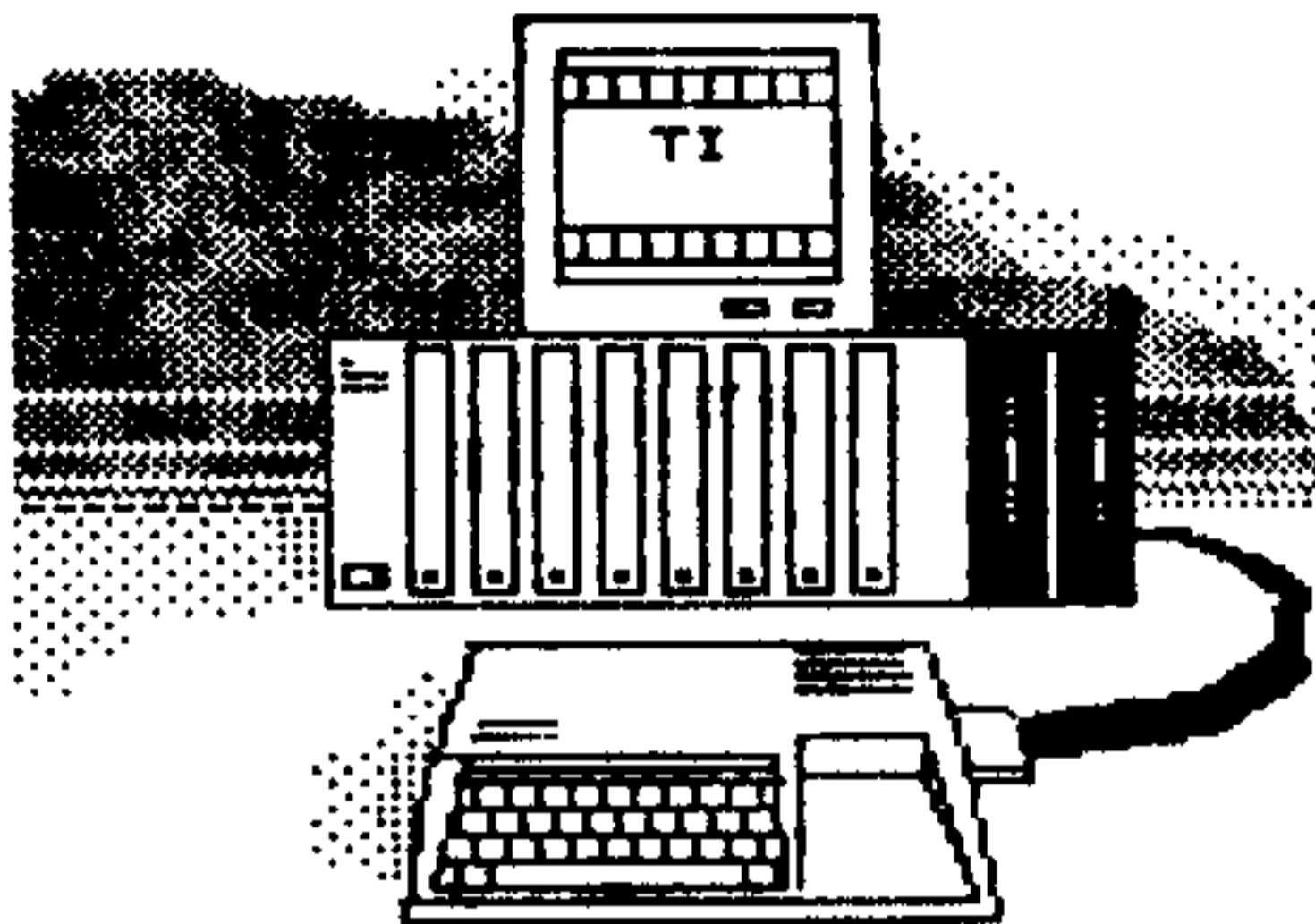
994A COMPUTER

A Home Computer for all occasions.

PICASSO PUBLISHER

A PROGRAM TO COVER ALL YOUR TEXT & GRAPHIC NEEDS.

LETTER HEADS

CAN EASILY BE CUSTOM DESIGNED.

I am a father who owns a TI-99/4A and PROUD to see my kids LEARN!!!

APRIL   1988

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					✝	2
		5	6	7	8	9
	11	12	13	14	15 TAX SEASON IS OVER!!	
	18	19	20	21	22	23 NEWSLETTER MEETING AT TOM'S
	25	HAPPY BIRTHDAY	27	28	29	30

8

MY NEW NX1000 PRINTER, OR "WHY TI-WRITER WILL NEVER BE OBSOLETE"
Deanna Sheridan - NorthCoast 99ers - Cleveland, Ohio

You may wonder what one has to do with the other, but the purchase of a new printing is all the more reason for writing an article I have had in mind for some time. First, for my new printer. My first printers was Gemini 10X; got it in 1983 for $299. Through it was a real bargain because shortly prior, it had been selling for about $400. But only a few months later, it was down under $200 because the SG-10 had arrived. The two were almost identical except that the SG-10 had NLQ (Near Letter Quality) printing. After about a year, I sold my 10X to another member of the group and purchased the SG-10 for about $240. Wouldn't you know it, a couple of months later the NX10 came out with even more features. Just before the February's newsletter meeting, the SG-10 died. It was only two years old, but the last year and a half, I used it more like an office printer than a home printer. Practically everything I do is either in double strike (for the newsletter) or NLW (also a double strike operation), and I think I just plain wore it out.

I debated whether I should get the new NX-1000 or a 24-pin high-speed printer. Technology is mooving so quickly, I decided on the NX-1000, thinking if it lasted 2 years, no telling what new features would be offered. With the 24-pin, I would have felt locked in (it is over double the price of the NX-1000). I got the STAR NX-1000 from MICRO PERIPHERALS (a big advertiser in Computer Shopper) for $169, plus tax, and $6.00 S&H. Total outlay was under $190.

It is unbelievable how far we have some in such a short time. This is my cheapest printer, and it runs circles around the 10X. The speed is listed as 144 CPS for draft and 36 for NLQ. This is only a slight increase of the 10X, SG-10 and NX10's. However, it SEEMs a lot faster.

This is advertised as a printer with several built-in fonts as its main attraction. It has 3 NLQ type styles (1) Courier; (2) Sanserif and (3) Orator. All three styles can be printed in Italics and in either pica or elite, giving you 8 choices for NLQ which can be set on the front panel. I have found that you can "fool" it into doing NLQ in condensed. Simply set the panel for your NLQ choice, pica type and your software for condensed and it will retain the NLQ typestyle. If you do this from the front panel you will lose the NLQ part. You have pica condensed for 15 CPI and elite condensed for 20 CPI (characters per inch). It has double-high, double-wide choices in each font and also a quad-high and quad-wide. I have never seen an "overline" on a printer before, but this one has it. Many of the type styles are available by pressing a combination of membrane switches on the front panel. You could do some mean printouts with these features...that is, if your word procesor will let you.

The tractor feed is hidden in an enclosure on the back. If you want to change to single-sheet operation, it will "park" the tractor until you are ready to use it again. It will auto-load one sheet at a time. The paper bail isn't quite far enough down so that if you want to start at the very top of the first sheet in the printer, it is still inefficient. The ribbon is a cartridge only about 3 inches wide with the printhead sitting within a small frame. The ribbons run about $5 and at this time are impossible to find. Judy Thalner told me they had not anticipated this printer being so popular and she has had them backordered for people for as long as 3 weeks. I have been trying to get ribbons for 6 weeks and cannot.

This is a great printer and does a lot for the cost.

Now, the TI-Writer connction. Unlike, with several of my MSDOS word processors, I can immediately start using the the features of my NX-1000 printer. Those word processors require "printer drivers" to access the features of different printers. The latest version of Word Perfect has one entire disk devoted to printer drivers. Also, even if you could access the features, a lot of them do not allow you to go "in and out" of different fonts on a page. With the transliterate command of TI-Writer, I could use each and every font and each and every expansion or contractions of that font a will. With Ann Dhein's ART CONVERT program to add some graphics, you can have a formidible desktop publishing utility!

Software is always trying to catch up to hardware, but with TI-Writer, you never have to worry. I don't need to wait until a new version comes out before I can put my new printer through the paces.

Transliterate commands are really very simple. You get our your printer manual and study the various ASCII codes for the different commands. Then you choose a keyboard character you seldom, if ever, use as your transliterate character. For instance, if I wanted to print a hading in double high letters, I might do this: The less than "<" and greater than ">" characters are seldom used, so they are a couple of my favorite transliterates. On a line by itself at the top of the page, I would use the dot command:

.TL 60:27,119,49

Now, whenever the formatter encounters the ASCII character 60 (<), it prints everything that follows in double-high characters. To cancel the operation, establish another transliterate command:

.TL 62:27,119,1

When the formatter encounters ASCII character 62 (>), it will cancel the double-high command. The 27 is necessary in most commands as it is the "escape" key. These commands are listed in your printer manual and usually all you have to do is copy them. If you haven't tried it, a whole new world will open up if you enjoy printing unusual correspondence, announcements, whatever!

Check out the schematic in Marty Smoley's article on repairing his XB cartridge. It was all done with the transliterate codes and printed from TI-Writer.

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

LEGO GAMES
Paul Newmeyer - NorthCoast 99ers - Cleveland, Ohio

Before telling you about Lego Games, I think we'd better check your temperature regarding my last article on Building a Lego Disk. How'd you make out? You say you're hot; you feel like swearing at me; now that's not nice. Oh Well, who's perfect.

Since a few pieces were missing, not unlike the author's skull, let's note them. After we jump out of our work, enter NOW, and 3 EDIT, the sentence should read, " On the next line enter 9 5 GOTOXY." Have Fun Playing Game " (9 is the screen column and 5 is the line." Several paragraphs down, the open () should have an "A" in it. On down a few lines, the following material has been omitted: "7 118 GOTOXY." Press Key-ENTER " 65 KEY = DUP IF 22 LOAD THEN 66 KEY = IF 6 LOAD". Make these corrections and things should work better.

Now, I concluded that article by giving you a riddle to work on, that is, how can we set up our Menu to activate on only one key punch? I hope some of you solved it.

Here's how I did it; I set up screen #32 as follows:

```
0 (Menu)
1 : FOO 16 SYSTEM 7 20 GOTOXY ." Select a Program "
2               7 4  GOTOXY ." (1) SHOOT" CR 7 6
    GOTOXY ." (2) MOIRE "
3               7 8 GOTOXY ." (3) GRAPHICS DEMO "
4
5
6 4 20 GOTOXY KEY 48 - DUP . CASE 1 OF DUP 22 LOAD
    ENDOF  2 OF 6 LOAD ENDOF 3 OF 25 LOAD ENDOF ENDCASE
    ; FOO
```

For a good look at this Menu device, secure my two recently compiled Lego disks entitled, Lego Games-1 and Lego Games-2. I have simply gone through our Club's set of 10 Forth disks, pulled out the games and set them to Menu. I have tried to make the games user friendly, to help you avoid hassels and inadequate support. Also, you should be able to follow the screen instructions all the way through.

Use an E/A module, option 3, and you can run these Forth games without knowledge of Forth. You can also learn something about Forth by studying the Menu operation.

The two disks contain these games "Numer Guess, Shoot Airplane, Battle Star, Nuke Attack, Slot Machine, Micro Jaws, Number Race, Shoot Em Up, Alpine Skiing, Body Snatchers, Game of Life, and Breakforth.

We are currently working on a Forth catalog. When completed we'll let you know.

North Coast Module Library
by Tom Nellis

The library now has been in operation for 4 months. This last month was the best ever, we lent 9 modules. With 25 modules in the library, over 1/3 of the modules are on loan this month.

We are always looking to add more modules to the library. If you have some modules collecting "dust" around the house, how about donating them to the library, duplicates are welcome. I would like nothing more than to haul 100+ modules to the meeting every month. The following is a list of modules in the library.

Super Demon Attack, Personal Real Estate, Micro Surgeon, Indoor Soccer, Hunt the Wumpus, Star Trek, Alligator Mix, Early Reading, Blackjack Poker, Meteor Multiplication, Parsec, Munchmobile, TI Invaders, Munch Man, Car Wars, Personal Record Keeping, Home Financial Decisions, Household Budget Management, Tombstone City, Blasto, Adventure with Pirate Island tape, Equations, Division 1, Number Magic and Early Learning Fun.

North Coast's V.P. Ernie Malnar has given the Module Library a "BIG" boost. We can lend out his modules thru the library with all proceeds going to the library. The following is an "incomplete" list of modules:

Moonmine, Ambulance, Slymoids, Buckrogers, Pacman, Zerozap, Star Trek, Parsec, Meteor Belt, Driving Demon, Shamus, Ms. Pac Man, Moon Patrol, Defender, Hustle, Super Demon Attack, Congo Bongo, Mash, Munch Man, Sound Track Trolly, Football, Hunt the Wumpus, Blasto, Chisholm Trail, Car Wars, Jawbreaker II, Superfly, Minus Mission, Othello, Space Bandits, Moon Sweeper, Hangman, 4A Flyer, Return to Pirate Isle, Microsurgeon, Scholastic Spelling Level 5, Word Rader, Scholastic Spelling Level 6, Division 1, Addition Subtraction 2, Number Magic, Multiplication 1, Face Maker, Beginning Grammar, The Attack, Reading Round-Up, Bigfoot, Tombstone City, St. Nick, Terry Turtles Adventure, Centipede, Protector, Sneggit, Munchmobile, Burgertime, Mind Challengers, Popeye, Treasure Island, Qbert, Blackjack Poker, Video Games 1, Fathom, Big Dug, Pole Position, Hopper, Alpiner, Connect Four, Early Logo Learning Fun, Yahtzee, Early Learning Fun, TI Invaders, Sewermania, Amazeing, Picnic Paranoia, Indoor Soccer, Donkey Kong, Jungle Hunt, Touch Typing Tutor

"THANKS ERNIE"

If you are interested in renting one of the above modules call "ME" (475-4067) at least two days before to meeting. DO NOT CALL ERNIE. All module rentals must go thru the library.

A LITTLE OF THIS AND A LITTLE OF THAT
Deanna Sheridan - NorthCoast 99ers

First, it looks like we will be well represented at the Great Lakes Conference in Lima on the 21st. If you get this newsletter in time and have not made plans, get with it! Glenn Bernasek should be the one to call if you are from Chips. Both Tom Nellis and Paul Wheeler are taking station wagons for NorthCoast. Don't know who, if either, has extra space at this time. We will have a table; there will be two systems going; flyers about both clubs; extra copies of the newsletter and disks of programs authored by our locals. We also look forward to putting faces to the names we see so much in the newsletters. We are taking our library and hope to do some good trading.

Speaking of the library...We added close to 60 new and updated freeware programs this past month. The RLE disks were cataloged for the first time, and we have 27 of those! There were half a dozen other disks added in the Mus/Gra area. The NorthCoast people were told that it was just too great a task for one person to do all the library work, and if they wanted to continue to have one of the best libraries in the country (and believe me, we do), it will take a concerted effort. As usual, our members came through and we have about 10 volunteers to be responsible for various sections.

So that they can begin their duties immediately, I am backing up the entire library. Marty will have these sections at the May meeting and can pass them out to the sublibrarians. Hopefully, I will have finished going through the disks on hand, pulled out the uncataloged programs for those areas, and they can get to work immediately. Bruce Rodenkrich, who is also librarian at Akron and a member of our group, is reworking the entire catalog so that it can be printed out automatically in double column format. This will save a lot paper. This is a huge job and is much appreciated.

Paul Newmeyer will see that we have a Forth library with catalog that is second to none anywhere. If you want to learn Forth, he has all the tools you will need.

In order to keep the library of top quality, we must be aggressive in getting new programs instead of sitting back and hoping they will drop into our laps. Mark McCauly gave me a printout of what is available on GENIE. Little by little we will be doing some downloading (as the clubs can afford the time. It is not fair to ask Mark to pay for the download time for that many programs). The $1 apiece we charge for a disk will help fund the project to get more programs. If anyone is on CompuServe and would like to participate, please let me know. We try to keep our people from having any out-of-pocket expenses in this respect.

We have a special cataloging project that needs a special kind of person. We have about 25 disks that have basic, Xbasic, Assembly and c99 programs on them. These run in sequence and one month perhaps only part of a program will be on the disk. It is in effect a tutorial or how-two and builds month-by-month. ALL assembly and c99 programs on these disks include source code, so they are invaluable to someone wanting to learn these languages. Some have been

cataloged and some have not. If anyone out there would like to put these together, please let me know!

As a point of interest, Great Lakes Software has put out an updated version of Certificate 99 and a companion disk of additional graphics, fonts, and borders. I sent for the upgrade and at the same time got the companion disk. Great Lakes also has what they call a CLIP ART CO-OP for Joypaint 99. When I got my program, I converted a couple of my Christmas graphics over to Joypaint and sent in for the CO-OP disks. Much to my surprise, when I got the companion disk for Certificate 99, there were my graphics. I realize once you send them in, they are really no longer yours, but it would have been nice for them to have asked. I don't know whether to get ticked off or proud that mine were selected.

WHAT IS AN ECHO?

In the world of telecommunications, it is a topic oriented message base that is carried by several bulletin boards at the same time. The topic in this case is the TI/99/4A and MYARC 9640. A message entered on any one of several boards will get "echoed" to all other participating boards. You can ask a question on a BBS in Portland, OR and have someone in another state answer you. The messages (sometimes called mail or ECHOmail) are usually exchanged by the BBS's on a once or twice, nightly basis and more times on weekends. Most of the mail traffic is carried on the PC PURSUIT network to keep costs to a minimum.

Where can a TI-ECHO be found? It is on one of these BBS's with more joining soon. It is hoped to have at least one participating BBS in all of the cities serviced by PC PURSUIT.

What does that have to do with us in Cleveland? These ECHO's are usually carried on BBS's which are integrated with the FIDO and more recently OPUS boards. Some cost to join, others do not. We are very fortunate here in Cleveland to have an OPUS Board run by a very generous person in the computer community. I am almost positive that if enough people showed interest and we approached him, he would be receptive to adding a TI ECHO to his system. I would never even think to approach him about this with the thought of having one or two callers a week use the TI ECHO. It is an exciting opportunity to communicate with other TIers through out the country and possibly the world. If YOU show enough interest, we will do something. Check with Rich Johnson of NorthCoast (261-9274) if you have any questions on how an ECHO works and what it would mean for us to be a part of one. Then, if Rich feels there is sufficient interest, I will put him in touch with the person to get us on his board.

At the moment there are the following ECHOS, Dakota InfoNet Co-OP Opus (605)338-7050, Rory Binkerd, Sysop; NC Central (919) 851-8460 (PCP), Amnon Nissan, Sysop; Oregon OPUS (503)692-7024 (PCP), Rich Hill, Sysop; TI Raleigh (919)833-3412 (PCP) Waltr Tietjen, Sysop.

Most of the above information was taken from the Lehigh 99er, April, 1988. I seem to recall that Pittsburgh also has a TI ECHO. Let's get aboard!

SUMMARY OF APRIL LIBRARY ADDITIONS

FUNNELWEB 4.0 - November 11 87 update - LL1 & LL1A
DM1000 V. 3.8 - V. 4.0 WILL BE IN MAY UPDATE. - O
SIDE#PRINT - update - OO1 CREATIVE FILING SYSTEM - Update -
EE2, FF2 & FF2A DIRECTOR 99 - Update - R
NORTHSIDE UTILITIES - Update - BB2
CATALOGING LIBRARY - Update - R
MASS-TRANSFER v.4.3 - AA3

NEW:
TICKLER 99 - TT2, GRAPHIC LABELER - UU2
TI-KEYS - VV2, MED-ALERT - WW2
GENEVE PROGRAMS - XX2, CHRISTMAS LIST - YY2
X-MODEM DOWNLOADS - ZZ2, CARTOON KIT - BB3
PRINT-IT - CC3, DD3, EE3
PCB LABELS - FF3
CHECKBOOK WRITER - GG3
DISPLAY ENHANCEMENT PACKAGE - HH3
DUMP/ARC - II3, SORT/ARC - II3, ARCHIVER 2.4 - II3
DSKU4.0 - 4.0A with Docs with May Update - JJ3
ANIMATOR - KK3, STAR - LL3, OMEGA - MM3
MUSICPRINT - NN3; USABLE DISK CATALOGER - OO3
PICASSO - PP3, ART/WRITE - OO3 - TELCO - RR3 & RR3A
MACRO ASSEMBLER - UPDATE - II2, JJ2 & JJ2A
CHECKBOOK MANAGER - OO2, GUYTON MAILING LIST - OO2
WOLF UTILITIES - OO2, V-TAPE - OO2
MITI-DATALYZER - PP2, TE3 - PP2
MEMORY MANIPULATOR - OO2, DISK+AID - RR2
DUMPFAST - VV3; MATH PRACTICE - WW3
ENVELOPE ENHANCER - XX3, SUPERSAVE - YY3
COMPATI - UNCOMPATI - ZZ3, DISKHACKER - AA4
INVOICE - BB4, SCREEN-DUMP - CC4; FAST-TERM DIALER - DD4
SEGREGATION - EE4; EXCEPTIONAL GAMES FF4 & GG4

CLEVELAND AREA 99/4A USERS GROUPS
C/O DEANNA SHERIDAN
20311 LAKE ROAD
ROCKY RIVER, OH 44116

CHECKBOOK MANAGER SYSTEM - HH4 & II4
LINKING TO ASSEMBLY FROM XBASIC - JJ4, KK4, LL4
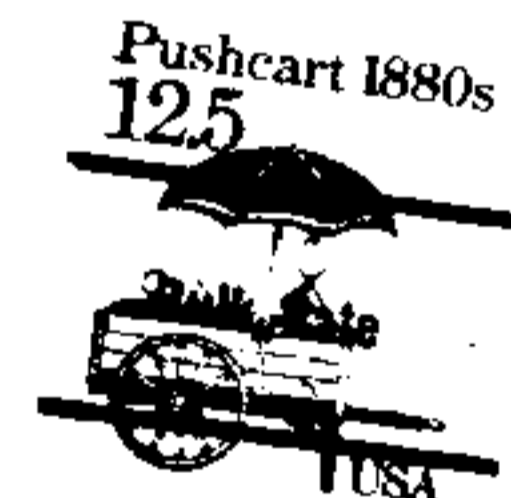RAG LINKER & LINKER LIBRARIAN - MM4 & NN4

We are approaching a hundred disks in this area of the library! We are begging each and every member to go through their disks and if they have ANYTHING they have authored, or freeware or other public domain stuff, please contact Mark McCauley or me so that we can integrate it with the other programs.

** Wanted **

I am looking for a Plato Interpreter (Cheap). If your selling out your TI equipment, or just selling off items you don't use very much, I'm looking for Plato items. If you can help me out, drop a note to Martin Smoley, 6149 Bryson Drive, Mentor, Ohio 44060.

A Ramdisk Tip

This is a great time saving little program to keep on your Horizon Ramdisk. 100 CALL INIT :: CALL LOAD(-31952,255,0,255,0) 110 END   Type it in and save it to your Ramdisk under any name you can remember. Then place it on your menu screen one in position nine. This little program will take you from the menu screen straight into Extended Basic, with no drive search. If you jump back and forth a lot this program will save you a lot of wasted time waiting for your system to check drive one for a load program. NOTE: I found this little gem in the SPIRIT OF 99 newsletter, in an article by John Parkins who said he found it in Barry Traver's Diskazine. I subscribe to Barry Traver's Publication, but it is so full of information that I must have missed it the first time around. Thanks to everyone for this tip.

CHECK YOUR EXPIRATION DATE.
THIS MAY BE YOUR LAST ISSUE!