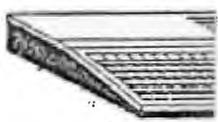


057 8806



PRESIDENT.....	Ira Lieberman	820-6332
VICE PRESIDENT.....	Brad Snyder	826-4092
SECRETARY.....	position open	000-0000
TREASURER.....	position open	000-0000
EDITOR.....	position open	000-0000

LEHIGH 99'ER COMPUTER GROUP

Next meeting: 7:30 PM, Monday  
July 18, 1988

Conference Room A-D, Second Floor  
Sacred Heart Hospital  
4th and Chew Streets  
Allentown, Pennsylvania

NEW GAMES

While browsing around at the recent TI computer festival in Roselle Park, N.J. High School, I came across an interesting game. Created by Not-Polyoptics, SPAD XIII, is an advanced and fast-paced flight simulator, modeled after the World War I French Spad fighter. This flight simulator is the best (or at least the fastest) of anything available for the TI, and comparable to some other simpler simulators for other computers. While Spad XIII is a "flight simulator", I would consider it more of a game, although landing does require some practice. One of the major features of this game is its ability to perform aerobatics. Another is the dual joystick/keyboard control. This allows you to control most of the plane's functions (steering & guns) with the joystick, while the keyboard controls views out either side, top, bottom or rear, along with special maneuvers and throttle. In this Mark-2 version of Spad XIII, a Red Baron option is included. This allows more experienced (or extremely daring) pilots to engage a computer-controlled "expert" flyer in the famous Fokker tri-plane. I jumped to this level for extra excitement, and proceeded to be shot down several dozen times. Good flyers can go for 2 hours on one tank of gas.

SPAD XIII is available on a copy protected disk for \$20.95 from Quality 99 software, well worth the price, or on cartridge (as Red Baron Flight Simulator) through Trilon for \$27.95.

Club members may borrow the library copy and see if it's something they'd like to own.

Marc Lieberman

\*\*\*\*\* COLOR BLEND\*\*\*\*\*

If you want pastel colors in your programs, make every other dot in your CHAR a one of a zero and then call the background color to be white (16). The program below will change the cyan color to a pastel shade.

```

90 CALL G EN(16)
100 . . . . .R(1,8,16)
110 CALL CHAR(32,"55AA55AA55
AASSAA")
120 CALL CLEAR
130 GOTO 130

```

Try also 14, 12, 10, and 2 as the second number in line 100 for other colors.

John Johnson, Cedar Valley 99'er User Group  
(reprinted from the Byte-Line)

A SAD TALE

A TI owner in New Jersey wrote that a thunder storm had destroyed his 4A and expansion system. I asked him if he used a surge suppressor. He responded:

"I am and always have been a strong advocate of the surge protector.

"All my equipment was plugged into a surge suppressor containing an on/off switch. The switch was in the off position. The surge protector was plugged into a wall outlet which is switch controlled. This switch was also in the off position.

"In my opinion, the air was highly charged with static electricity. Via some strange method of conduction, the charge dissipated to the chips. I have never heard of such occurrences. While discussing it with a few neighbors, I learned of VCR's and TV's being damaged during that same storm, none of which were in use at the time.

"How do you protect against this? My friends in the electronic field tell me that you can't. We discussed possibilities such as a "grounded" station but, since most computers have a plastic case, this is not practical (unless you want to open the case and attach a ground lead to the mother board or another central ground).

"When considering the odds against this, it is not worth the effort. Had I known that Murphy's Law would select me, I would have tried it. Too late now."

SPAD XIII - MARK 2  
Flight Simulator

First of all, I must thank Jack (our newsletter editor) for allowing me to borrow his remote keyboard for the TI console. This enables me to still use my computer while a back injury forces me to lie flat on my back. This also means that I have had the opportunity to spend many hours flying around (or crashing) in France.

SPAD is an all assembly program by Not-Polyoptics. Required to run it is: 32K memory expansion, 1 disk drive, and extended basic. The program loads quickly for the size of the files being loaded.

Along with the program you get a very well done 20 page manual. It starts off with a brief history of the SPAD, and an introduction to the basics of flight. From there you are taught how to use the controls of your SPAD XIII, and then taken on your first flight. There are also some very fine examples of acrobatic maneuvers that when attempted, end up with a very close view of the ground and the message 'CRASH' displayed (at least when I try them - not enough flying hours yet)!

There are quite a few keyboard controls to learn, but with some time they are easy to use. The key placements were logically made, so the learning process doesn't take too long. There are 9 keys for different views from the cockpit, including one view of the aircraft from 300 feet south and above it. 4 keys are for throttle control, 12 keys for the stick control, 2 keys for rudder control, 2 keys to fire your twin vickers machine guns, a key to drop bombs, a key to kill the program, and a key to bring up a menu of different areas to go directly to. The option to go directly to an area is handy because you seem to fly in 'real-time', that is depending on where you are going, it can actually take 15-20 minutes (or more) to get there from the french airfield. The joystick can also be used to control the stick and fire the machine guns, but you will have only 8 of the 12 stick positions available with the keyboard. But I still find it much easier to fly with the joystick for simpler maneuvers.

There are 4 gauges on the SPAD: a compass, an altitude gauge, an air speed gauge, and a fuel gauge. You also see the stick position and the throttle position.

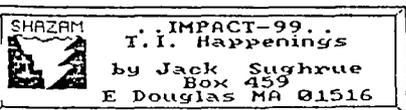
The graphics, even though they are all simple line figures, have a very good 3-D effect. (I especially like the reverse view of the runway as I crash upon take-off because of pulling back on the stick too hard). Not only do objects get larger as you get closer and smaller as you get further away, but the objects can be viewed from any side or angle.

The main object of this game is to bomb the German hangars, shoot down observation balloons, and shoot down enemy aircraft, while avoiding enemy flak. This is much easier to say than to do. When you are hit by flak, you will hear a high pitched beep. This does not necessarily mean that your plane is damaged, though. The only way to tell if you're damaged is by the performance of the plane. Damage can show up by loss of rudder control, which is not too serious, to loss of aileron control or a hit to the engine. Most damages sustained while I was piloting (at least until I realized them) resulted in a rather harsh and uncontrolled 'landing'. If you know that you are damaged, and your plane can make it, fly back to the French airfield for repairs. You would also return there to refuel and reload your machine guns. While you are there refueling the Germans will be rebuilding their hangars if you have bombed them.

Oh- I almost forgot, when you first load the game, you have the option of having the Red Baron in the game to engage in dogfights with. This is not a nice man. On the few times I played with this option, he was flying over my airfield right at the start of the game, waiting for me to take off. As soon as I did he promptly shot me down.

Overall this is a very good game, my only minor complaint is not being able to see damage to SPAD sooner. Otherwise this game is top-notch, and the price is right too, usually seen for \$20-\$25.

Brad Snyder  
LC99CG



## 6000 OLD DAYS

## PART III: THE DARK AGES

Were the Dark Ages really awful for all the people who lived through them? I mean, if I were a serf would I ever have had any happiness? If I truly didn't know about such things as freedom and rights? That's the impression we keep getting from everything we read about the Dark Ages (which were not called that, of course, except in hindsight).

Might we not be living in the Electronic Dark Ages right now? Might not some future generations (free of a flesh body thanks to robotics and the research into Artificial Intelligence) refer to us as primitive; what with degenerating bodies, minds cluttered with trivia and obsessions, politics of death rather than life, slugs, disease, terror, war, famine?

But might WE not think this is a pretty cool age? And we pretty cool cats? And Life a gas? (If not downright totally wicked awesome rad.)

So we come to the eve of orphaning of the 4/A. That infamous date (was it really a Friday the 13th?) will linger on in many memories. The doomsayers leaped from their thoughts as an abyss and began chanting, "Dark Ages. Dark Ages. Dark Ages.")

I can clearly recall reading the announcement in the papers and saying, "Forsooth!" (or whatever was the proper expletive in those days), and going home that evening and taking the cover off my console and looking at it for a long time. Like Ol' Dog Tray, 4/A and I had been buddies for a long time. Now it looked like the last roundup.

"Wait a minute!" I thought aloud. "This computer still works. It's still better than an Apple or IBM or whatever as is. There's no one down in Texas who is going to snap a switch that will shut off the 4/As instantly worldwide. We still have over 2 million owners. We still have software being made, boots being bitten, and, best of all, my user group is still intact."

We're well into the second half of that decade now and we're not dead yet. Not by a long shot.

There have been some remarkable misjudgments by publishers and software and hardware companies. I think, for example, that the biggest mistake came when companies and the user groups eliminated the non-techies. Forgetting about them. Magazines like SMART PROGRAMMER overestimated the number of techies who would be interested in such things as internal schematics or such

software as Advanced Diagnostics. Once the market was quickly saturated (some estimate TI techiehood is high as 10,000 people worldwide, out of a possible 2 1/2 million owners) that was it. Software, for the most part, was just not being made for the regular user. As a result, lots of software companies died (as did lots of Fairware projects). Pirates were blamed for all these deaths. There was piracy, no doubt about it; but the pirates, for the most part, were the very techies who were a small part of this very small part of the TI community. No non-techie would pirate Advanced Diagnostics, for example, even if they knew how (which would make them a techie), as it would serve no purpose in that person's computer life. Nor would they pirate "Popeye" because they wouldn't have the technical ability to do so.

I think piracy has been overated as a cause of death. Particularly as there is no corpse.

I know of many people in our user group (and this has happened at least nationwide) who left, first, because they believed the doomsayers; second, because they didn't understand the nature of undergrounding; and, finally, because the rest of us had bought RAMDISKs and DSDOS and S12s and GKs and were getting into ASSEMBLY and were discussing GRAMS and GROMS and other such things. Our workshops were turning into boring nightmares of technical jargon and fast-moving flies flashing across multiple screens.

The general feeling of these enthusiastic techies was expressed often and loudly at faires and conferences and club meetings: "If you don't want to join the 20th Century and update your system, then get the hell out!"

As simple as that.

The tape recorder crowd who needed a slower pace or didn't have the money (or desire) for upgrading the system, was left in the lurch.

So were those who only wanted cartridges for software application: PERSONAL RECORD KEEPING, MULTIPLAN, LOGO. The one exception, of course, was TI WRITER.

I remember one meeting where a speaker talked for 45 minutes on EPROCS. I didn't know what they were and no one in the audience knew (either before or after). Or cared. Fever of the old regulars came to the meetings. There was no longer anything for them. Each time we lost a few sore members, my heart would sink. Without the user groups, I knew, there would be no TI. The machine would still work, but there would be no community, no sharing, no fellowship.

We tried raffles and other band-aids for a while, but we didn't bring back the midtiers. And there aren't any newtiers.

Or are there?

The TIs are still in the homes of many people. If only young people could be encouraged to take an interest.

Many of the techies (if they've not already done so) are going to leave the TI for greater techiehood. This is too bad. They left behind some great things. But they left behind (in those cases where there were club

takeovers! many dead groups. Some of us are not technically oriented, nor will we ever be. There are a lot of 99ers out there with tape recorders; a lot of 99ers who have never used FORMAT on their TI WRITERS; a lot of 99ers who wouldn't even care to own a GRAN KRACKER (which is great for them as GK isn't made anymore). However, we non-techies can be assets to our groups. We can contribute and have lots to contribute.

What did we do in the old days of before and after the orphaning that was so different?

We went to our user groups as a social occasion, a monthly night out. I think that came first for most people. The 1/A was our cohesiveness. It was social. We talked and shared and learned. We were all, more or less, in the same boat. Those who knew a bit more than we did helped us. We did not feel excluded.

I went to a large TI group last year with the intent of joining. When I got there I felt very uncomfortable. The members did not introduce themselves, nor did they ask me to "come on over" and chat. Nothing. The meeting was disorganized, but when it settled down, nothing happened. There were no workshops, no plans, no anything. Except for five or six men (a couple rather famous in the TI community) who kind of held sway, loudly cracking inside jokes as one or the other of them talked a little bit about what's on their BBS, about Eproas (Dan Eproas, I say!), about how to wire in an IB chip to your console (using all the terms but without a chart or graph). Everyone (except those five or six) was bored to tears. I couldn't understand why anyone even came to the meetings. I didn't join, though I belong to quite a few groups.

When I went back to M.U.M.C.H. I noticed our meetings were getting like that (though not yet as bad).

When meetings started to get down to three and four members present, I knew drastic changes had to take place.

So what did we do to renew membership and keep it active?

First, we started having user workshops. Things we normal types wanted the computer for. Most people want to do something with wordprocessing or graphics. (PRINT SHOP is, after all, the most popular home computer program on the market - for other computers.) Desktop publishing it's being called, and it is just that. We started giving workshops on FUNNELWEB and PLUS! and CFS and TI-ARTIST and FONTWRITER, primarily, because people owned these programs or were seriously considering getting them, and they wanted to know how to use them. They wanted to go slowly and in small groups and ask lots of questions and have things shown a few times. People have a mistrust of manuals, no matter how simple. (The ones that are very simple seem too wordy; the ones that are thin seem to assume too much knowledge on the part of the user.) People like to see things in operation. They

don't care how the TV or the car or the microwave or the washing machine work. They only want to be able to use the things. For most people, this is also true of computers. And for the TI in particular because most purchasers bought it for home and as their first computer experience.

We tried to provide for these 99ers, but we first had to get them back.

We improved the newsletter: increased the number of pages, eliminated the repetitious or irrelevant materials, tried to jam-pack it with goodies from all the exchange newsletters and add graphics and PROGRAMS TO TYPE IN whenever and wherever possible.

Next we called them to ALL former members (inviting them back to the fold).

We had coffee and goodies available.

We greeted each new or returning visitor at every meeting and pulled them right into the pre-meeting group discussions.

And had signs made up. A batch was given to each member present to put anywhere and everywhere.

We increased our raffles; brought back our text library, our long-forgotten tape library and dubber, our disk library.

At each meeting we begin with a social time (to talk, eat, look at the stuff for sale, for loan, for raffle), pull everyone together for a general filling-in of what the workshops that night will be and a filling-in of what's happening in our computer's world. Lots of jokes and fellowship. Then we have a short, semi-formal meeting (president, treasurer, secretary) and conduct the workshops. Meetings begin officially at 7. Most members arrive by 6:30. We end abruptly at 9.

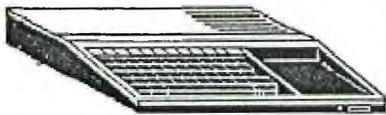
We gave a list of all members names and addresses and phones to all members.

There is such outside-the-club contact. Many members belong to other clubs, too, so there is a greater sharing. If members show an interest in Eproas, for example, they can bring it up at a meeting and request a workshop for those interested.

The heart and the brain of the user group (for ALL user groups) is the newsletter. Without it, there is no real user group. It is the connector of members. It is the co-communicator. It is the touchstone and signature of each club around the world. The newsletters are as individual and quirky as the editors whose remarkable dedication continues to turn them out. You can tell from the newsletter if the club is friendly and worth joining.

The main ingredients in successful user groups are the four F's: FUN, FELLOWSHIP, FOOD, AND FRIENDLINESS. When groups get away from these qualities, they're fading into the shadows. However, as M.U.M.C.H. is proof, with a little effort a group can leap back into the light.

[This is the last of a 3-part article on personal experiences in the TI world.]



President Ira Lieberman 820-6332  
 Vice-pres John Rejician 767-9679  
 Secretary Ann Halko 262-8206  
 Treasurer Barbara Rejician 767-9679

Vol. VI, No. 5 May, 1988  
 Editor Jack Zawediuk 821-1043

**LEHIGH 99'ER COMPUTER GROUP**

Next meeting: 7:30 PM, Monday  
 June 20, 1988

Conference Room A-D, Second Floor  
 Sacred Heart Hospital  
 4th and Chew Streets  
 Allentown, Pennsylvania

**PRESIDENT**

On Saturday March 26 I attended the 3rd annual TICOFF (T.I. COMPUTER OWNERS FUN FESTIVAL), at the Roselle Park, N.J. High School. While this show is no longer exclusively TI, there was PLENTY for the TI owner to examine. The vendor tables were set up in the Gym, while a series of seminars and discussions were held in the auditorium. Light food and snacks were available in the cafeteria and helpful students were around the building in case you had questions or got lost wandering around.

It appeared that about 1/3 of the vendor tables had items for TI users. The rest of the areas were IBM related. We had been given a program upon entering with information about the school, 5 TI users groups in that region, a list of the seminars, a map of the display floor with the names of the vendors and the types of merchandise available from each. Yes, it was quite well organized.

It was most interesting to see all the hardware and excellent prices at which it was available. In addition to lots of used equipment, the prices for new things couldn't be beat either. Many of the mail order companies we are familiar with had tables where you could purchase software, disks, parts, etc, at the same low prices we see advertised in the magazines, but without the shipping and handling costs or even sales tax. (I don't know how they managed that but I wasn't about to ask and didn't hear any complaints either!)

I picked up several things for the club, myself or extras that I felt someone at home could use. Those with advance tickets also received one program from the sponsors collection. We picked up and are adding to the club library "SIDE-PRINT" which will allow you to

print a wide Multi-plan spreadsheet sideways, and "CATALOGING LIBRARY" which is described by it's author elsewhere in this issue.

Just a reminder that the disks we ordered have come in and are available at the meeting for \$3.50 per package of 10 and the TI joysticks also have arrived. There are 2 sets left at \$5 each.

Ira Lieberman

The program disk described below is now in our library for our members use.

\*\*\*\*\*  
 \* C A T A L O G I N G L I B R A R Y \*  
 \*\*\*\*\*

A FAIRWARE PROGRAM BY MARTY KROLL JR

FEATURES

- 1 Catalogs up to 123 disks 900 files
- 2 Saves data for later listings, additions, or deletions
- 3 Reload data files without rebooting
- 4 For single drive systems:  
 No need to switch disks until all additions/deletions are made
- 5 For multiple disk systems:  
 Catalog from any drive
- 6 When adding disks, catalog is listed on screen  
 You have choice to add it or not
- 7 When adding disks, you are informed if diskname is already on file  
 If so you can:  
 Replace old listing with new  
 Give new listing temporary name
- 8 Catalogs these "funny sectored" disks.  
 Those that appear not initialized  
 Those that appear empty because of sector #1

- 9 Eliminates all non-printable characters from file disk names
  - Replaces them with a period, since no legal filename uses it
  - This eliminates sending unwanted control codes to your printer
- 10 Print a standard format catalog of any disk on file, including funny sectored disks
- 11 Outputs the following to screen or printer:
  - Summary of disks
  - Complete listing of files
  - Conventional catalog listing of any disk in the library
  - Complete catalog of all disks, disk by disk
- 12 Choose 1-3 columns of printer output

NOTE Memory Expansion Editor/Assembler or MiniMem are required

LEHIGH 99ers COMPUTER GROUP SURVEY

The survey handed out at the last meeting was filled out by 16 members and the results are listed below.

# of working condition 99/4A consols  
 owned - - 1 2 3 4 6 total  
 members - 2 9 1 2 1 37  
 % -13% 63% 6% 13% 6% 100%

Rave99 w/IBM type keyboard - 1  
 Speech synthesizer - - - - - 14  
 Cartridge expander - - - - - 10  
 PE BOX - - - - - 13

w/DISK CONTROL DRIVE - - 10  
     TI - - - 10  
     MYARC - - - 3

RS232 - - 11  
 32K - - 11  
 128K - - 0  
 512K - - 3

DISK DRIVES           1   2   3  
                       4   5   2

SSSD-7 DSDD-5 QUAD-1

MODEM 8

OTHER EXPANSION SYS 2 - COR COMP

DISK CONTROL/DRIVE 4  
     32K - - - 3  
     RS232 - - - 3

GENEVE SYSTEM - - - - 2

PRINTER 13  
     DAISY WHEEL 3  
     DOT MATRIX 10

BRAND NAME 10 DIFFERENT BRANDS  
 Is it "EPSON COMPATIBLE"? YES - 8

OTHER COMPUTERS 8 DIFFERENT COMPUTERS

OPINION POLL

I PREFER THE L99CG NEWSLETTER IN FULL SIZE (8 1/2 X 11)- 10 71%

FOLDED 1/2 SIZE PAGES - 4 29%

The totals may not seem correct as some members did not answer all questions or may have misunderstood the question. Also some people were answering for multiple systems i.e. one member has 6 disk drives which I assume is for 2 systems.

HACKING

You CAN hook up a 3 1/2 inch drive to your TI.

At T.I.C.O.F.F. on March 26th I picked up a 3 1/2 inch double side drive for \$50.00 and ten pack of disks for \$7.50. At first I had some trouble figuring out the wiring but then I realised It's the same as any other drive only a different plug. I did have one wire different, it may be the NEC brand drive I bought or it may be common to 3 1/2 inch drives. If anyone knows more about them please give me a call or drop me a line. Any way I like the smaller drive and disks, it's quiet and fast. If anyone else is interested in hooking one up I will be glad to help.

The pin out for TI's disk drives are

- Pins 1 to 33 the odd numbers one side of the plug are all GROUND.
- Pins 2,4,6,34 not used on TI
- Pin 8-Index Pulse
- Pin 10-DSK-1
- Pin 12-DSK-2
- Pin 14-DSK-3
- Pin 16-Motor Control
- Pin 18-Stepper Motor Direction
- Pin 20-Step Pulse
- Pin 22-Write Data
- Pin 24-Write Enable
- Pin 26-Track 00
- Pin 28-Write Protect
- Pin 30-Read Data
- Pin 32-Side Select

As you can see only 13 Pins and ground are used out of a 34 conductor plug.

Other disk drive cards use Pin 6 for Drive #4

The odd wire I had to hook up was Pin 4 on the NEC drive to Pin 10,12 or 14 depending which drive I was making my 3 1/2 incher.

Jack Zawediuk

## THE GENEVE IS HERE , FINALLY .

Part 7

by Jerry Boyer

Well, this month I've received an assortment of disks for the Geneve 9640 from the TICOFF'88 show. They include: DM1000 ver.3.8 ; TELCO ver.1.3 ; a 9640 demonstration disk ; a MISC. GENEVE disk ; MASS TRANSFER (3.9) ; a FAST-TERM 9640 ; PRBASE (v.2.0/9640) ; and a GIF CONVERTER PROGRAM.

The DM1000 now correctly operates on the GENEVE. They've slowed down the cursor speed so you don't get double key strokes any more. It also takes more advantage of the GENEVE's special features. It now works the way it should, I love it now. The only thing missing is a way to format the new 80 track disks, such as the 3 1/2" disk drives use and some 5 1/4" drives. Fortunately MYARC supplies a DM III program for the GENEVE with a MYARC controller card.

The TELCO program is a wonderful communications program, rivaling the best communication programs for any computer. MicroPendium compares it to the very expensive PROCOMM program for the larger PC computers. They gave it all A's on every category. It has all the best features of other terminal programs and quite a few they don't have. This great program works on either the TI 99/4a or on the GENEVE 9640. It also supports XMODEM and ASCII file transfers plus ANSI, ADM3A, VT100, and D410 files. It will handle any baud rate from 300 to 9600. And it's user friendly.

The 9640 demo disk has some neat little programs like: a box drawing program with the colors and the box sizes varying big to small and then back to big again; a bunch of line drawing programs showing off the GENEVE's power and speed; and a color demo showing the 256 colors available on the GENEVE. This one's a lot of fun to show off to your friends with their Commodores and their Ataries.

The MISC. GENEVE disk has some fun programs and some utility programs on it. They include a variety of clock and time programs, a new loader for MY-WORD, a disk manager, and a cable wiring d/v 80 file. Some are neat, the others are necessary.

MASS-TRANSFER 80 and FAST TERM 9640 are just the same as before but now they are in 80 columns. It would have been nice if they would have taken advantage of the Geneve's large memory along with the 80 columns.

The PRBASE (2.0/9640) is a very good update, using the large memory and the speed of the GENEVE to create an excellent data base program. I haven't had any time to really get involved with this program so I can't tell you any of it's new features as yet. Maybe next month.

The G.I.F. converter by Paul Charlton is a program to convert GIF picture files to a readable file to be loaded into MY-ART program. Then you can edit or save or print them out. It works like a charm. Now I'm looking for some good GIF files to use this baby. Also on this disk is the GIF help file written by Chris Bobbitt, very helpful for beginners like me. There is also the new version of TASS 2001 (TI-ARTIST slide show) ver. 3.0 by Gary Bowser. This program was just released at the Ottawa TI show. You can now read and print all different types of picture files from various drawing programs.

All of the above programs are either public domain or freeware and are readily available on most information BBS sources. If you use them please pay the authors or we will loose the best source of new programs for our orphaned little computer. Most programmers are saying that they will stop writing for the TI if they don't get any response to their freeware disks.

DISK LIBRARY (section A)  
Home ? Business Utilities  
Latest Arrivals: 04/20/88

Disk Manager 1000 ver.3.8  
from Bruce Caron of the  
Ottawa 99'er User Group  
latest version fairware  
excellant disk manager disk  
with new updates and old bugs  
removed , a truly excellant  
program.

Chart Maker II  
from Quality 99 Software  
makes & prints vertical ,  
horizontal & pie charts  
can also save charts to disk.  
works well & it's very easy  
to use.

Funnelweb Utilities ver.4.0  
from Funnelweb Farms , Aust.  
newest version includes the  
most commanly used utilities,  
like TI-WRITER , EDITOR ASSM.  
DM1000,etc. very user friend-  
ly program , excellant work.

c99 Language Package (2 disks)  
from Clint Pulley  
one of the best c99 beginner  
packages around. docs are  
included on disks.

Exchange Disk #1  
from Tony Imbruglia , Aust.  
assorted general programs  
from Australia,very good &  
very interesting work.

York-TIUG  
from Bob & Don Emmel,  
assorted utilities & misc. .  
programs. some useful , some  
are just fun to work .

Swap-U-2#5  
from various programmers,  
assorted utility programs &  
some music programs . an  
interesting array of programs  
Genial Traveler Disk Magazines  
volume 1 #'s 1 thru 6  
all flippy disks.  
vast assortment of news  
articles & very helpful hints  
as well as some excellant  
utility programs for beginner  
and advanced programmers.

CALENDARS  
from Jay Leber of the L.I.T.I.  
assorted calendars from mini to  
maxi, from appointment to memo,  
from monthly to yearly. This is  
an excellant disk to have fun  
with when you're bored.

CATALOGING LIBRARY  
by Marty Kröll. includes a very  
complete program set for setting  
up a file to manage all of your  
disks, even sorting them out.

MASSCOPY V3.5+

newest version of Masscopy which  
makes use of 128k memory for 1  
pass coping. Also included on disk  
is a 128k version of Ti-Writer.  
This version keeps both the Editor  
and the Formatter in memory so you  
can switch back and forth.

TI-MORE SYSTEM DISK

This is a fun and games utility  
disk for use around the house. It  
includes a poetry making program,  
a calendar maker, a fortune teller  
and much more.

40\_UTILITY

by Brad Snyder of the Lehigh 99'ers  
excellant set of programs to get 40  
columns on screen. there is also a  
massive set of Docs included on the  
disk to guide you through any of the  
questions that come up while trying  
to use this utility. well written.

PLUS

from OHIO UNIVERSITY, Lima Ohio  
excellant companion to Funnelweb's  
utility disk. Contains a screen  
dump, a pig latin program, a label  
printer, a three column program and  
a set of templates for TI-WRITER

GAMES 2/3

from National 99'er user group  
assorted games, some simple, some  
get involved, all are fun to play  
mostly for younger people and kids

HOME 5/6

from National 99'er user group  
assorted little programs that are  
very useful around the house, like  
inventory, check handling, records,  
nutrition, and mailing lists.

EDUC 8/11

from National 99'er user group  
assorted educational programs with  
some language tutoring such as:  
French, Spanish and German helpers.

BUS 16/17

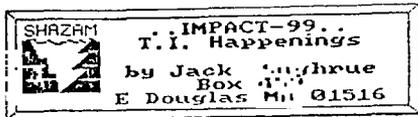
from National 99'er user group  
assorted small business programs  
including: labelmaker, letterwriter,  
employee evaluator, expenses and  
records, and inventory.

GENEALOGY HELPER

this is a companion disk for the  
GENEALOGY package in our library.  
includes display variable 80 files  
and templates to help set up your  
genealogy files

SPAD XIII Mark 2

from Quality 99 Software, an great  
flight simulator program. it allows  
you to be in control of an old  
style bi-plane. very realistic.



### GOOD OLD DAYS

#### PART II: MIDDLE AGES

Last time we IMPACTED I took you on a personal tour of my early experiences with the 4A, which were more typical than not.

After I had amassed by 100-plus programs on tape (mostly typed in from "99er" Magazine and some early books), I, like so many others, wanted to expand my computer "mastery." My TI appetite was voracious.

I bought every TI book available, which, in 1983, was a considerable number. These included such masterpieces as Loreto's THE TI-99/4A IN BITS & BITES, Dataost's ELEMENTARY TI-99/4A, Addison-Wesley's TERRIFIC GAMES FOR THE TI99/4A, Que's TI-99/4A FAVORITE PROGRAMS EXPLAINED, Davis's PROGRAMS FOR THE TI HOME COMPUTER, and the books being published by SAMS and COMPUTE! Of the latter, PROGRAMMER'S REFERENCE GUIDE TO THE TI-99/4A was always at my side. This was written by Regina (Cheryl Whitelaw) who wrote the best programs "99er" magazine published: HOMEWORK HELPER, NAME THAT BONE, TYPING FOR ACCURACY, CIVIL ENGINEERING FUNDAMENTALS, MARRIED HOUSEWIFE, DODGE 'EM, MAZE RACE, SAN FRANCISCO TOURIST and so many others. These were already classics. What astounded most of us Regena groupies was the depth of her knowledge. She seemed to know an incredible amount about computers, obviously had a lot of different KINDS of computers, but she also knew so much about music and children and electrical engineering and geography and art and just about any topic a staff of college professors would know.

That was in 1983. Regena was already in her third year of TI publishing when she moved to COMPUTE! under some mysterious circumstances. So I began a COMPUTE! subscription to continue getting her monthly column. I got lots more out of that magazine, too. Tutorials of all kinds. Programs galore. It was TI's Cloud Nine. In that same year, Regena began writing for ENTHUSIAST 99, too.

Boy, what a year! Mark Leyton began his wonderful UNOFFICIAL 99/4A! magazine. K-POWER and FAMILY COMPUTING (tearful supporters of the 4A) had also made their debut. I subscribed to them all: 6 TI magazines a month (if one includes the non-monthly SMART PROGRAMMER!) ISUPER 99 MONTHLY and MINIMAG 99 wouldn't be out for another year.

I find it hard to believe in 1988 that the final 4A classic book - THE LAST WHOLE TI99/4A BOOK by Paul Garrison - was published within a year of this creative time. Published by Wiley Press in 1984, this still stands as one of the best books ever written for 4A owners. (Do not confuse it with Linda and Allen

Schreiber's THE LAST WORD ON THE TI-99/4A, also published in 1984, which is one of the worst books in my TI library.)

It's even harder to believe that the magazines mentioned above no longer exist (or no longer carry any TI stuff).

As magazines like COMPUTE! and FAMILY COMPUTING dropped TI (which still had the largest home computer ownership of all; more than the Apple, Commodore, and IBM Jr. combined) many of us wrote letters of protest. After all, we were still buying disks and drives and monitors and printers and lots of other advertised things. No good. Even though the ADAM and the PEANUT (Do you remember?) were still carried. I dropped all magazines that dropped the 4A. The only ones left are MICROpendium, the last monthly devoted solely to the TI, which began its life in February of 1984. In that issue (originally called HOME COMPUTER COMPENDIUM) Editor/Publisher John Koloen said this of his new magazine, "It is a conduit, a source of information and a vehicle for the dissemination of information." It has certainly lived up to those criteria. I would find it difficult to be a 4A owner without MICROpendium and user groups. The only other magazine still supporting our community with a very informative monthly column is COMPUTER SHOPPER.

It's sad to look through that first COMPENDIUM. All the advertisers except one are gone: Gadget Software (Megaworld), TJ Software (Kandy Kong), THinc (Colors), C.A.Root (On Gaming), Maple Leaf (Sky Diver), Silicon Valley Software (S.A.T. Verbal Section), Machine Shoppe Software (Cassette Indexer), Larry Vision (Quackers), Programs Software (Personal Enrichment), Microworld (Snac Man), Soft Relations (Super Speller), DCH Software (Home Budget), CALLCAR (Emotional Health), Software Programs (Starship Concord), TI Books and Software.

The one advertiser in that issue who is still in business is TIGERCUB SOFTWARE, owned and operated as a completely one-man venture by Jim Peterson (Mr. T.).

And that brings us back to 1983 (before the orphaning) when we were still high on TI and user-group business was booming. For all the other things that were going on for us (and they were numerous: every big department store and book store and software store carried 4A items on their front shelves, for example) - for all those other things, the year will still be known to us as the year of the TIGERCUB.

User-group newsletters/articles, for the most part, were not as sophisticated as they are today. The big exception was the "TIPS from the TIGERCUB" monthly columns by Jim.

Nobody did what he did. His articles (many old ones as well as new ones are still being published worldwide today) opened the door to understanding. One was either a techie or a dummy. But Jim made us all feel intelligent. He pulled us up. His explanations and his "experiments" and his enthusiasms came out in every article. He always stayed far enough ahead of us to challenge us completely, yet he never talked down to us

slow learners.

From his very first article: "Are you tired of that blankety blinking black cursor? This won't work in BASIC but if you're in XB try I CALL COLOR(0,11,1).

I did it. Then I tried it in BASIC (just in case mine worked, which it didn't). Then I fiddled with the numbers until I finally understood what happened.

This is the way Jim taught, for teaching is what he certainly did (and does). His classroom, though, included thousands and thousands of pupils.

He taught me to use Line # and FCIM/I for EI instead of EDIT and how to use REDO for expanding program lines and how to slash my zero and how to highlight operators. He let me in on lots of secrets: You can type RUM\*DSK(FILE\* without any spaces and it'll work; that typing the double colons in XB lines without spaces before or after won't matter, either. Do these sound sundane? Not if you didn't know any of that stuff, and none of us did.

His teachings were so natural, so filled with personal experience, that you couldn't wait to try the thing Jim had just found out. Here's another from that first "Tips": "Have you ever been typing in a program, and the computer suddenly jumped back to the title screen, and you were sure that you didn't have a finger anywhere near that infernal QUIT key? But maybe you were drinking coffee with one hand and trying to press FCIM and I simultaneously with the other? So, if you don't have anything valuable in the computer right now, try pressing FCIM, Space Bar, H and M all at the same time. Oops! Another useless bit of info - try FCIM, S, 6 and 7 all together. Break!"

My vision of him was a young kid (maybe as old as a college student) doing improvisational computing, the way Art Tatum played the piano; somebody with great knowledge and understanding exploring human/machine potential.

I didn't find out until a very long time after that Jim is a grandfather and that he bought the 4A because he liked the keyboard!

It didn't matter. Genius is genius no matter what age.

He used to close off those early columns with Happy Hackin' until hackers got a bad reputation by a few pirates and vandals, then he closed it with Meowy Almost Full. Too bad, in a way. I think of Jim as the Ultimate Hacker, in the real, "discovery" sense of that word. I don't know anyone who knows more about BASIC (and XB) than Jim.

Way back in 1983 he did a lot more than give us little "useless" tips. Most of the tips are the most "useful" things I ever learned for any computer. (There is no Jim Peterson for Apple, Commodore, Tandy, or IBM.)

Each article contained at least one original type-in program.

While other programmers and writers were making bundles selling their stuff to commercial magazines and

software houses, Jim GAVE his monthly column away in exchange for the user-group newsletters. (He probably has the largest library of TI written material in existence.) Whenever any item in his column, large or small, came from any other source, Jim always credited the originator.

His generosity is known throughout the entire TI World.

His programs for which he charged \$3 apiece (along with a discount for future purchases) was during a time when programmers were charging \$20 and \$30 for programs nowhere nearly as professional. Jim never sold hoopla. He just sold quality. Now his programs are \$2 or much less in disked batches.

The first batch of four programs I ordered came back with seven programs in the package. Jim always puts "a little extra" in each order. He still does. He has over 3000 Public Domain (not Fairware) programs which he shares by putting them as bonuses on any disk orders. These programs, too, are well done and credited and worth owning.

I was surprised by the bonus, as no clue was given by him that I was going to get more than my money's worth. There was not a single program that I ever got from Tigercub (and that is many) that did not exceed my expectations. Many I ordered for my 5th-grade class and are still popular like BAZOO and MECHANICAL APITUDE TEST). It would be hard for me to pick a favorite because there are so many varieties of programs: educational, music, utilities, games, and so on.

About three hours ago I saved this textfile and loaded up some of Jim's disks. I played the fiendish SQUINCH and the diabolical SCRUM and went through his HANDY DANOSY and SPEEDER READER and - and I noticed it somehow got to be 2:10 AM. I have to go teach tomorrow and Jim Peterson, the fiend, did it to me again!

Next day!

When I reread the above, I got to thinking about all the other TIGERCUB programs I didn't mention. The most important, for me, are the three "NUTS & BOLTS" disks containing over 300 files. When these started coming out a few years ago, it was a "TIPS" maniac's delight. Here was a discovery collection that every TI learner dreams of. These files can be merged into any XB program including a file that converts BASIC to XB) to produce remarkable results. Because of incremental line numbering, multiple subs can be called into single programs. They are efficient, neat, incredibly easy, and remarkably creative. And lots more. Send Jim \$1 for catalog (worth every penny; refundable with first order): TIGERCUB Software, 156 Collingwood Ave., Columbus, OH, 43213.

[This is 2 of 3 articles traveling down 4A's Meowy Lane.]

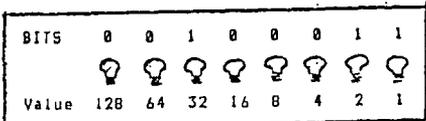


**the CRACKER BARREL**  
by Chick De Marti

Jan. 1988

**BITS and PIECES**

One of the most confusing things to most novices is converting a binary number into a decimal number. Besides being an important aspect of the machine language programmer, understanding the binary equivalent of decials is important if you intend to PRINT graphics, where a similar system is used to designate which dots are to be black (turned on) and which are to be clear (turned off). To simplify the converting of a decimal into a binary number, picture a string of eight light bulbs, each with a value assigned to it. By adding up the value of the "turned on" bulbs (or bits) we can create a code to represent a decimal number.



EXAM. The binary code 0010 0011 can be readily understood to equal 35 by viewing it as a light bulb display. The above diagram shows that light value 32 is on, as is bulb value 2 and bulb value 1. Adding 32+2+1 we = 35.

If you are serious (or curious) about learning the binary equivalent of a decimal number, enter the following program. It will display a set of 8 on and off bits, and you will be asked for it's decimal equivalent. If you are wrong, the correct number will be displayed. With a little practice you will be able to convert binary to decimal and decimal to binary.

```

1 ! SAVE DSK2.BIN/2/DEC
10 CALL CLEAR
20 FOR I=1 TO 8
30 X=INT(RND*2)
40 D(I)=X
50 ns=ns+STR$(D(I))
60 . . . I
70 . . . I=I TO 8
80 IF D(I)=1 THEN 90 ELSE 10
90 ON I GOTO 260,250,240,230
,220,210,200,190
100 TOTAL=TOTAL+COUNT
110 NEXT I
120 PRINT D$
130 INPUT "Enter decimal val
ue ":DV
    
```

```

140 IF DV=0 THEN END
150 IF DV=TOTAL THEN PRINT
    Correct: " : : GOTO 180
160 PRINT "Sorry, it was";TO
TAL
170 FOR DELAY=1 TO 600 : : RE
IT DELAY
180 PRINT : : D$="" : : TOTAL=
0 : : GOTO 20
190 COUNT=1 : : ANTN 100
200 . . . =2 : : 100
210 . . . =4 : : 100
. . . ( . . . 8 : : GOTO 100
. . . ( . . . 16 : : GOTO 100
240 ( . . . 32 : : GOTO 100
250 ( . . . 64 : : GOTO 100
260 COUNT=128 : : GOTO 100
    
```

If you want to cheat a little, until you learn how to count in BINARY, change:

```

100 PRINT ,COUNT : : TOTAL=TO
TAL+COUNT : : COUNT=0
    
```

NOTES on program "BIN/2/DEC"

- Line 30: X= a random number either 1 or 0
- Line 40: An array is created so we can record in what order the "BITS" are.
- Line 80: If BIT = 0 there is no count so skip line 90 (add a new count to total).
- Line 140 Enter zero to quit.
- Cheater's line 100 prints value of each bit.

When you looked at the "light bulb" diagram, were you curious as to what the total was when all the "bulbs" (bits) were on? If so, did you add each one? Or did you realize that because each number was one number higher than the total of all the numbers before it (ie 4 is 1 higher than the 2 + 1 before it), therefore 128 is one higher than it's predecessor, which must be 127! Thus, just add the last two numbers (128+127) for a total of 255.

Along this same line, there was a s about young Einstein who was in class wh the teacher decided to remind the entire class by having them "add all the numbers from 1 to 100!" In an instant,, Einstein wrote down his answer and proceeded to stare out the window. His teacher was at first, furious, but he later amazed to find the young lad had indeed entered the correct answer on his tablet. "how did you do it", asked the teacher. Einstein explained, "100 + 1 = 101, and 99 + 2 = 101, then there can only be 50 combinations of 101. Thus, 50 X 101 = 5050".

Don't you hate smart Alex (or Einstein)?

## MATH ONE LINERS

by Tony Falco

Many math students encounter difficulties simply because they lack experience. They say they understand a concept and quite likely they do, but they make a great number of careless errors and then begin to think they really did not understand at all. It is possible to "understand" and yet to not have skill. We acquire skill through practice. The one liners listed below provide practice at essential math skills that students in grade 7 and beyond will encounter. They provide practice at adding, subtracting, multiplying and dividing integers. (signed whole numbers.) And each one can be entered by editing the previous one. Each provides a sound when a wrong answer is supplied and each tells how many out of 10 problems were wrong. Computers can be very patient when it comes to drill.

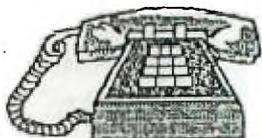
For an uncluttered screen use CALL CLEAR :: RUN.

```
1 RANDOMIZE :: FOR N=1 TO 10 :: PRINT ;
;:: A=INT(41*RND)-20 :: B=INT(41*RND)-2
0 :: DISPLAY AT(23,8):A;"+";B;"=" :: AC
CEPT AT(23,20):C :: W=W-(C>A+B):: CALL
SOUND(550,110,-30*(C=A+B)):: NEXT N :: P
RINT W;"WRONG"
```

```
1 RANDOMIZE :: FOR N=1 TO 10 :: PRINT ;
;:: A=INT(41*RND)-20 :: B=INT(41*RND)-2
0 :: DISPLAY AT(23,8):A;"-";B;"=" :: AC
CEPT AT(23,20):C :: W=W-(C>A-B):: CALL
SOUND(550,110,-30*(C=A-B)):: NEXT N :: P
RINT W;"WRONG"
```

```
1 RANDOMIZE :: FOR N=1 TO 10 :: PRINT ;
;:: A=INT(24*RND)-12 :: B=INT(24*RND)-1
2 :: DISPLAY AT(23,8):A;"X";B;"=" :: AC
CEPT AT(23,20):C :: W=W-(C>A*B):: CALL
SOUND(550,110,-30*(C=A*B)):: NEXT N :: P
RINT W;"WRONG"
```

```
1 RANDOMIZE :: FOR N=1 TO 10 :: B=INT(13
*RND)-7 :: B=B-(B=0) :: A=(INT(25*RND)-12
)*B :: PRINT "      ";A;"/";B;"=":: IN
PUT C :: W=W-(C>A/B):: CALL SOUND(550,1
10,-30*(C=A/B)):: NEXT N :: PRINT W;"WRO
NG"
```



HOW TO REPAIR AN  
ELECTRONIC INSTRUMENT

Reprinted from MADAREA  
99er NEWS  
via "The COMPUTER VOICE" SCCG

## STEP 1:

Approach the ailing instrument in a confident manner. This will give the instrument the mistaken idea that you know something and that you are not afraid of it. It will also impress anyone else who happens to be looking, and if the instrument suddenly starts working again, you will be credited with the repair.

## STEP 2:

Wave the service manual at the instrument. This will make it assume that you are ELECTRONIC familiar with the source of all knowledge, and start the instrument to thinking that there is even the slight possibility that you can read.

## STEP 3:

In a forceful and direct manner, recite OHMS law or something equally technical sounding to the instrument (caution: before taking this step, be sure to consult a reliable source for the correct pronunciation of OHMS law and other technical words). This will intimidate the instrument and prove that you indeed know something. If this produces no immediate reaction, proceed to step 4.

## STEP 4:

Jar the instrument. This is a progressive procedure, starting with bouncing the instrument lightly on the bench, and culminating with dropping the instrument from a height of three to seven feet (higher if the instrument is particularly fragile). Caution must be exercised however; although the drop method is a long standing recognized technique of instrument repair, one must be careful not to mar the floor, or the custodial staff will get really ticked off at you, in which case you are in big trouble.

## STEP 5:

Brandish a large screwdriver in a menacing manner. This will badly frighten the instrument and demonstrate your intimate knowledge of the deadly short circuit technique.

## STEP 6:

Using the screwdriver, pry the back off the instrument (even if it was designed to open from the front) and expose the innards. Choose a random location inside and stick in a tube (even if the instrument is totally solid state). This will accomplish two things: it will prove to those standing about watching that you are indeed intimately familiar with the design, and will also confuse the instrument greatly thereby increasing your psychological advantage.

## STEP 7:

Make loud disparaging remarks about the designer of the instrument, the poor quality of the components, and the slipshod manner with which it was assembled. Use lots of expletives. This may serve to make the instrument feel sufficiently guilty to start working again or get it so angry at you that it starts to work to spite you. Be sure to keep a finger on the instrument at all times, so that if it does start to work, you will get the credit, rather than look silly.

## STEP 8:

If all else fails, make various comments on how your time is much too valuable to waste on this stupid thing and walk away, hoping to sneak out of the

WHAT IS A NIBBLE, ANYWAY?:

The following article is by Jim Svedlov of the 99/4A Users Group of Orange County, California:  
This month I am going to try and explain all of the various number words we run across. With luck, after you finish reading this, you will have some understanding of bit, byte, nibble, word, hex, binary, and where -31952 really is in memory.

With luck.

Computers really think in binary. In this numbering system there are two digits, 0 and 1 (or, if you are a computer, off and on). While this works for your 4A, binary is cumbersome for humans. For example, in binary 41,576 is 1010001001101000. Hex, or hexadecimal, has sixteen digits from zero to F. Here are the first sixteen numbers in binary, decimal and hex:

BINARY	DECIMAL	HEX									
0000	0	0	0100	4	4	1000	8	8	1100	12	C
0001	1	1	0101	5	5	1001	9	9	1101	13	D
0010	2	2	0110	6	6	1010	10	A	1110	14	E
0011	3	3	0111	7	7	1011	11	B	1111	15	F

The next number would be b10000, or 16, or >10 (b means binary and > means hex).

One binary digit is a bit. Four bits is a nibble. So, b1010, or 10 or >A takes four bits or a nibble to express.

A byte is eight bits or two nibbles. With a bit you can count from zero to one. A nibble gets you from zero to fifteen. The range of a byte is:

BASE	Binary	Decimal	Hexadecimal
LOW	00000000	0	00
HIGH	11111111	255	FF

You have probably noticed the numbers 16 and 255 when using your TI. ASCII characters run from 0 to 255. There are sixteen colors (1 to 16, really 0 to 15). A string can be up to 255 characters long. And on and on.

Before tackling the next thing, a word, lets see if we can decode something. Lets take b10100 or >14. To convert either number to decimal, we need a method:

b10100 is b10000 plus b100	>14 is >10
b10000 is 16 and b100 is 4	>10 is 16 and >4 is 4
16 plus 4 is 20	16 plus 4 is 20
Hence, b10100 is 20	Hence, >14 is 20

Further than that I cannot go in this space.

A word is sixteen bits or four nibbles or two bytes. The range of a word is:

BASE	Binary	Decimal	Hexadecimal
LOW	0000000000000000	0	0000
HIGH	1111111111111111	65,535	FFFF

But there are no negative numbers. Since we need them, we use something called twos complement!(which is way beyond the scope of this column and this writer). I can tell you, however, the impact:

Hex Range	0000-7FFF	8000-FFFF
Decimal Range	0 to 32,767	-32768 to -1

Remember that >8000 is the next number after >7FFF.

Some examples: 7FFF = 32,767    8000 = -32,768    FFFF = -1    0000 = 0

Confused? So was I until I worked with it for a while. These conversion rules may help:

>>Any number less than or equal to 32,767 requires no conversion.

>>Subtract 65,536 from any number over 32,767.

>>Add 65,536 to any number less than zero.

This conversion process can be expressed in basic as follows: AD=AD+65536\*(AD>32767)

If AD is the address, this returns the same number if AD is less than or equal to 32767. If AD is greater than 32767, the test returns true (-1) and a negative 65536 is added to AD. Try it on your computer.

Bottom line line. Suppose you see CALL PEEK(-31952,A,B). Where is -31952? Well, since it is less than zero, we add 65536 and get 33584 or >8330. NOW YOU KNOW!

## ONE(+) LINERS FOR GRAPHING.

by Tony Falco

Graphing is an important topic in mathematics education today. Computers and computer graphics will make it an even more important topic in the future. The following one and two (sorry!) liners can hopefully help out some middle school or high school students with some of the more basic concepts.

The first program gives practice with the process of plotting points. At the "X=Y=" prompt the user enters two numbers separated by commas. The program will show that point if its coordinates will fit on the screen. Bear in mind the all the programs here are low resolution and plot only integer points.

The second one graphs the function  $Y=10 \times \text{SIN}(\text{PI} \times X/14)$ . Users can experiment with other functions by simply changing that expression. Try  $Y=\text{ABS}(5-\text{ABS}(X))$  for example.

The third and fourth programs are very similar. The third one allows the user to experiment with sine waves. At the prompt you enter values for A and B, again separated by commas, and see how these numbers change the period and amplitude of the wave. The last one graphs shapes known as parabolas. At the prompt enter values of A, H, and K, once again separated by commas, and see how these values affect the shape, position and orientation. Values of A between -2 and 2 (decimal fractions are fine) work best. Again bear in mind that with low resolution many points do not get plotted, but this is exactly what one does with paper and pencil. We plot a few points and infer the position of the rest.

For a neat display run using CALL CLEAR :: RUN.

```
1 FOR D=1 TO 2000 :: NEXT D :: CALL CLEAR
R :: INPUT "X=Y=":X,Y :: IF ABS(X)>15 OR
R ABS(Y)>11 THEN 1 ELSE CALL HCHAR(12,1,
43,32):: CALL VCHAR(1,16,43,24):: CALL H
CHAR(12-Y,16+X,30):: GOTO 1
```

```
1 CALL HCHAR(12,1,43,32):: CALL VCHAR(1,
16,43,24):: FOR X=-15 TO 16 :: Y=10*SIN(
PI*X/14):: CALL HCHAR(12+Y*(ABS(Y)<=11),
16+X,42-(ABS(Y)>11)):: NEXT X :: GOTO 1
```

```
1 CALL CLEAR :: INPUT A,B :: CALL CLEAR
:: DISPLAY AT(1,7):"Y="&STR$(A)&"*SIN(2*
PI/*&STR$(B)&")"
2 CALL HCHAR(12,1,43,32):: CALL VCHAR(2,
16,43,23):: FOR X=-15 TO 16 :: Y=A*SIN(P
I*X/B):: CALL HCHAR(12+Y*(ABS(Y)<=11),16
+X,42-(ABS(Y)>11)):: NEXT X :: GOTO 2
```

```
1 CALL CLEAR :: INPUT A,H,K :: CALL CLEAR
R :: DISPLAY AT(1,7):"Y="&STR$(A)&"(X-"
STR$(H),")^2+"&STR$(K)
2 CALL HCHAR(12,1,43,32):: CALL VCHAR(2,
16,43,23):: FOR X=-15 TO 16 :: Y=A*(X-H)
^2+K :: CALL HCHAR(12+Y*(ABS(Y)<=11),16+
X,42-(ABS(Y)>11)):: NEXT X :: GOTO 2
```

From the MUNCH TI-dings

LEHIGH 99'ER COMPUTER GROUP  
P.O. Box 4837 \* 1501 Lehigh St.  
Allentown, PA 18103

AIR MAIL



EDMONTON USERS GROUP  
PO BOX 11983  
EDMONTON, ALBERTA T5J 3L1  
CANADA

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