Topics

LA99er COMPUTER GROUP

VOL 7 NO 1 JANUARY 1988 Newsletter

T n T

A SAD PARTING

By the time you read this our good friend George Steffen will have permanently left Los Angeles for points east. The last year plus has been less than kind to our George, and he made a decision to move closer to his relatives. George is still plagued by a tenacious cancer, and will remain in the Bronx with a brother until his health status is clear. All things looking good, George will build a home on family property in NE Pennsylvania. We still find it hard to realize he is really going. Sort of shell shocked. He has already made flight reservations to meet us in Las Vegas for the Expo Feb. 27 and 28.

George has been a member of this club since the very beginning, and has contributed greatly to its success. There will be a big empty space. He has already renewed his membership and we hope as soon as he is once again able to sit comfortably, he will continue to write his excellent articles.

Those of us with east coast roots and family will certainly be checking up on him frequently. Yes Peter and Walt, he will be attending the Fayuh. Howie Rosenberg has already indicated he will welcome George, and keep him well stimulated. Perhaps George can get the Westchester group back on track with a newsletter, once a quarter ain't gonna do it.

For those of us who wish to keep in touch with George, he can be contacted at 5935 Liebig Ave, Bronx NY 10471. Telephone 212 549-8569. Keep those cards, letters and prayers coming. S'long George.

Ryte-Data

We sort of surprised a few folks by indicating our support of Ryte-Data. We met Bruce Ryan at our first Fest-west and were pleasantly surprised. Took a liking to him at that time and saw him other times at other 99 events. We have of course heard the various grumbles, but have allowed the same grace we would like to receive.

Lethargy and procrastination hit the best of us. It is sometimes rather difficult to get a full head of steam going in a community that is far more well known for its critical nature, than its generousness. No legitimate individual within this comunity has gotten rich from it. Many have tried and have been forced to leave it simply from an economic standpoint. I (Terrie) have previously sermonized patience with those still serving the community. Haven't changed my mind, and include Bruce Ryan in along with Barry Traver, Richard Mitchell and Lou Phillios. None of the above has feathered their nests with frivilous law suits or ludicrous bankruptcys. Pretty soon there will be two new groups forming, those sued or threatened suit by Jerry Price, and the hung out to dry creditors of Cor-Comp.

We have spoken to, and heard from persons who are disenchanted with Ryte-Data. They of course have reason to feel so. I hope they can be a bit more patient, and allow Bruce a bit of time to come out from under and get his house in order. He is still there and he is still trying. His PE-BOX looks great, the programming by Monty Schmidt is excellent. The Newsletter does make an appearance. Tom left a message for Bruce, he called both our residences to contact one of us. Tom expressed the unrest of others and Bruce promises to look in to them. Hang in there if you can.

Ciao Friends

We really blew it last month in a big way. Forgot to include a great display of friendship.

At first Fest-west we were enchanted to meet Paolo Bagneresi, our Italian member and great contributor to the comunity. Well in Chicago, Tom was doing a bit of badge peeking. Lo and behold he found two other of our Italian members, Luigi Grilli and Daniele Marini. We have had some personal comunications with them, but had no idea they would be stateside. We had a wonderful time with them the next couple of days. They did far more than just look around. Took a Imc Horizon back with them, among their treasures. It seems that once again

great minds work in parallel paths. Paolo and Luigi were working on PC/99 transfer, in Chicago Mike Dodd's PC-Transfer was released. I believe the Paolo/Luigi one will also see the light of day, I hope so. Anyway Luigi and Daniele, it was a pleasure. We now have 6 members from Italy. Great place, my Dad was born there.

Local News

Brendan James Masters made a very speedy arrival Dec. 30.(1 3/4 hrs after his mother woke up, and 11 minutes after she arrived at the hospital) Mother, father, brother and grandmother all doing well, as is Brendan.

Casa Freeman, well, facing the ocean, there is a bit of house on the left, a vast open space across the center, and a bit more house on the right. First time their across the street neighbors have had an ocean view. The contractors were so kind as to have dug trenches for our torrential rains to overflow out of. They temporarily left the kitchen intact, so "normal" meal preparation is possible. Guess when that too comes down, it will be diet time.

Errata (to be known as BUG SPRAY)

This is to introduce a new feature for TopIcs. A brainchild of Tom Freeman. We will publish any correction to programs currently in circulation that are sent to us. We "exchange" newsletters with at least 150 other groups, and will happily offer this service to all. Tom has an example of this within this newsletter.

John Owen

Finally, after many years, and phone conversations, we were able to meet John. He attended our last board meeting, and gave us a hands on look at the incredible program for indexing all newsletters. That is of groups willing to participate. Kent Sheets tried to accomplish this a few years ago, good idea, little support. Hopefully this will come to pass. Look inside for further information. Thanks John, it was a pleasure. By the way, John Owen will be demonstrating this at our January 27th meeting. Let us show this gent from Houston how participatory we can be.

Christmas Cheer

The day after our December meeting I took a very generous load of food to the Santa Monica location of Clare Foundation. Clare is haven for persons wishing to rid themselves of alcohol dependency. They were very happy to receive this on Christmas Eve day. The moneys donated have been sent to ARDRA the Alzheimers and related diseases association. They are a very caring group, and are doing very good work in calling attention to the incredible need to publicize and further the need for research in these debilitating diseases. It is agony to watch the struggle of my father just to recognize those around him. His multi-infarct (stroke) dementia is taking its toll on all of us. I appreciate ARDRA and those 99ers who donated, yes you too Peter Gleed.

Nomination Time

Guess what? Guess who volunteered to run for office? Somebody else. Yup that dependable someone else will do it. Amazing! Just about unanimous. Well your present officers were asked to hang in there for six more months. Hopefully, with the pressure off the nominating committee will get the correct phone number for someone else. One thing we did do is ask Steve Mehr to be program chairman. We are hoping he will accept. Sure would be a good fit for the job. Steve has his finger on the pulse of the community and attends more than a fair share of meetings. Lots of miles from 1K Oaks. What ya say Steve?

Don't forget to mark your calendar and plan to attend the 3rd Western area 99/4A TI-EXPO. Information for the Feb 27 and 28 event in the last few TopIcs. Support those who support us. Close enough, reasonable enough, so lets go.

Have you called our BBS'S lately. Danny and Steve are getting lots of action from outside the state, how about some inside the club? Don't worry about stage fright, both gents will walk you through. We will now be seeing more of Danny Nelson, successful eye surgery has cured his night-blindness, he can now venture out in the dark. Welcome and thank the eye doctor for us Danny.

LIBRARY CORNER

Dear Officers, Committee Persons, and Members:

There are several great Libraries among the TI-99/4A Users Groups and your LA99 Library is one of them. What makes our Library great is not only the hard work of myself but the hard work of other Users Group Librarians in exchanging Library disks with each other.

In order to keep our Library as good as it is I can not do it by myself and need your help. I know everyone of you have your own personal Library - some may be small and some are very large. What I am asking is that each one of you donate a disk to our Library from your personal Library. This will not only help our Library but will help you as well as other members. If you do not have a favorite disk, make one up with your favorite programs - be original.

When you submit your disk please print "donated by _____" and a short paragraph what the disk is about and

how to RUN it.

I know this month we will have an election and the officers will be somewhat the same, NOT because they want the job so much, but because there are no other volunteers. This goes for the Librarian as well. The Lirarian is not an elected position but an appointed one by the President. Probably the President will ask me to again be your Librarian. My answer will depend on how successful my request to you for your help will be. So you see you do have a say in who your Librarian will be.

LIBRARIAN
FRED MOORE
7730 EMERSON AVE.
LOS ANGELES, CA 90045

P.S. To you other non LA99 members who use the LA99 Library, any disk received from you will be greatly appreciated.

CRU ACCESS

(C) 1987 by Jim Lohmeyer

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The communications register unit (CRU) of the TI99/4A is a subject that has always intrigued me. The only deterrent to the study of it was the lack of information. No matter where I looked, all that I could find was a smattering of very generic information that was not application specific. At one point in time about six months ago, I wanted to work on a program that was dying to be written; a sound digitizer that worked through the cassette port. I had no idea how the cassette port worked. All that I knew was that when you saved or loaded a program to cassette, you could hear the data coming through the audio from the monitor. Well, after doing a lot of research and a lot of late night programming, I discovered that a reasonable-quality sound digitizer strictly from software was not feasable. But, it did give me a pretty good introduction to how the CRU works. I am by no means an expert, so maybe we can learn together.

When I first started studying the CRU for this application I discovered a fact about it that had previously not been discussed- it has a built in timer that, once it has been set up properly, will interrupt a program and complete an interrupt routine before returning to the program. So, to begin with lets discuss this timer.

The first bit of the CRU (base address=0) is the toggle between interrupt and clock mode of the CRU. If this bit is zero, it is in interrupt mode, and vice versa for clock mode. So, access to the clock is gained by seting bit zero to one. The clock interval is passed in bits 1 through 14. You can determine the correct value for the clock by setting up a word in a register in the manner as follows-

BIT NO.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
*	N	N	N	N	N	N	N	N	N	N	N	N	N	N	C

* is software reset; should be 0
N are the various bits of the time
C represents the clock bit

SETTING THE TIME

The maximum value that can be loaded into the 14 clock bits is 16,383. The rate of decrementation of the clock is equal to the frequency of the systems clock divided by 64. In our case the clock rate is 3MHz so the decrementation rate is approximately 46,875 times per second, which makes the effective time delay 349 milliseconds.

If we desire a clock time of 25 milliseconds, the clock bits would need to be loaded with 46,875*.025 which is 1172d. Since we will be setting clock mode and time at the same time, we will need to prepare this in the following manner: change to hex =0494h ; shift this one byte left so we can put it in its proper bit position while opening a bit for the clock position. SLA (0494h),1 =0928 ; + 1 (for clock bit)= 0929. now we can pass both the clock mode bit and time in one instruction- LDCR R4,15 if R4 is loaded with 0929h.

PROGRAM DESCRIPTION

The following program is, in all actuality, not very useful. What it allows you to do is to monitor your cassette port. To use this program, assemble it, and load and run it. Plug a cassette recorder into the casette port and put in you favorite tape and watch the display. It is Nothing spectacular, it only displays how the cassette port is interpreting the audio- hex 0 or 1. The program itself is documented in such a way as to be easily understood. However, I would like to point out a few things. Once the CRU is set up in the clock mode and the time has been set, the instruction "JMP $" causes the computer to jump to the same line over and over. As it is doing this, the clock counter continues to decrement. When the counter hits 0, a time up interrupt takes effect. The first thing the interrupt routine does is to check to see if it was a cassette interrupt. In this case it is, so it continues through a small section of code in console ROM, then drops back into our program.

NEXT MONTH

Next month we will write a program to create and display a REAL time clock which is more accurate than the standard VDP interrupt driven clock. It might even have an alarm function. Who knows, it might even cut assembly time by 200%! But I doubt it.

Happy Assembling,
Jim

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What Is The United 99/4 Data Base?

by John Owen (JUG.TX)

The UN99/4DB uses the form shown in EXAMPLE #1 to enter data to INDEX User Group newsletter articles, TI99/4 magazine articles, TI99/4 supplier addresses, TI99/4 Hardware/Software products, TI99/4 Fairware, Tips, tutorials, short Programs, etc. (Anything you want to INDEX (with narrative) and be able to find and use later.

The UN99 4DB is set up so that "anyone can play". Anyone, anywhere can add DATA SCREENS using the Standard Form contained in the Header on Disk #1 (UN99DB/1) or you can use PR Base V2.0 "CREATE" and set up the standard form on your own disk using EXAMPLE #2. (Single or double sided disk). DO NOT (DO NOT) CHANGE THE FORM (the input data won't integrate into the Master Data Base). Be sure the "data fields" on your UN99xxxxxx disk are exactly like EXAMPLE #2. Use PRB"CREATE" to change the name of the disk where xxxxxx is your Groups identifier. You can use DM1000 or any other disk manager to change the name on your disk.

You can enter data on the form and print it out using the "P" command. Your printer DIP switches must be set to allow the software to control "LINEFEED" (for EPson MX-80, DIP SW 2-3 "ON", for GEMINI 10X, set DIP switch 2-2 to "OFF"). Use "PIO.LF" for parallel OUTPUT device. The "PIO.LF" also has to be used for TI-writer and other OUTPUTS. This DIP-switch setting is needed for most TI-99/4 graphics programs. You do not have to change back and forth if you always use "PIO.LF".

A data entry can be complete on one screen. Several screens can be "tied together" by a common SUBJECT NAME and a ASCII code. The ASCII codes (#, *, +, -, 1, 2, 3, 4, A, B, C, D, etc.) have to be contained in the first 10 characters on the SUBJECT FIELD in order to tie several screens together in sequence. (See EXAMPLE #3.)

After an article, tip, short program, tutorial, etc., is in the Master United 99/4 Data Base, anyone anywhere can correct the data entry or amend it with more screens. We hope the original authors of the articles and the inventors/innovators will help make this Data Base accurate. We want the originator of every contribution to the TI 99/4 World to get full credit for his/her contribution.

Instructions for joining in this United 99/4 Data Base project are contained in a companion article or you can send $1 to the JSC Users Group, 2321 Coryell, League City, TX 77573, to obtain a "STARTER KIT (with disk UN99DB/1)". The UN99/4DB is public domain and may be distributed freely. Users Groups can add a service charge and use this as a money maker for the group for each update disk.

UNITED 99/4 DATA BASE STATUS

The United 99/4 Data Base is growing. The Pittsburg UG.PA, West Jacksonville UG.FL, Paris TX UG, Clevland Area UG.OH, and Johnson Space Center UG.TX already have thier 1987 newsletters INDEXED (with narrative) and are now on UNDB Disk #2 (UN99DB/2). A number of other Users Groups are encoding their newsletters and we plan to have disk INPUTS from the following TI 99/4 User Groups by the end of Jan. 1988: West Penn.PA, Airport Area.PA, Jackson County.MO, SW99ers.AZ and Houston UG.TX.We are working with the LA99'er Computer Group and the Chicago TI99/4 Users Group to help them encode their 1987 newsletters. This project is growing! We plan to send out the second disk (300+ sectors) full of newsletter indexes (with narrative) in late Jan. 88. The first disk with the Starter Kit (UN99DB/1) was sent to 40 different User Groups in Nov. 87 and we have gotten a good positive response from most of them.

The purpose of ti - United 99/4 Data Base is to have one PR-BASE (Ver 2.0) data FORM that all User Groups can use to INDEX (with narrative) their newsletters (and anything else) and then feed this data (on disk) into the Master United 99/4 Data Base. The JSC.TX UG will integrate this data and send copies of the Master Data Base to each UG participant. This is a public domain effort and will not cost any participating User Group anything except disks and postage. The JSC User Group is performing the integration task and disk handling free of charge to all participants.

If your User Group did not get a United 99/4 Data Base Starter Kit, send one dollar ($1) to the JSC Users Group and UNDB Disk #1 (UN99DB/1) will be sent to your Users Group within two weeks. If your Users Group received a Starter Kit and you want to receive the second disk (UN99DB/2), encode your 1987 newsletter articles on a new disk (use UN99DB/1 HEADERS), send it to JUG.TX with 59 cents postage and we will send your Group the second disk. We believe the United 99/4 Data Base will grow to about 5 to 10 disks in 1988 (over 3,000 indexed articles with narrative).

If your User Group wants to benefit from this effort - let us know. Write to: JSC Users Group, 2321 Coryell St., League City, Texas 77573. Please send $1 if you did not receive the Starter Kit. If your Group received a Starter Kit in Nov. 87, send in your Groups 1987 INDEX (with narrative) on disk and 59 cents return postage for a copy of UN99DB/2 disk.

We hope the UN99/4DB will help a lot of TI-99/4 enthusiasts to learn to use a large "ready-built" data base to find information they need to fully utilize the TI-99/4 computer. HAVE FUN AND ENJOY!!!

"IT" Is IN For ITSOFT

by Steve Mehr, UG Member

There are many writers currently writing for this newsletter, Topics, who cover a wide variety of subjects every month. There is always something to be found for everyone, from the novice user to the advanced student interested in the inner workings of the 4A operating system. I thought it was time that I explained what I have been attempting to contribute to this newsletter, so here goes.

My focus for this newsletter has been, and will continue to be (I hope), to recap the highlights of the demonstration portion of the meetings. Since I have been a member of this Users Group for some time now and attend every meeting, I will try to convey the excitement of the demos to all. Hopefully, those who cannot attend the meetings may still feel that they were there, and those who can attend but for some reason don't anymore might come back to see what they've been missing. Good to see you back, George and Margaret!

My article this month will be a recap AND a plug for the demos of last month's meeting, so away we go!

What? You've never heard of ITSOFT? Maker of some of the finest software for the TI? I simply can't picture it! (Sorry Rodger). Well, does the name Rodger Merritt strike a familiar note? (I can list that program in three tokens)! Enough foolishness! In an article highlighting the events of the 99'Fest-wesT '87 held last May in Los Angeles. Peter Hoddie described Print-It, Rodgers first in his "IT" software line, as the Fairware alternative to Font Writer.

Picture-It companions Print-It beautifully with a wealth of features designed for use with TI-ARTIST instances. Picture-It contains these features: BANNERS. Converts TI-ARTIST instances to be included in your banners. Converts TI-ARTIST fonts to be used in your banners as text! Much more! VIEW INSTANCES. Converts TI-ARTIST instances to view on screen in either character or sprite mode. Character mode allows saving instance in Merge format to create an XB program! Sprite mode allows saving instance in Merge format to allow use of CALL LOAD's, included with Picture-It, to move entire instance all at once! Create that 112 character space ship and sloooowly move it across the screen! (How's that Orsen Wells)? Much more! TI-WRITER. This is where Picture-It really excels in performance and usefulness! Converts instances so they can be output through the TI-WRITER formatter! The possibilities are endless! Create that graphic letterhead, use the include file option of the formatter to include your document, etc. Much more! CATALOG. Several catalog options including a catalog sorted by file types created and used by Picture-It. Similar to the catalog option of TI-ARTIST. The title screen of Picture-It is a fine example of what a creative mind can do with this program. With MAX-RLE (not included, but available in the public domain) you can tap the wealth of graphic art from many other sources and convert it for use with Picture-It. Now for the best

part. (The best part? I thought all THAT was the best part! Shhhh! I think he's gonna' tell us how much it costs). This complete graphics package can be yours for only $10.00! That's right. To receive your copy right from the author (the only way to get it) send $10.00 to Rodger at his address below. You'll be glad you did!

Rodger Merritt
1948 Evergreen Avenue
Fullerton, Ca. 92635
(714)-990-4577

Also on that magical evening so close to Christmas was a demonstration of a program from the first graduate of BMCCBMS, the Barry Minkow Carpet Cleaning Business Management School. Yes, I'm talking about Ray Kazmer. The program name is Woodstock and it is a Holiday present from Ray to everyone in the 4A community. No, the program isn't a database for all the concerts you've attended. Just a cute little demo. JUST? Not just. WHAT A DEMO! The graphics will amaze you, the action will amuse you, the ending will surprise you, to get it will behoove you! And now, the storyline... Snoopy leaves a Christmas present on his dog-house for Woodstock, and Woodstock has to bring it up to his nest so he can open it up. Sounds simple, doesn't it? Well, this demo lasts about 6 1/2 minutes! That's all I'm saying. My lips are sealed. This is a program for all ages, and should be shared with everyone. Why not tape it on your VCR and share it your non-computer friends? What a great gift idea for next year! To obtain Woodstock, which the author states "isn't Freeware, it is simply free", send a SASH and ID (self addressed stamped mailer, and initialized disk) to:

Ray Kazmer
13225 Azores Avenue
Sylmar, Ca. 91342

For you GEnie users, the program number is 1850, found in the Graphics library.

The author also states that if you like his gift, or learn a few tricks from it, or feel in the holiday spirit, a donation of even $2.00 would be gratefully accepted. In fact, several users groups have taken collections for Ray at their meetings when distributing Woodstock. This truly is the holiday spirit. Please join in!

It has been quite a year for me, both personally and "computerally". Some bad, mostly good. As 1988 unfolds for you my message is simply this... Please wear your seatbelts, we want to see you all in the coming year. God Bless, and have fun!

P.S. George Steffen, good luck in New York, you don't know how much you'll be missed by all of us. This Users Group won't be the same!

LA TOPICS ...Better late...

by Howie Rosenberg

It's been a while since my last column. I'm quite sorry especially since I am forced to endure considerable browbeating by Teresa for missing a few deadlines. Without her browbeating, I expect that the LA TOPICS would be much less than the superior newsletter it is. I didn't get a chance to wish you all my best for the holiday season. So let me do that first. My (belated) very best wishes for the holiday season to all. I spent a grand time during the holidays. 4 days in Las Vegas and six in San Francisco. While in Las Vegas I visited the Palace Station Hotel and Casino(I visited many casinos) which is the site of the 1988 FEST WEST. I must say it is a great choice. Slightly off the beaten path(a few blocks off the strip), it is a homey place, reminiscent of the early days, I suspect. No plush carpets here but nice wooden floors and an overall cheerful atmosphere. I expect all who attend will have a grand time both at the show and while participating in "other activities".

While on the subject of gambling(well close to the subject), I am reminded of one of my peeves namely the Lotto type programs which I have seen for sale. There's nothing wrong, I suppose, with selling a program which does no more than pick six random numbers. The readers of this newsletter, of course, do not need such a program as the topic was covered rather extensively in the last few issues. What bothers me are the claims that these programs will make you a winner. As is the case with ALL systems it just aint that easy. At least one of the outfits selling such a program for the TI and for almost all other computer brands is an old time tout outfit in New York. Nobody has every become wealthy by dealing with them. They have sold tips and tout sheets for years and have moved into the computer world. The same caution holds when dealing with Horse race handicapping as well as stock market programs. Some of these can be quite useful in organizing data and performing calculations necessary to enable YOUR decisions(guesses). None will give you winners. The honest folks selling such programs will spell all this out quite clearly up front. Such is the case with Bytemasters Handicapper. A useful tool in handicapping and organizing horserace data but certainly not guaranteed to make you a winner.

CONSISTENCY and CREATIVITY,

Some years ago, one of my sons who was in the lower grades in school at the time, returned home with a picture he had drawn in class for Halloween. The teacher had made some rather negative comments about my sons artistic ability. The pumpkins he drew were multicolored! Furthermore they were standing on a fence which appeared to defy the laws of gravity. I was enraged at the time for the teachers lack of insight and understanding of art and for discouraging attempts at individual expression. Over the years I have seen a reluctance on the part of many to acceptance of multicolored pumpkins. Fewer try to create them. This is unfortunate as it is in the realization of such fantasies that, in the computer world, lead to innovations in software (and hardware). I'm sure that

the author of VisiCalc(the first spreadsheet, while he may not believe in multicolor pumpkins, surely would have made an attempt to understand them. While one need not be "modern" (as opposed to "classical") in ones approach to software development, those without bias in such matters will generally produce new and innovative applications while the others will continue to crank out "just what we need" namely another sector editor with features no better than the last, another arcade game where one presses a key to shoot up at ugly monsters while moving a figure from side to side, another (with greatly diminished capability) TI ARTIST, another disk manager without any new features, another cataloger with less to offer than Marty Krolls gem(to my knowledge they all have less to offer than his program). The list goes on and on. Come on folks I'm sure there are more worthwhile projects than another (and not better) -----.

Users too could benefit from recognizing multicolored pumpkins. A few years back there was much lamenting that there was no Print Shop type program available for the 99/4A. Several programmers worked on same but for whatever reason the project was never completed. I have heard the lament to the present. "We need a Print Shop". For those of you who don't know what Print Shop is, it is a rather primitive program which prints greeting cards using clip art and fancy fonts. Printing is done in the first and third quadrants (or second and fourth, I forget). One of the quadrants has it's picture inverted. Thus when the paper is folded it appears as a greeting card with text/pictures on page one and three as traditional greeting cards do. What folks like about the program(I suppose) is the prompts which make it relatively easy to use. While it is not difficult to reproduce that type of greeting card using TI ARTIST and/or GRAPHX and any of the newer graphics programs, I found it easier to produce cards in several different formats. There is no clear answer to why greeting cards use the format that they do. What's wrong with a single sheet with text/picture on the same sheet? What's wrong with a handwritten note(best I think)? One of the techniques I have used is to write a text message on a TI ARTIST screen. A second screen is made up using one of the hundreds of RLE pictures which most of us have stored away in the box after looking at them once, combined if desired with text. I print the two pictures, one below the other, using GRAPHX which produces almost an exact half page image on my EPSON MX 80. The paper is folded with the two pictures inside. A short note is written by hand on the front cover. While this does not at all look like a traditional greeting card, it serves the same purpose. As a variant, sometimes I turn one of the two images upside down using TI ARTIST and fold with pictures on front and rear of the folded sheet. That leaves plenty of room for a written note inside.

THE "COMMUNITY"

Recently I received a copy of the USUS (USCD PASCAL) newsletter. The editor remarked that out of all the machines represented, Apple and TI had the largest participation in USUS. He further indicated that the USUS group had shrunk from 4000 or so to 400 plus members

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at the present time. What is interesting is a phenomena which reflects what I see both in the TI world, in the FIG FORTH group, and perhaps in every club, fraternal organization, and special interest group one can name. I refer to the necessity to preserve, enlarge, perpetuate and(are these worlds familiar?), "KEEP THIS THING GOING". While some areas in the TI "community" still appear healthy(the Los Angeles group for one), there are signs of erosion in some. I hear anguished folks who try desperately to cling to something which will disappear despite their efforts. In the beginning TIers banded together because of a common interest. When TI left us high and dry, the "community" took on new purposes. Communication was all important because the users had to take up the slack, generate their own programs, make hardware modifications, help newcomers and such. The TI "community" became rich with clever, creative people, a host of personalities known to us all, and, on the other side of the coin, thieves and unscrupulous businessmen who traded on the gullibility and naivete of the average new computer owner. Many of these folks are gone, many still remain(both kinds!). There will be a TI community for quite some time to come. Smaller than before surely

but it will endure in some form as long as folks still use the machine and indications are that a considerable number do so. Why then all this concern to preserve, expand, and perpetuate? As in the USUS example as well as in most organizations I have seen, this desire and motivation is present. It almost always is a futile effort for the healthy, useful group, will remain, independent of such effort. The destined to disappear will disappear despite any efforts and hype attempting to forestall the inevitable. Yes because of the lines of communication established, those still using the 4A will survive as a community.

Another concern of those who try (too hard) to "KEEP THINGS GOING" possibly is the fear of severing relationships developed within the TI "community". From my own experience I have enjoyed several very close friendships which were originally based on a common interest. Any friendship truly worthwhile, transcends this narrow scope, and endures independent of the state of the "community" in which it was nurtured. I I am happy to say this has been true in my case.

BUG SPRAY - THE ERROR CORNER

by Tom Freeman

This month I am attempting to start a new tradition, or service, to be provided by the LA 99ers through TopIcs. Most of you have noticed that virtually all new programs, be they commercial, freeware, or public domain, are eventually found to have some bugs. The fixes to these bugs unfortunately do not always find their way to all the users, mainly because rarely are all users known (or registered). I am therefore suggesting that this newsletter be used as a channel for all bug sprays that are found, we will endeavor to publish as many as we can, provided that the program has found relatively wide distribution and we have space. Credit will of course be given to those who send them to us.

KIDS CORNER,ALPHA-BLAST (TopIcs 11/87,p.11)
Jo Ann Copeland of the East Anglia Region 99'ers sent us this one, apparently this program came from their newsletter! The following lines should be corrected to read:

160 CALL SPRITE(#L,INT(RND*26)+65,INT(RND*13)+3,INT(RND*24)*8+1,INT(RND*32)*8+1,INT(RND*60)-30,INT(RND*60)-30)

260 N(I)=INT(RND*26)+65

330 CALL JOYST(1,X,Y):: IF ABS(X)+ABS(Y)<>4 THEN CALL HCHAR(ROW,6,32):: ROW=ROW-U :: IF ROW<5 THEN 400 ELSE 330

TEXTLOADER (Reviewed in TopIcs,10/87)
Curtis Provance, the author sent me this one. He also mentioned in response to my comment on the documentation that he will be happy to revise it, as soon as I let him know what the problems were! The fix concerns the inability to load more than 127 characters. For those interested in the assembly code which was provided on the disk, the problem was in file TEXTLOADS1, at label NOTRUN. The next line should read SRL R12,8 rather than SRA R12,8. The patch can be made to the two

existing programs with a CALL LOAD.
1) OLD DSK1.LOAD
2) CALL INIT::CALL LOAD(-2094,9)
3) SAVE DSK1.LOAD
Do the same for DSK1.TEXTLOADER. This will allow the entry of lines up to 162 characters long (about 6 lines - 7 not yet possible).

KRACKER FACTS
This is the wonderful booklet compiled by Mike Dodd that is for sale in our marketplace. Invaluable for anyone with a GramKracker (plug, plug). Gerald Galvin of Saukville WI sends us this one. The program entitled "EXTENDED BASIC PROGRAM LOADER" contains an error on page 26, line 31. Rather than MOVB R2,@VWA it should read MOVB R2,@VWD.

PICTURE IT
This program which was demonstrated at our last meeting, is by Rodger Merritt. It allows printing of TI-Artist instances onto letterheads or banners among its capabilities. It appeared however that one could now load and view these instances using the Geneve. I used DISkASSEMBLER to figure out the source code and discovered one garbage line of code. It made no difference on the 4A, since it tried to write to console ROM, but on the Geneve this area of memory is only simulated ROM, in fact it is RAM, and the operating system soon got destroyed. The fix is as follows. Use a sector editor to find the location of the file. There are 72 data sectors. In the 70th of these sectors, in Bytes >91-92 you will find 7FFF. Change this to 1000, and away you go!

PLEASE REMEMBER TO SUBMIT ITEMS TO THIS COLUMN. TOPICS HAS WIDE DISTRIBUTION AND THE FIXED SHOULD EASILY BE PICKED UP AND DISBURSED.

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The Prolific DV 80
by Henry Hein

The accuracy of this article may be in dispute since I am not a pro computer hacker. I'm just a user who feels that my discoveries should be shared to help others understand why this file format has been important for me, if not for others as well.

About a year ago I purchased two double sided drives to upgrade my system. It enabled me to run a program and store data collected for a local church's listing of patrons of its annual bazaar. I deciphered the scribblings of names and addresses of more than 720 guests and punched them into the computer for later mailing lists announcing future events. I used the program DataBase 1000. With the latter's report options I decided to do some tricks, sorting by zip codes, last names alphabetically, or by towns, etc. There was another option, that is, of storing the data which I sorted in D/V 80 format. Suddenly I realized that that's the way TIW stores data, TI ARTIST, MULTIPLAN, FONTWRITER, etc. With this sudden awareness I realized that TIW could read this file, and sure enough, it did, and printed it too, for making address labels! Though DB 1000 had it's own labelmaker program I opted to save the sorted data in DV 80 for final output. DB 1000 did not have editing capability but TIW DID! This capability enabled me to do other things, too, as I progressed into other areas of file management. PR BASE came, much faster and more versatile in operation, though lacked DV 80 option.

About mid-year, I read an article in May's CHICAGO TIMES NL by Anne Dhein, which I included in TI-DINGS. The author makes some interesting pictures by using TIW and transliterate commands. Guess how they're stored. That's right, TIW's DV 80! ARTIST can read it and put out it's graphics!

Some other user programmers came up with CONVERT programs making it possible to convert graphics stored by other programs in non-DV 80 files into same for use by ARTIST, JOYPAINT, and the PRINTER's APPRENTICE, and now - MYART. TPA came up with a font conversion program, along with FONTWRITER, etc.,

but the former doesn't store them in DV 80. YEP! How is this an advantage for graphics use? By calling up the files in TIW you can at least look them up, that is fonts or instances, examine them, possibly combine them, or follow patterns to make your own or alter them to YOUR taste.

All of these programs now have some compatibility to play around with, that is, with TIW.

Along with that, MULTIPLAN can store in DV 80 your spreadsheet data for TIW printouts. If you store your data otherwise, you WILL have trouble accessing it. BUT... there are file -conversion programs out there made by users to do just that! to DV 80. Also, Tom Freeman made it possible to print out your MULTIPLAN sheet with his little SIDEWAYS program, available with other printing utilities for $8 via the LA User Group with a nicely bound booklet of docs.

For reasons unknown to me I found that writing text with TIW in single window 40-column mode and saving it takes up less space on a disk than in writing the text in that inconvenient 3-window 80-column mode. I posed this question about a year ago and haven't heard from anyone about it nor saw an answer to it in any of our exchange NLs. Although it digresses from my little thesis I still find it a curiosity.

From the MUNCH TI-dings

+--+
: CIN-DAY * CIN-DAY * CIN-DAY * CIN-DAY:
+--+

TWO TI WRITER TIPS

The Formatter makes sure that you have two spaces after each period. This can cause such strange things as:

    Mr. Smith
    1023 N. Fargo Street

These extra spaces jump off the page to the reader as simply wrong. The easiest way I have found to solve this is to use the ^ sign to control the spacing. Mr.^Smith will print with just one space as will 1023 N.^Fargo Street.

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Did you know that...?

by Chick De Marti   Jan.1988

LEFT OVER FROM CHRISTMAS

BRAIN TEASER

Draw 10 Christmas trees so they will appear as 5 ROWS with 4 TREES IN EACH ROW.

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

BRAINTEASER

Get the message? . .

<*><*><*><*><*><*><*>

And from the OMAHA TT99/4a USER'S GROUP:
we have _____STUPID DISK TRICKS
             by Lave Detterman

Bet your didn't know or care, but you can punch a hole clean thru the disk, both sides of the jacket, and the disk, you have to have the original small hole lined up in just the right place, of course. It works too.   I customized the disk with a BIG hole and this entire newsletter is being output on that disk. P.S. I don't recommend this method... just had to try it out.

TI TRIVIA!! comes to us from Northwest Ohio 99er News. Created by Arthur Author?

1. What do the letters "C.P.U." designate?
2. The 99/4A is a __ bit computer?
3. Where did the word "bit" come from?
4. Where did the word "modem" come from?
5. What does "BASIC" stand for?
6. Who invented "FORTH"?
7. Why is "FORTH" not spelled "FOURTH"?
8. Exactly how many bytes are in a kilobyte?
9. Which is faster: Serial or Parallel data transmission?
10. Which came first: FORTRAN or BASIC?
11. What was the first computer called?
12. Where did the word "FORTRAN" come from?
13. What is easier to learn: Quantum Physics or Graphic Programming Language?
14. Name the two unconditional line transfers in Basic?

<*><*><*><*><*><*>

I GOOFED AGAIN

In my KID's KORNER, Nov/Dec Issue, I was so anxious to get the program in, I didn't get to try it out first. Ssgt Donald Copeland wrote us saying "the errors look familiar". You 'll need these lines to get it to run:

```
160 CALL SPRITE(#L,INT(RND*2
6)+65,INT(RND)+3,INT(RND)
)*8+1,INT(RND)*8+1,INT
(RND)-30,INT(RND)-30)

260 N(I)=INT(RND)+65

330 CALL JOYST(1,X,Y):: IF A
BS(X)+ABS(Y)<>4 THEN CALL HC
HAR(ROW,6,32):: ROW=ROW-U ::
 IF ROW<5 THEN 400 ELSE 330
```

REMOTE CONTROL JOYSTICKS FOR THE TI-99/4A?

If you have an Atari 2600 game system, the remote control joysticks sticks for the Atari, and s joystick adapter for the TI, you have all you need to free your joysticks from the console.

The power supply from the Atari 2600 is plugged into the remote re-ceiver and the two 9 pin plugs from the receiver are connected to the dual joystick adapter. Each handheld unit requires a 9-volt battery. That's all there is to it. The remote units sold for $12.99 to 14.99 (in the local stores) in the past.
thanx ... WEST JAX

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(Did You Know ... cont.)

TRY BLINKING

This suggestion came from the PUN newsletter
"When you're working on your vidio dis-
play terminal, BLINK, and you'll eliminate
one cause of eye fatigue", says one Ohio op-
thalmologist. "While using VDT," wrote Dr.
Frank J. Weinstock in a letter to the Jour-
nal of the American Medical Association,"The
user has a tendency to stare and decrease
blinking to avoid missing anything on the
screen." This, and not the screen itself,is
what usually causes a sense of eye fatigue,
he wrote. "Blinking provides eye lubrication
and reduces that 'tired eyes' feeling sig-
nificantly", he said.

<*><*><*><*><*><*><*>

A_BBS_BOOKSTORE

B. Dalton Software ETc. in Buena Park mall
has set up a BBS operating 24 hours at 300/
1200 baud. The number is 1-714-821-5843.
The board is open to everyone and you can
also get some great deals on software if
your a verified user. There's one catch. To
get a high access level you have to partici-
pate and post messages. It seems that every
time I call a board they have trouble gettin
people to post messages.
    Anyways, call the board, the people are
very nice and helpful. Plus those of you who
have other computers, B.Dalton Software has
one of the most liberal software return pol-
icies I have ever seen. If your not satis-
fied in 30 DAYS you can return it with no
questions asked. They also don't hesitate to
break the seal on a package to let you see
the manual. (Great!...Chick)

<*><*><*><*><*><*><*>

IN THE IMMEDIATE MODE

    If you have defined a character in the
immediate mode and you would like to hold the
screen while you studied it, using CALL KEY
is dificult. You don't have a line number to
go to "IF S=0". Try ACCEPT AT. It works fine

```
CALL CHAR(63,"00FF818181818181
FF")::  CALL CLEAR ::  DISPLAY
  AT(5,5):"?" ::  ACCEPT AT(5,
5)SIZE(-1):A$
```
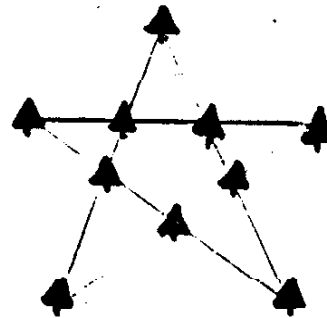
Thanx to "RANDOM RAMBLINGS" by J. P. Hoddle

    This is credited to Don West. If you want
to clear the screen in XBasic, instead of
using CALL CLEAR, use DISPLAY ERASE ALL. It
will take up 6 fewer bytes and runs a little
bit faster. Along the same lines, if you need
a quick tone in your program don't use a CALL
SOUND statement, try a DISPLAY BEEP. This
only takes up 2 bytes and actially does not
effect the display at all. However the
PROGRAM can effect the sound. Try this:

```
100 PRINT "LISTEN TO THESE TWO BEEPS": : :
110 CALL KEY(0,K,S):: IF S=0 THEN 110
120 DISPLAY BEEP
130 PRINT : : : : : : : : : : :.: :
140 DISPLAY BEEP
150 END
```

<*><*><*><*><*><*><*>

(Solutions to our riddles.)

BRAINTEASER: "I'm over worked and underpaid"

TI TRIVIA!! answers:

1. Central Processing Unit
2. 16
3. Binary digIT
4. MOdulatot DEModulator
5. Beginners All-purpose Symbolic Instruc-
    tion Code.
6. Charles Moore
7. The IBM that FORTH was created on would
    only accept 5 letter names.
8. 2 10 (two raised to the 10th power) =1024
9. Parallel
10. FORTRAN
11. U.N.I.V.A.C.
12. FORmulae TRANslation
13. Quantum Physics
14. GOTO and GOSUB

            Well, I'm out of coffee. See you
            next month   Chick

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KIDS KORNER **************

FAST
EXTENDED BASIC

LUCIE DORAIS

My Christmas gift to you is a real program, one that you can keep and play with during the holiday season... a cute game full of SPRITES. In a winter landscape, a boy and girl walk or run at random speeds; you can change their direction and speed by pressing any key. Sometimes boy chases girl, sometimes the opposite (she's a woman of the 80's). See what happens when they meet!

```
100 REM ** LOVE STORY / by L. Dorais / Nov. 1987
110 REM
120 GOTO 140 :: CALL CHAR :: CALL HCHAR :: CALL SCREEN
130 CALL COLOR :: CALL MAGNIFY :: !@P-
140 CALL CHAR(36,"44EEFEFEFE7C3810"&RPT$("0",48)) ! surprise
150 DISPLAY AT(7,4)ERASE ALL:"$ LOVE STORY $" :: RANDOMIZE
160 CALL CHAR(48,"FFFFFFFFFFFFFFFF",136,"FFFFFFFFFFFFFFFF") ::
    CALL COLOR(3,15,1,14,16,1)
170 CALL HCHAR(16,1,136,128):: CALL HCHAR(20,1,48,64) :: CALL
    HCHAR(22,1,136,96) ! landscape
180 CALL CHAR(120,"0103070B070F170F1F2F1F3F5F0101010080C0A0C0E0D0E
    0F0E8F0F8F4") ! trees
190 CALL CHAR(124,"01000108000210000421000440000000000000200040108
    0002800A004") ! lights
200 CALL CHAR(104,"0303030701070F1B33070F1F06C60E0EC0C0C0E080E0F0D
    8CCE0F0F860607070") ! girl
210 CALL CHAR(108,"030303030107F1B33303070706060E0EC0C0C0C080E0F0D
    8CCC0E0E060607070") ! boy
220 CALL CHAR(116,"030F1F0703010103070F0300031F0F03C0F0F8FCFC9CBEF
    EFEBE3C7CFCF8F0C0") ! moon
230 REM
240 DISPLAY AT(7,4):"" :: CALL SCREEN(5):: CALL MAGNIFY(4)
250 CALL SPRITE(#9,120,13,89,26,#7,120,13,110,106,#2,120,
    13,144,200) ! put trees
260 CALL SPRITE(#10,116,11,25,180,0,-1)! put moon
270 CALL SPRITE(#4,108,5,132,64,#5,104,14,132,145)! put couple
280 !@P+
290 BV=(RND*50)-25 :: GV=(RND*50)-25 ! velocity
300 CALL MOTION(#4,0,BV,#5,0,GV)! move couple
310 CALL ON :: CALL OFF ! light trees
320 CALL COINC(#4,#5,10,COIN):: IF COIN=-1 THEN CALL KISS ::
    GOTO 300
330 CALL KEY(0,K,S):: IF S=0 THEN 310 ELSE 290 ! press any key
340 REM
350 SUB ON :: CALL SPRITE(#8,124,12,89,26,#6,124,8,110,106,
    #1,124,16,144,200):: SUBEND
360 SUB OFF :: CALL DELSPRITE(#8,#6,#1):: SUBEND
370 SUB KISS :: CALL MOTION(#4,0,0,#5,0,0)
380 CALL POSITION(#4,PR,PC):: IF PC>250 THEN PC=250
390 CALL SPRITE(#3,36,9,PR+6,PC+6,-30,0):: CALL SOUND(300,1900,0)
400 FOR DEL=1 TO 300 :: NEXT DEL :: CALL DELSPRITE(#3):: SUBEND
```

After the now-familiar PRE-SCAN (note that it is put back ON in line 280, long before the end, since a lot of CALLs and variables are used only in the last portion of the program), the title and landscape are displayed while Tex lazily redefines our sprites; we cannot use our fast DISPLAY AT routine for the landscape (see Sept. issue), since we want to use all 32 columns.

All our sprites are four-char. long, and their numbers are all multiples of 4. Char. 36, defined in line 140, takes up only one char., so we can use it as a single character in the title (line 150); to use it as a sprite, we make the following three char. blank, hence the RPT$ (repetition) of "0"s. In line 240, we encounter a CALL MAGNIFY. This special sprite function controls their size. The factor of 4 will make them double size, i.e. 16 char. (4 ch.*4). Unfortunately, it applies to all the sprites in the program. That is why we made the surprise so small: Magnified, it will be only 4 (4*1) char. in size.

Line 250 plants the trees in the landscape; these are stationary sprites, so we could have used standard CALL HCHARs, but can you imagine the length of the code to define and display three trees of 16 char. each? Using sprites simplifies our work. CALL SPRITE is one of those "multiple parameters"

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(continued)

#10 moon	#9 ltr	#8 1.ltr	#7 mtr	#6 1.mtr	#5 grl	#4 boy	#3 ???	#2 rtr	#1 1.rtr

A word on the SUB KISS: each time boy meets girl, or vice versa, we freeze them in embrace with a motion of "0,0" and we sneak up on them with a CALL POSITION that gives us the p-row and p-column of the top left pixel of the boy-sprite (by that-time, the girl is close enough!). If PC is too far out on the right, we correct it (there are 256 p-columns, and the surprise sprite will be six pixels to the right of boy, so 250 is the highest PC we want). We now use those values to call a new sprite slightly to the right of and below the couple's upper left position, then give it a vertical velocity of -30 (negative value for upward motion, positive for downward) and an horizontal one of 0.

A short sound confirms the happy ending, as the moon quietly continues to pace the sky. If you don't change the velocity of a sprite, it moves forever, until you stop it with a CALL MOTION(#n,0,0) or delete it with a CALL DELSPRITE (see line 290). After the brief kiss, our couple can resume its course in line 300.

Before I let you play, a last, COLORful note: if you study the program, you may have noted that we have defined two sprites in one set (trees+lights, boy+girl). But their colors, in the CALL SPRITE statements, are not the same: boy is blue, girl is magenta. Even better, in line 350, the lights have three colors (12, 8 and 16), but are all the same character, i.e. same set! And the surprise, which was left its default black in the title, becomes a vivid red when used as a sprite. This is because the color of a sprite is totally independent from the color of the char. sets. The VDP RAM keeps that information in two distinct areas: sprite color is part of the SPRITE ATTRIBUTE TABLE, while character/set colors are kept in the COLOR TABLE.

TO DESIGN SPRITES, you can use any good Sprite Definition program, such as Compute!'s SUPERFONT, or you can use a program which has a ready-to-use collection of sprites. Since I am lazy, this is exactly what I have done: tree (PINE), MOON and GIRL come straight from the SPRITE BUILDER program, and boy is just its FARMER without a hat. Good news: SPRITE BUILDER is freeware, and part of the Group's Library! It is even this month's Disk of the Month! Just ask Steve Bridgett or Stuart Bruce...

The UNDB99 index ... What is it?

At our board meeting this month I was intro-duced to John R. Owen of Houston, Tex. He is the editor of the Newsletter we get from the Johnson Space Center. I spent the next two enjoyable afternoons with him (Danny Nelson joined us on the second day).

Have you ever wanted to locate an article you remember seeing in the Topics, but could-n't remember which issue it was in? I have!! Many times...and I thumb through each issue, sometimes discovering too late, it must have been in another club's newsletter. Well John may have brought this chore to an end, but he will need a little help.

He have created the UNDB99 (United Data-Base for the 99)using PRBASE, (a freeware program in our library). He intends to index the newsletters of as many of the clubs that he can contact (I believe three clubs are al-ready contributing). It is my understanding that ALL the newsletters from ALL the clubs involved will be indexed and made available to anyone. Thus, if you are looking for a particular program, you will be able to find out which newsletter (or newsletters)have it. This is monumental endeavor and obviously, is not a one man project.

John will be a guest speaker at our January meeting. He will be demonstrating his Prog. using PRBase. You will find this most en-lightning, as I did. I for one purchased the original version of PRBase and gave it one quick look, and shelved it thinking it was .. TOO COMPLICATED, but John showed me how wrong I was! If you have ever wanted to try out or use PRBase, here is an excellent oppertunity to learn, using a Database that has already been created and tested. You will quickly learn to sort in two fields at one time! This is a project that is done AT YOU LEISURE and in the privacy of your own home. In any case whether you would like to help, or just want to learn more about PRBase, come to the meet-ing Wednesday, Jan.27th at the Torrance City Library (on Torrance Blvd. and Prairie Ave).. at 7:30.

If you haven't been to a meeting in a while come on down; you'll be pleasently surprised. P.S. There will be a drawing for a 1200 baud Smart Modem.

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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*SIN(PI*X/14). Users can experiment with other functions by simply changing that expression. Try Y=ABS(5-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 effect 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 CLEA
R :: INPUT "X=,Y=":X,Y :: IF ABS(X)>15 O
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 CLEA
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

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HIGH RES GRAPHICS AND THE 99/4A, PART II

by Anne Dhein

Section One: The Preliminaries

Part one of this article defines a drawing package as a program or group of programs that will allow the user to create graphics by turning on (or off) the smallest addressable unit of the screen - a single pixel. All of the currently available drawing programs for the 99/4A allow individual pixels to be placed anywhere on the screen and removed as desired, to create very detailed pictures. Drawings can be saved on disk (or in some cases tape) and later be reloaded for editing or printing.

As you know, all the 99/4A paint packages do much more than just this minimum. But the features present in a particular package, and how they are implemented vary widely. Section one of part two provides a chart to allow a feature-for-feature comparison of ten main drawing packages for the 99/4A.

The chart lists the name of each drawing package (in capitals) across the top. The drawing packages are on the chart roughly in reverse order of how they were introduced on the market - that is, the later ones are listed first. You can quickly tell whether a program has a particular function or characteristic by locating that function in the first column and then checking across the row to the column in which the program is listed. Over the next few issues, detailed information will be given for each of these functions.

If you are planning to purchase graphics software the first thing to ask yourself is, "What do I want to do with the program?" Looking at the chart, Program Focus refers to the primary purpose of a package. Three main uses for paint programs are for entertainment (E); as a production tool for producing letterheads, newsletters, flyers, etc. (T); or as a programming utility (U). Some of the programs do all three; others concentrate on just one aspect.

Norton Graphics, for example, is strictly a programming utility, and Paint 'N Print is pure entertainment. TI Artist is the best general purpose program by far, but nothing can beat Graphx for enhancing an artist's creativity. Joy Paint also excels in this area, and although lacking in color has production capabilities not found in Graphx. Draw 'N Plot can be used quite comfortably as a simple drawing board, but its real merit lies in its ability to interface with your own programs.

System Requirements

Before you purchase any program, check to make sure that you have all the hardware necessary to run that particular software. Two of the programs - Paint 'N Print and Super Sketch - can be used with only a console. Norton Graphics Package can also be run on just the console, using Extended Basic. The others require a disk system and 32K memory expansion.

Paint 'N Print, Super Sketch and three of the disk programs also each have an additional disk, sold separately, but which adds substantially to the program's capabilities. These disks are listed in lower case on the chart, under the main Program. The functions they support are starred (*). When Paint 'N Print and Super Sketch are used with their supplemental disks, they also need the expanded system. A cassette version of Extended Graphics is available for Paint 'N Print, but it still requires a 32K memory expansion unit. Paint 'N Print, by the way, won't work properly on my system with the widget. Plug Paint N' Print directly into the console and it works fine.

A few programs may not work with the Myarc and/or CorComp peripherals. Joy Paint, TI Artist and Graphx, along with most new software do work with any of the three controllers. The version of BitMac that I have does not work with a Myarc disk controller, but works with CorComp's. TI Artist works beautifully with the Myarc RAM disk but Joy Paint does not. Since most software companies are working constantly to keep their products updated to work with the newer hardware, peripheral compatibility is not covered on the chart. If you happen to have any of the newer peripherals, consideration to this should be given when buying software.

Printer compatibility is covered further down the chart but should be mentioned here as something to watch out for when buying software. It is very disappointing to get a new drawing package home, only to find the screen dump won't work with your printer!

Loading Requirements - With the exception of the Norton Graphics Package which is programmed in (and requires) Extended Basic, the software listed here is written in assembly language; therefore a module which can access assembly language is necessary. The three "loader" modules are Extended Basic, Editor/Assembler and Mini Memory. TI Writer's Option 3 can also be used instead of Editor/Assembler's Option 5. Some software can use any loader; other packages require a particular module which is listed on the chart.

Ease of Use and Method of Operation

Just as people are different, so, too, does each program seem to have its own "personality", or flavor. This rating should be looked upon as subjective and is given here only to provide one person's idea of how easy the program is for an average user to learn and to use comfortably on a day-to-day basis. The Norton Graphics package rates the lowest because it is slow and takes some patience. It is meant for Basic programmers.

Super Sketch is on the other end of the scale. It is so easy to use that a child who doesn't read well could comfortably use it with a minimum of instruction and supervision. Joy Paint, even though it does a lot more, is also very easy to use. Main drawing functions such as draw, erase, fill, using circles and lines, lettering, paintbrush, etc., are all easily selectable from the drawing board by a representative picture (known as an "icon"). More complex features and file management are immediately selectable by menu.

The other programs fall somewhere in the middle. Draw A Bit and Master Painter require the memorization of a number of function keys to use them properly, or else you had better have a list handy. The manuals for these two are also hard to read. Bitmac requires some key memorization combined with the use of icons, but Bitmac's manual is much better.

Draw 'N Plot uses a simple menu and a few function keys. It doesn't have as many features as the others, but what it has is easy enough to use. The instructions are adequate, especially if you are a programmer.

Paint 'N Print is easy to use on a regular basis but there are a number of keys that need to be memorized which makes it harder to get started.

TI Artist and Graphx are not perfect, but both are comfortable to use on a regular basis, and very easy to begin using. TI Artist makes extensive use of icons for users who prefer them but also allows the faster method of pressing function keys for the various commands for those who want to memorize them. TI Artist does requires switching between two main programs and several auxilliary ones which can get tiresome even though it is all done within the main program. Graphx, like Bitmac, uses some function keys but provides an identifying strip for the top of the keyboard which makes them quite easy to follow. Graphx also uses menu selection for the less used features. Of all the paint programs Graphx has the best manual, which can be used as a tutor as well as a reference.

A final word on two more items which are not covered on our check list: availability and price. Most of the programs listed on the chart are readily available and can be purchased at any number of places, including Dhein's. Prices given are those charged at Dhein's, and may vary from place to place: Joypaint, $39.95; Joy Paint's Pal, $9.95; Bitmac, $19.95; TI Artist, $19.95; Artist Extras, $6.95; Graphx, 39.95; Draw 'N Plot, $14.95; Norton Graphics Package, $7.95.

Paint 'N Print, produced by Navarone Industries, is also readily available. I occasionally see Master Painter 99 by Amerisoft still advertised, and I believe you can still get Draw-A-Bit and Print-A-Bit from Data Force in Illinois. Since these addresses are easily obtainable from your user's group officers (or from me), I won't repeat them here.

Super Sketch, alas, is no longer made. It is

included in the chart because there are still a lot of them in use, and you just never know when one might pop up for sale. Super Sketch is unique in that it has been the only pad and pencil type software released for the 99/4A.

Section Two: Getting Down to Details

Let's talk about drawing tools. In these packages the cursor is your "pencil" as well as your "eraser". The pencil can be moved around either by using the keyboard's arrow keys or by using a remote controlled "joystick". Some software requires joystick control. Then the fire button is usually used to turn the drawing tool on or off. To make truly curved lines with just the keyboard is practically impossible - you need the better control that a joystick has. On the other hand, it's harder to draw straight lines with a joystick; the keyboard does a better job there. Luckily, drawing programs can create lines, boxes and circles automatically.

Anywhere a joystick is required, a trackball can be used instead. The phenolic ball offers 360 degree movement for such fine control of the pencil that you can easily write your name in script. (I won't promise how it will look!) However, it is almost impossible to draw a straight line with a trackball. This is where the automatic line function in drawing programs becomes invaluable. If you are using a joystick or trackball be sure the alpha lock is in the UP position.

Cursor Speed Control - In many of the programs the speed of the cursor can be controlled. This is handy because if you are drawing large areas freehand, you can go much faster. When you want to work on painstaking detail then use a slower cursor for more accuracy.

Brush Styles - Instead of leaving a fine line like the single-pixel pencil, a brush applies "paint" for wider or fancier lines. Draw A Bit lets you paint in wide or narrow swatches of color. TI Artist includes angle brushes and brushes that make parallel lines like you would get from painting with a fork. Paint 'N Print, which has 32 brush styles includes circles, squares, and even triangles in a number of sizes.

Automatic Draw Functions - As mentioned earlier, all paint programs listed here will draw lines for you automatically. Select the beginning and end of your line, press a button, and presto - you have a perfectly straight line right where you wanted it. Some programs will also draw circles, ovals, rectangles and rays. A ray is like a line except that you can keep moving the cursor (pencil) around the drawing board, and wherever you choose to press the button, you can have a perfect line between the current cursor position and your original starting point.

Some programs will also draw ellipses and rectangles. For chart purposes, an ellipse includes circles and ovals, and rectangles include squares. Draw A Bit and the Graphics Package draw 90 degree arcs - four

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arcs make a circle. The various programs handle this function in different manners, but the principal is the same; select the center position and the size, and the figure is drawn automatically.

Filling, Shading, and Adding Depth - In all but two of the programs, closed shapes can be "filled", or "painted", with a specified color or pattern. The Paint 'N Print cartridge limits the filling to a rectangle only. But with the companion disk, any closed shape may be filled with any texture or solid color.

A manual fill requires the cursor to be moved around the shape as it is being filled, in order to get every little part of it. A semi-automatic fill does most of the shape in one pass; the occasional spots missed must be done manually. A fully automatic fill checks to see that every little corner has been filled - even in convex shapes. Sometimes this is called a "smart" fill.

Some programs provide patterns for shading and depth. Super Sketch has one texture pattern. TI Artist has 18 and Joy Paint has 24 from which to choose. Joy Paint also has an airbrush which works like a can of spray paint. It give a misty, sprayed effect in whatever pattern you are using. Because you can control the amount of "paint" that goes on the drawing, it makes an excellent tool for adding shadows and depth. Almost the same effect can be achieved with Paint 'N Print by using one of the larger brush sizes and switching to the texture mode. Bitmac has a feature called "Life" which can be used for getting a shaded effect.

Joy Paint and Paint 'N Print both have routines on their companion disks for creating new texture patterns. Once you have saved these patterns on disk, they can be used over and over.

Reflections - The chief application of this function is to draw symetrical figures rapidly and easily. The screen is divided into sections and whatever is drawn in one section will be reflected in all the others. In TI Artist this is called the MIRROR function, and the screen is divided into four parts. Other functions such as circle, frame, line, and zoom can be used while the mirror function is in effect. Paint 'N Print calls this function KALEIDESCOPE and gives you a choice of 2 to 8 reflections. Functions such as square, circle or fill may be used but result in only one image.

Picture Manipulation

Move, Copy, Flip, Rotate, Invert, Magnify and Reduce - When you have your picture underway, and more of an idea of what you want, you will appreciate features that let you alter the look of the drawing. Some programs let you copy one part of a picture to another part, move sections of picture around the screen, rotate, invert, or flip them; magnify or reduce parts. Invert means to turn all the "on" pixels off, and all the "off" pixels on - thus swapping black for white and white for black. Flipping a picture gives you a mirror image, either left to right (horizontal) or up side down (vertical) depending on which way you flip.

The only programs that have functions to enlarge or reduce drawings are Bitmac and Joy Paint, which can each double or halve the size of the selected image. For reducing a Joy Paint image, the companion disk, Joy Paint's Pal must be loaded. It can also be used for reducing parts of TI Artist or Graphx pictures. These pictures can then be resaved in the original format or switched to Joy Paint's file structure.

TI Artist drawings can also have parts saved to disk in an enlarged format by saving the screen when the zoom mode is in effect. This will give you a new picture that is four times the size of the original. For both reducing and enlarging, Joy Paint does the smoothest job.

Text Handling and Special Fonts - The more recent programs all have provisions for text to be used right along with the graphics. The nicest of these are Joy Paint and Bitmac, each with what almost amounts to a mini word processer built right in to the drawing board. With TI Artist, variable sized letters can be easily typed on the screen from the keyboard in 81 different heights and widths, but some of the letters are rather blocky looking. Four of the programs additionally contain special provisions for fancy lettering to be added to the drawings. Paint 'N Print contains a font editor which makes it easy to change the resident lettering. TI Artist provides an alpha numeric load function in the enhancement section of the program. Pre-designed fonts that are stored on the disk may be loaded into the program for an endless variety of lettering. Graphx stores fonts on the clipboard, and again there is an endless variety to choose from among the support disks. The letters to be used are laid out in the clipboard and then transported to the picture where you want them. Joy Paint 99 works much the same way; alphabets are stored in a regular picture file, and the Cut and Paste option is used to add them to your drawing.

Zoom Mode - Four of the programs have the ability to magnify a small part of the picture you are working on so that it temporarily fills the screen. This allows you to work on small details with a high degree of accuracy. Joy Paint calls this mode "fatpixel", Paint 'N Print calls it "magnify". TI Artist and Graphx call it "zoom". Joy Paint also displays a normal sized version of the graphics in the upper right corner of the screen so that you can see what your changes are going to look like as you make them. TI Artist lets you use other drawing functions while in the zoom mode - even to making a zoomed hard copy or saving to disk. While in the zoom mode Graphx provides a marker to show where color boundaries begin and end. If you happen to be using the grey checker board pattern used for marking color boundaries in Graphx, it will still be present in your zoomed in copy.

Paint N Print has a high degree of magnification. Each pixel is shown as a square eight times its original size. Each square is outlined in a fine black line and each block of 64 are outlined in a bold black line. The bold line marks the color boundary for each character

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block.

When the zoom function is chosen Joy Paint, TI Artist and Graphx all let the user choose which part of the screen will be zoomed by showing a box with which to enclose the desired area. In the Paint 'N Print environment, the place where the cursor is sitting when zoom is chosen becomes the central point of the screen, with the screen then acting as your "window" to a small but highly magnified part of the drawing. All of the drawing is accessible by scrolling it by this point, but the cursor never moves.

Section Three: Picture Storage, Color, and Unique Features

Scratchpad Memory - Most drawing packages have provisions for setting aside part of a picture and later adding it to another picture. This "scratchpad" memory can be handled in two ways: by saving a permanent version of the clipped picture onto a disk which you can reload as needed; or by storing the picture-part in intermediate memory where you can recall it when you need it, even though you have loaded new picture files in and out of the program since the picture part was saved.

When this type of picture-part is saved to a disk it should not be confused with a regular picture file. When a picture file is loaded into your program, whatever you had on the screen before is erased and gone, and the new picture takes its place. Picture-parts, however, are loaded IN ADDITION to whatever else is already there. These small pictures have become very popular with the drawing community so that they have their own special ters - clipart.

Each program is unique in its handling of this additional storage. Joy Paint uses internal storage for a Cut and Paste method much like the paint programs for other popular computers do. All screens are saved in the same format. When something is wanted from another picture, save the current picture first, then load in the picture to be borrowed from. "Cut" out the piece you wish to use. Reload the original picture and "Paste" the new part any where on the drawing.

Bitmac uses the "Store" function for internal temporary storage. Current screen graphics can be overlaid with graphics stored on a disk, using what is called "Boolean Input". This allows special graphics effects which are unique to Bitmac.

TI Artist also has unique storage methods. Besides the normal full screen picture files, parts of pictures can be saved as "instances" or "slides". Slides are a collection of up to 24 miniture designs that can be independently designed, rotated, and moved around on your drawing. Instances are images that can be added to your drawings or combined together in whatever manner you wish. They can become a permanent, editable part of your drawing. The nice thing about instances is that they are saved in a DISPLAY VARIABLE 80 format which can easily be transported to Extended Basic programs or TI Writer files

as well as being used for clipart.

Graphx has a very powerful "Clipboard" feature. With it you can create and store clipart permanently on a disk and it is also possible to copy a portion of one picture into another, much like Cut and Paste. A portion of a picture, or even several pictures, can be stored, then decided on later as to which ones to keep and which ones to erase.

Use of Color

In the high resolution mode each graphic position available to be used on our electronic drawing board is called a pixel. You may remember being told that the screen is like a grid with 256 pixels across and 192 pixel rows; and that each individual pixel on the screen can be turned off or on separately while you are drawing - all 49,152 of them! Right? Wrong, if you are using color!

Color resolution for the 99/4A is not the same as drawing resolution. We still have the same 192 rows of pixels, but instead of 256 pixels across, we have only 32 graphic positions across each row. Each row of pixels is grouped in eights, starting from the left of the screen, and each set must be the same two colors - a foreground and a background.

The foreground is the color assigned to the brush or pencil line in each eight-pixel group. The background is the color assigned to those same eight pixels when the pencil is not used. When you first begin using the drawing board, all of the eight-pixel groups have been assigned the same two colors. The color you see before you begin drawing is your background, and, of course, the pencil line is your foreground color. You may also see a third color in the form of a border around the perimeter of the screen. This is the screen color. If you don't see it, that means the screen has been assigned the same color as the background.

Now you can see why color resolution is 64 X 192 instead of the drawing resolution of 256 X 192. Any given group of eight horizontal pixels MUST be the same two colors. The groups on either side can carry entirely different colors, but each group is limited to two colors. Knowing this, and arranging your drawings according to the color boundaries is important when working with color.

Most programs make full use of the 99/4A's 15 brilliant colors, allowing control over the foreground and background colors, and in many programs over the screen color as well. Sometimes the screen color is called the "backdrop".

All programs using color allow the swapping of one color in a drawing for any other. When the exchange takes place, every incidence of that color on the screen is swapped for the new one. Additionally, some programs like TI Artist and Graphx allow selective repainting of a chosen area.

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Some of the programs provide special helps for working with color. TI Artist provides a function that lets a special color cursor move on color boundaries. Graphx does the same; also providing a "Grey and White Checkerboard" function which is handy for planning drawings which will use a lot of different colors. This makes it much easier to plan the various colors in your picture so that they don't bump into each other. When you no longer need the grid simply choose the "Remove Grey Boxes" option.

For special color effects, two programs that shine are Draw-A-Bit with its Redraw feature described elsewhere, and Paint 'N Print which includes five extra rainbow colors in varying widths of horizontal and vertical stripes. Draw 'N Plot makes limited use of color. Only two are used at any one time - foreground and background. These colors can be easily switched so you can see how the various combinations of color look together.

Besides the Graphic Package, which doesn't use color either, Joy Paint is the only major paint program not using color. Here the emphasis is on the manipulating of picture components, and color is used only as a background, with the pencil line alway being your choice of either black or white. Painting refers to filling shapes with the many patterns available, or using the air brush to "spray paint" an area with a chosen pattern.

A Slide Show is a method of presenting pictures in a selected order. Bitmac is the only program with this feature built in; Draw A Bit and Draw 'N Plot have disk demos that you can adapt for your own pictures. TI Artist has an excellent companion disk called Display Master that gives you many options in designing your own slide display. Asgard Software puts out a slide show program for Graphx files.

The Undo command lets you "take back" the last step of a drawing. If something was moved or erased that shouldn't have been, no harm done, just "undo" it. Joy Paint is the 99/4A's only program with this feature but it is quite common in paint programs for other computers.

Like Undo, each program has special features not shared by the others. If you are in the market for a new paint program, one of these might be just the feature you were wishing you could find. For instance, Joy Paint has a drawing area that is actually 92% larger than the screen. To see the rest of the drawing board, the screen is used as a window, and can be moved from side to side or up and down. When the screen dump program is used the whole area, not just what is visible on the screen, is printed.

Do you have a second computer that you have wished you could tie in to your 99/4A? The Bitmac software will let you do just this. When the coprocessor function is in effect, the other computer (not necessarily a TI) can manipulate data while the 99/4A is processing elaborate graphics from that data.

Bitmac has a Cursor Report feature which can be turned on or off as desired. It keeps track of the actual pixel location of the cursor. The program also lets you scroll your picture one pixel at a time to the right or left, up or down on the screen. This is handy for getting a drawing onto color boundaries, and also for special effects using the Boolean inputs AND, OR, and XOR.

The TI Artist instance file was already mentioned above as being excellent additional storage for clipart, because these files can be added so easily to any picture you are currently working on. The instance file is invaluable for using as a vehicle to transport your artwork to other mediums. Many support programs have been built around the ability of these instances to be so easily used, including Font Writer (Asgard), Art Convert (Trio+) and Character Sets and Graphic Design III (Texaments).

Besides being used for planning color in drawings, the unique grey box function in Graphx can be used for designing schematics and other precision drawings which require precise measuring.

The Graphx clipboard also lets you experiment with computer animation. If you store the appropriate images on the clipboard you can create short, animated sequences which you can display against a background of your normal Graphx pictures.

Like the Norton Graphics Package, Draw N Plot is primarily a programmer's tool. Unlike the Graphics package however, Draw 'N Plot has a very nice, full-featured drawing board. Also, the routines in Draw 'N Plot are in assembly language which considerably speeds up operations. Draw 'N Plot makes an excellent program to design your own Extended Basic programs around; however, memory can be a problem.

Draw A Bit is really a full-scale programmer's tool too, but the programmer must be somewhat conversant in assembly language as well as Extended Basic to use it with his own programs.

As you work in the Draw A Bit environment, your picture is automatically saved for you in intermediate memory. Any time you wish you may clear the screen and with the push of the right keys, redraw the picture, line for line. This is a fascinating procedure to watch. Pictures may also be saved in this Draw mode if desired. Also interesting to use is the Connect-Dots option. This is like a line function except that you plot all your dots first; then the lines appear when you are ready for them.

Built right into Paint 'N Print is a font editor that will let you easily change the shape of the resident alphabet. The companion disk additionally allows editing of the texture character for all sorts of special textural effects.

Paint 'N Print is the only drawing package which

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allows a screen dump to be in color, providing you have the right printer (the Axiom GP 700).

Super Sketch is the only program that includes a touch tablet. This graphics tablet, although deceptively simple looking, is a precision tool that accepts commands through a control arm which determines screen position. The control arm moves the pointer (your pen) around the tablet, and the computer keeps track of where this pointer is at all times. In this manner, any picture placed on the tablet can be traced onto the screen. The device is so simple that even a child can use it easily.

The Artist Extras package from Inscebot allows the use of the Super Sketch touch tablet with TI Artist. When used this way, the tablet becomes an integral part of the TI Artist program and the is used in place of a joystick or trackball to allow designed traced with the tablet to appear on the screen.

Section Four: Hard Copy, File Management and Extra Support

. Except for Super Sketch and Draw A Bit, which both have supporting disks that contain screen dumps, the drawing packages listed here all include built-in printer routines. The printer and the software package you use must be compatible. All of the programs listed are compatible with the TI Impact Printer which was made by Epson, so any printer that uses the same formats and codes as an Epson is also compatible. Paint 'N Print comes in a choice of three cartridges depending on which printer you have. Cartridge A works with the Axiom GP-100 and GP-700 printers. The GP-700 will give color printouts. Cartridge B is set up to work with the Axiom GP-550 and Okidata printers, and C is for the Epson compatibles, which include Star and IBM. The Extended Graphics Package which supports Paint 'N Print contains the routines from all three cartridges. Other printers that can be used with a particular drawing program are listed on the chart.

Screen dumps vary widely in several important respects, including size, density, and placement on the page. All details given here were gotten from screen dumps using the TI Impact printer. They should more or less apply to all screen dumps but there could be differences. A small size screen dump occurs when the screen image is copied exactly as shown, pixel for pixel. A larger dump has more printer dots per pixel - usually either 4 or 16 dots for each pixel, which can give a blockier effect from up close but looks great when the viewing distance is further away.

The size of the printout is also affected by density. On the TI Impact printer there are normally 60 dots printed horizontally per inch. This would make 480 dots per each 8 inch row. Double density prints 120 dots horizontally per inch, and some printers have an even higher dot resolution than that. Since the graphic image has the same number of pixels no matter what density is used, it will be only half as wide when printed double density as when printed in normal density mode. Most of

the packages listed here handle this factor for you by adjusting the line spacing when double density is used. Because of the difference in printers, and because screen graphics don't match up exactly pixel for dot with printer graphics you may still find some distortion in your printouts. On the whole, though, most paint packages produce a reasonable hard copy of your screen graphics.

Joy Paint gives you a choice of two dump sizes and either size can be single or double density. The small dump is centered on the page, and because Joy Paint uses 92% more area for graphics than other packages, it pretty well extends from one side of the page to the other (5 1/2 inches wide times 3 1/2 inches high). Three of these dumps will nicely center on a page, which, using three screens consectively, will produce a very good flyer. The large dump produces a horizontal picture 8" X 9" in size.

Bitmac also gives you a choice of large or small dump. The small dump places exactly one dot on the paper fo each dot in the screen to give a single density printout 4 1/4 inches wide X 2 5/8 inches high. You have a choice of centering the graphics, or placing them over to the right or left margin. The large dump is centered and is double density. On the TI Impact printer it is distorted quite badly, however, as it is the same heighth as the smaller picture, but 6 3/8 inches wide.

TI Artist gives you the most control over the final output for your hard copy. You have a choice of up to three magnifications and four densities depending on what your printer is capable of doing. You can also control line spacing when the printing is being set up. Using the TI Impact printer you can have a double density printout as small as 1 3/8 X 2 1/8 using a magnification of 1 and a line spacing of 4; or a printout which will fill an 11" X 15" large size paper with a magnification of 3, a line spacing of 8, and single density. And all this from the same screen image! Printing can also be done from the zoom mode.

All TI Artist printouts are centered no matter what the size. A single density printing that has been magnified twice exactly fills one-half of a standard page; two consecutive printings make a very nice flyer.

Graphx gives you a choice of two sizes, single or double density. The smaller (4 1/4 X 2 5/8) is printed at the left margin. The larger is half of a standard page - again, two screens make a nice flyer. Draw 'N Plot has one size, 4 1/4 X 2 5/8, single density. Paint 'N Print also has one large size single density printout. Paint 'N Print gives a choice of which part of the drawing will be printed - from a very small section up to the whole screen. . The drawing will be printed horizontally and in the upper left corner of the paper.

Sketch Mate, the Super Sketch companion disk, and the Master Painter program, both by Amerisoft International, have virtually identical printouts. Each

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is 7 3/4 inches wide and 4 5/8 inches high, single density. Each uses a technique whereby colors are assigned a texture (light, medium or dark) to simulate color. This gives pictures a very nice printed appearance. Each color is assigned a default setting which can be changed by the user if desired. The Paint 'N Print program also uses the technique of assigning a different print character for each color. The Draw A Bit companion disk also allows two printout sizes; single or double size, and each can be normal or double density.

The Norton Graphics Package doesn't actually contain a screen dump. Rather, it allows you to print out data that is needed to rebuild your graphics in your own program, either as Sprites or as Call Characters. This graphic data may also be saved in merge format on a disk.

File Management
Disk Catalog - It's handy to have a catalog available if you need to find out just what you did name a certain file, or even if it's on that disk. Only two programs perform this service - TI Artist and Joy Paint. Joy Paint also provides for deleting files.

Conversion Features and Compatibility - If you are intending to use pre-designed graphics either instead of or in addition to creating your own, file compatibility among the various programs becomes important because you will need a ready supply of artwork and clipart. The core program here is TI Artist. Not only is more ready-made artwork available for TI Artist than for the other paint programs, but TI Artist allows picture files from Draw 'N Plot, Graphx and Draw-A-Bit to be loaded in and permanently converted to the TI Artist format. Or, TI Artist files can be converted with TI Artist and loaded from any one of those programs. Instances, which are a very popular form for clipart, can be converted by first saving as a picture, then converting to an instance. CSGD graphics, which are another popular form of clipart, can be converted using any of several available programs including the Artist Extras companion disk. CSGD fonts can also be converted to TI Artist fonts using the same disk.

Joy Paint's Pal allows the conversion of Graphx, TI Artist, and Draw 'N Plot picture files to the Joy Paint format and visa versa. Joy Paint will also load the first of the two output files for Sketch Mate. It will not, however, load Bitmac files, even though Bitmac has the same Internal/fixed/128 format that Joy Paint does. This leaves Bitmac as the only major paint program to lack compatibility with the others.

Graphx does not have a file conversion feature, but it will load TI Artist files that end with _P. If you transfer the picture file this way you do lose the color. If the color is important the file must be converted to Graphx format within the TI Artist program first, then loaded into Graphx. Graphx will also load Joy Paint files that have been through the conversion program on Joy Paint's Pal.

If you are primarily interested in screen graphics

then file portability is important. This is the ability to move picture files into another environment without a great deal of programming; for example being able to move a picture you have drawn in TI Artist into your Basic program. This ability is built in to TI Artist's instances, slides and font files, which has caused a great many support programs to be written, both commericial and as shareware.

Draw 'N Plot and the Norton Graphics Package can easily be used by the average Extended Basic programmer. In the same way, Draw A Bit and Graphx adapt easily for assembly language programmers. Portability for the rest of the programs is limited.

Additional Support
In many cases the manufacturers themselves are doing a good job of supporting their paint programs. Great Lakes Software puts out clipart disks for Joy Paint, as well as Joy Paint's Pal, which has routines to allow file conversion, creation of new patterns, and a reduction feature. Great Lakes also supports a user-drawn base of Joypaint clipart. Their Extended Business Graphs II, while a stand alone package, has file compatibility with Joy Paint.

Besides Artist Extras, Inscabot has released Display Master for the TI Artist which lets you add captions to your drawings and show them in any sequence. Quality 99 Software has some disks of very good artwork out for Draw 'N Plot. A volume of artwork was also released for Bitmac.

Other software producers have also done their share. Asgard Software has released several Graphx Companion sets that contain clipart, full pictures, fonts and animated sequences for the Graphx environment. They are a veritable gold mine of art and ideas for your own creations. Asgard has also released a disk for TI Artist that contains some of the same artwork imported to the Artist environment, but you can still use the Graphx Companions with TI Artist or JoyPaint if you don't mind making the conversions. Asgard has also released Graphx Pictures which contains more of their outstanding artwork – 24 pictures – and a Slide Show program with which to show them.

Trio+ Software has released some excellent artwork for use with TI Artist. Each 2 disk package includes pictures, clipart, fonts and slides.

Texaments handles the Artist Companions authored by Dave Rose as well as the whole CSGD series. One of the best and most prolific sources of instances and fonts for TI Artist actually started out as clipart for another program – Character Sets and Graphic Design by David Rose. But that's a whole new story so it'll be saved for Part three.

Otherwise, the chart has been covered and you should now have a much better understanding not only of what can be expected of paint programs in general but the strengths and limitations of any particular package.

TI 99/4A DRAWING PACKAGES - COMPARISON CHART

FUNCTION	JOYPAINT JoyPaint Pal	BITMAC	TIARTIST Artist Extras	GRAPHX	DRAW 'N PLOT	PAINT'N PRINT + disk	SUPER SKETCH Skaate	MASTER PAINTER	DRAW A BIT Prnt-Bit	NORTON GRAPHIC PACK
Program Focus	E,T	E,T	T,E,U	E,T	U,T,E	E	E,T	E	E,U	U
Requirements	Any	XB EA MM	Any	XB EA MM	XB	StndAl**	StndAl**	XB EX MM	XB	XB
Ease of Use	6	3	5	5	4	4	6	2	2	1
Method of Operation	Icons, Menus	Icons FcnKeys	Menus Icons	Menus Keys	Menu Keys	Keys	Menus	Icons Fnc Keys	Menu Fnc Keys	Menu/ Keys
Joystk Control	Required	Required	Optional	Required	Optional	Required	No	No	Optional	No
Cursr Speed Cnt	No	5 speeds	2 speeds	5 speeds	2 speeds	No	No	No	No	
Brush Styles	7	9	8	1	1	32	9	4	1-pixel	3
Automatic Draw Functions	Lines, rectngls ellipses	Lines, Circles, Rectngls	Line,Ray Circles, Rectngls	Lines, Ellipses	Lines	Line,Ray Circles Squares	Line,Ray Rectngls	Lines, Rays	Lines, Rays,Arc	Lines, Parabola ellipses
Fill / Shade, Depth	AutoFill 24 Patrn AirBrush	Manual Color Life	AutoFill Col/Pat Yes	SemiAuto Color No	SemiAuto Solid No	SemiAuto Yes*	AutoFill Col/Pat Yes	No No	Manual No	No No
Reflections	No	No	Yes	No	No	Yes	No	No	No	No
Move, Copy	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No
Flip, Hor/vert	Yes	H only	Yes	No	No	Yes*	No	No	No	No
Rotate	90 deg.	90 deg.	Slides	No	No	No**	No	No	No	No
Invert	Swapbits	Yes	Yes	No	No	Yes*	No	No	No	No
Magnify, Reduce	Yes	Yes	Mgnify**	No	No	No	No	No	No	No
Text handling / Special fonts	Yes Yes	Yes No	Yes Yes	Yes Yes	Yes No	Yes Yes	No No	No No	No -	No No
"Zoom" Mode	Fatpixel	No	Yes	Yes	No	Magnify	No	No	No	No
Scratchpad Mem ("Clipboard")	Cut and Paste	Store B. input	Instance Slides	Clipbrd	No	Yes	No	Symbols, Store	Palette	No
Use of Color	No	Full Use	Full Use	Full Use	Limited	28 colrs	Full Use	Full Use	Full Use	No
Slide Show	No	Yes	No**	No**	Yes	No	No	No	Yes	No
Undo	Yes	No	No	No	No	No	No	No	No	No
Spec. Features	Larger Wrk Spce Pat Edt*	CoProcsr CrsrRprt Pic.Scrl	Instance custmize	Animate frm Clpb GridTool	9 Addl Commands for XB	PatrnEd Rainbow Colors	Touch Tablet		Redraw Connect-Dots	Cassette version too!
Printer	Epson Axion	Epson, TI 850/5	Most Printers	Epson	Epson	**Most Printers	Epson	Epson	Epson	** Most Printers
Screen Dumps	2 sizes 2 dnsty	Small SD Med. DD	Wide Ch Size,Den	2 Sizes 2 Dnsty	1 Med	1 Large NormDnst	1 Large NormDnst	1 large NormDnst	2 sizes 2 dnst	No
Disk Catalog	Yes	No	Yes	No	No	No	No	No	No	No
File Convrs Ftr	Yes*	No	Yes	No**	No**	No**	No**	No	No**	--
F/Portability	Not at Present	Limited	Easily	Prog Skl in Assem	Prog Skl in XB	No	No	No	Prog Skl in Assem	Easily to XB
Addl Support	Some	No	Lots	Lots	Some	No	No	No	No	No

* Starred features are found on the companion disk listed under the main package   ** See chart notes

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TI 99/4A DRAWING PACKAGES - COMPARISON CHART

FUNCTION	JOYPAINT JoyPaint Pal	BITMAC	TIARTIST Artist Extras	GRAPHX	DRAW 'N PLOT	PAINT'N PRINT + disk	SUPER SKETCH Skeate	MASTER PAINTER	DRAW A BIT Prnt-Bit	NORTON GRAPHIC PACK
Program Focus	E,T	E,T	T,E,U	E,T	U,T,E	E	E,T	E	E,U	U
Requirements	Any	XB EA MM	Any	XB EA MM	XB	StndAl**	StndAl**	XB EX MM	XB	XB
Ease of Use	6	3	5	5	4	4	6	2	2	1
Method of Operation	Icons, Menus	Icons FcnKeys	Menus Icons	Menus Keys	Menu Keys	Keys	Menus	Icons Fnc Keys	Menu Fnc Keys	Menu/ Keys
Joystk Control	Required	Required	Optional	Required	Optional	Required	No	No	Optional	No
Cursr Speed Cnt	No	5 speeds	2 speeds	5 speeds	2 speeds	No	No	No	No	
Brush Styles	7	9	8	1	1	32	9	4	1-pixel	3
Automatic Draw Functions	Lines, rectngls ellipses	Lines, Circles, Rectngls	Line,Ray Circles, Rectngls	Lines, Ellipses	Lines	Line,Ray Circles Squares	Line,Ray Rectngls	Lines, Rays	Lines, Rays,Arc	Lines, Parabola ellipses
Fill / Shade, Depth	AutoFill 24 Patrn AirBrush	Manual Color Life	AutoFill Col/Pat Yes	SemiAuto Color No	SemiAuto Solid No	SemiAuto Yes*	AutoFill Col/Pat Yes	No No	Manual No	No No
Reflections	No	No	Yes	No	No	Yes	No	No	No	No
Move, Copy	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No
Flip, Hor/vert	Yes	H only	Yes	No	No	Yes*	No	No	No	No
Rotate	90 deg.	90 deg.	Slides	No	No	No**	No	No	No	No
Invert	Swapbits	Yes	Yes	No	No	Yes*	No	No	No	No
Magnify, Reduce	Yes	Yes	Mgnify**	No	No	No	No	No	No	No
Text handling / Special fonts	Yes / Yes	Yes / No	Yes / Yes	Yes / Yes	Yes / No	Yes / Yes	No / No	No / No	/ No	No / No
"Zoom" Mode	Fatpixel	No	Yes	Yes	No	Magnify	No	No	No	No
Scratchpad Mem ("Clipboard")	Cut and Paste	Store B. input	Instance Slides	Clipbrd	No	Yes	No	Symbols, Store	Palette	No
Use of Color	No	Full Use	Full Use	Full Use	Limited	26 colrs	Full Use	Full Use	Full Use	No
Slide Show	No	Yes	No**	No**	Yes	No	No	No	Yes	No
Undo	Yes	No	No	No	No	No	No	No	No	No
Spec. Features	Larger Wrk Spce Pat Edt*	CoProcsr CrsrRprt Pic.Scrl	Instance customize	Animate frm Clpb GridTool	9 Addl Commands for XB	PatrnEd Rainbow Colors	Touch Tablet		Redraw Connect-Dots	Cassette version too!
Printer	Epson Axion	Epson, TI 850/5	Most Printers	Epson	Epson	**Most Printers	Epson	Epson	Epson	** Most Printers
Screen Dumps	2 sizes 2 dnsty	Small SD Med. DD	Wide Ch Size,Den	2 Sizes 2 Dnsty	1 Med	1 Large NormDnst	1 Large NormDnst	1 large NormDnst	2 sizes 2 dnst	No
Disk Catalog	Yes	No	Yes	No	No	No	No	No	No	No
File Convrs Ftr	Yes*	No	Yes	No**	No**	No**	No**	No	No**	--
F/Portability	Not at Present	Limited	Easily	Prog Skl in Assem	Prog Skl in XB	No	No	No	Prog Skl in Assem	Easily to XB
Addl Support	Some	No	Lots	Lots	Some	No	No	No	No	No

* Starred features are found on the companion disk listed under the main package   ** See chart notes

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MARKETPLACE
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(the marketplace is a fund raiser for the club, that is, the "profit" goes to maintain the quality of this News- letter. In general the price listed splits the difference between cost and retail. Please help your Club.)

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SPECIAL - SUPER EXTENDED BASIC by Triton - code by MG & friends    50.00
                                                         plus P&H    2.50

     MILLERS GRAPHICS
DISkASSEMBLER                 18.50  ORPHAN CHRONICLES (PRICELESS)    9.95
ADVANCED DIAGNOSTICS          18.50  NIGHT MISSION                   18.50
GK UTILITY I                  10.00  SMART PROGRAMMING FOR SPRITES    6.25

     GENIAL COMPUTERWARE
XBasher    (MIKE DODD)         9.00  XB:Bug    (J.PETER HODDIE)      12.00
GRAM PACKER (JPH)      "       9.00  REMIND ME! (JOHN JOHNSON)       12.00
PC TRANSFER (MD)              20.00  FONT PACK I (JPH)                9.00
GRAPHICS EXPANDER(JPH)         9.00

     RYTE-DATA
GPL SETS (INCLUDING ASSEMBLER  50.00  COMMAND DOS (MONTY SCHMIDT)    20.00
   AND LINKER, 4 DISKS                SUPER CLOCK SUPPORT            13.50
BASIC COMPILER                15.00

     BYTEMASTER (R. MITCHELL)
MG EXPLORER (UNPROTECTED)      20.00  STRINGMASTER                   16.00

KRACKER FACTS (MIKE DODD, ED.) 5.00  UTILITIES DISK/DOCS (T FREEMAN) 8.00
ORPHAN SURVIVAL HNDBK(ALBRIGHT) 15.00  JOYPAINT                      30.00
JOYPAINT PAL                   7.50  PRE-SCAN IT! (J.PETER HODDIE)  10.00
FONT WRITER II   (JPH)        19.00  PRINTER'S APPRENTICE (M.McCANN) 19.00

     MYARC PRODUCTS, INCLUDING GENEVE - check for discount prices

     INSCEBOT
TI-ARTIST                     15.00  DISPLAY MASTER                 12.00
ARTIST EXTRAS                  6.00

     MEGATRONICS
EXTENDED BASIC II PLUS        72.50  INTERN (BOOK ON GPL)           16.50
128K GRAM CARD               227.50

     HARDWARE & SUPPLIES
TEAC 55BV DSDD DRIVES         90.00  DISKETTES DSDD                    .50
TECHNICAL AND BUSINESS BOOKS   5.00

     REPRINTS
HANDY REFERENCE GUIDE          2.50  LOGO DIGEST                     2.50
BEST OF NEWSLETTERS W/DISK     5.00  FORTH NOTES VOL 1-6 (2.50 EA)  10.00
BEGINNER'S FORTH NOTEBOOK      2.50  ASSEMBLY NOTES VOL 1            2.50

     BACK ISSUES
SUPER 99 MONTHLY               1.25  MICROPENDIUM                    1.25
SMART PROGRAMMER   JUNE 1986   1.50
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(please send your order to the CLUB address, not the Librarian, and add $1.00 per ITEM for P & H ($2.50 for Super XB). CA residents add 6.5% tax).

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RAFFLE   RAFFLE   RAFFLE   RAFFLE

The Club Raffle for the months of November and December is for
a US Robotics Sportster 1200 Modem. This is a very compact
modem, but it is fully Hayes compatible, with auto answer and
auto dial capabilities. "Bulletin Boarding" is one of the
most enjoyable activities we can do with our computers, and
all you need besides your RS232 card (which most of you al-
ready have) is this modem and a terminal emulator program, of
which we have several in the library (!) .

In order to induce you to buy as many tickets as possible -
this is after all a fund raising activity for the Club - the
price of tickets has been modified so that the more you buy
the cheaper each one becomes. Remember that the more tickets
you buy the greater chance you have of winnning.

Because of the lateness of the last issue the actual drawing
will be at the January meeting. This gives our national and
international members a chance to join in.

N A M E _____

A D D R E S S _____ _____

C I T Y _____

S T A T E , Z I P _____

    1 TICKET $2.00 _____
    3 TICKETS $5.00 _____
    7 TICKETS $10.00 _____
   11 TICKETS $15.00 _____
   15 TICKETS $20.00 _____
   20 TICKETS $25.00 _____
   25 TICKETS $30.00 _____
   30 TICKETS $35.00 _____
   36 TICKETS $40.00 _____
   42 TICKETS $45.00 _____
   50 TICKETS $50.00 _____

REMEMBER NEXT MEETING - Wednesday Jan. 27, Torrance Public Library, 7 PM

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