 **UJ-ding**

from New Jersey/North

March & April 1989

Volume 7 Number 3 & 4

Officers:

President..Walt Macleski...868-6903
Veep..Jerry Stockler..516-735-9517
Editor...Henry Hein.....607-988-7789

Treasurer...Frank Filice...384-8797
Secretary...Jim Ott.....790-6052

Next Meeting: April 25th, at Bergenfield HS Faculty Rm 7 pm

Motto: We are a family enjoying the unspeakable peace and freedom of being orphans (Paraphrase of G.B. Shaw "Major Barbara")



Spring is sprung! The grass is ris'!
April showers bring Mayflowers?

New Jersey UG/North
P.O. Box 84
Dumont N.J. 07628



Dallas TI Computer UG*
PO Box 29863
Dallas, TX 75229

User Groups: Please Reciprocate

Tidings
from NewJUG/North
P.O. Box 84
Dumont, NJ 07628
Volume 7 nos. 3 and 4
March and April, 1989

Editor: Henry Hein
R.O. #1, Box 343 A
Otego, NY 13825
607-988-7789

***** NEXT MEETING DATE *****
April 25th, Dumont H.S. Faculty Lounge
at 7:30 P.M.

This newsletter is for members of the above Texas Instrument 99/4a computer user group and exchange NLS with like groups nationally and internationally. We make every effort to give credits to authors of articles we borrow and hoping they would do likewise of any ORIGINAL materials found herein.

The above US does not take responsibility to its members for using any damage to equipment due to inaccuracies of authors' tips on hardware or software modifications that may be found herein.

Editor's Note

Due to a number of pressing personal priorities (alliteration intended) a separate March issue of this NL could not be prepared in time for publication. With my apologies to members and exchange NL. I hope to make up for it by putting out this double issue, not necessarily in size or quantity, but I hope in quality, with a page on IBM/clone news.

For my fellow club members I'll volunteer my reasons. One of my children will be married soon, so planning and preps are under way. Among other things, TAX preps are driving me crazy! This new ~~3%~~ tax law is outrageously complicated! And guess what! For those of my friends earning ANY income in NY Watch Out! This crazy Cuomo will tax you, yes Jerseyites, will base your tax on your WHOLE income, including that earned from NJ!

Well, New York got 'Careyed' away twice, New Jersey got 'Byrned' twice, New York got 'Cuomofield' twice, and New

DONE WITH TIW & QUADCOLUMN ON NX-1000
USING Orator/Elite font 160 char/line
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Jersey got 'Keaned' twice again! So what else is new?

Also, it may happen again this summer, a double issue, that is. After the wedding I expect to give me and my wife a gift of taking a tour of the old U.S.A. and Canada for TWO months.

FEBRUARY'S MEETING MINUTES:
By James Ott

The meeting came to order at 7:30 with an attendance of 9 members. Not very much business was conducted due to the small turnout.

Our president started the meeting by discussing how he didn't get a good response when placing an add to buy a used TI console. It seems like the ones who keep them in the closet still want to hang on to them.

The next topic discussed was the club library. Walt checked with Andy Westner about joining us again as librarian, but the latter declined saying that he wasn't doing much with TI these days. Walt did get some of the programs from Andy to review and find that some lacked documentation. They were mostly old programs, many of which were greatly improved upon or outdated.

Our treasurer reported a balance of \$288.36. (Still) not much to work with through the year, Ed.)

Roger Harrison brought in some of his surplus TI and Commodore items to sell. Some of the items were a P-Box, Joysticks, entire collection of 88er magazines, super stretch, and books on 8800 hardware. Most of the items were sold.

Frank Lees gave a demo of Master Disk. This is one of the better programs for making a catalog of all your disks.

Next meeting I will give a demo of MEMULOADER.
Respectfully,
Jim Ott

MARCH'S MEETING'S MINUTES
by Jim Ott

The March meeting came to order at 7:20 with an attendance of 9 members. The discussion began with a way to get around the big bulky cable for the expansion box. Jim Lambert informed us that he purchased a slimmer cable from TENEX that works well. This is an extension cable that you plug the

existing cable into. It is available from TENEX for \$25. Price IS high, but where else can one get it!?

More was discussed on the club library. Some of the programs were discussed by Herman Follick. Herman gave a discussion of some of the programs he reviewed.

The meeting adjourned and was followed by some disk checking. I followed with a demo of MEMULOADER. It is used to provide a selection of menu to run programs that use the E/A module, using a minimum of disk space for the menu program itself.

John Bonito then gave a demo of WORD COUNT. This program can scan any D/V 80 file for the number of words in the file. Good for high school and college essayists.

Our Treasurer reported a balance of \$288.

Ramb'lings
by Henry

Trying to catch up on my reading I spied a lot of interesting info on FAX's in February's *Computer Shopper*. It appears that the basic TI equipment could never handle it, alas! We need the KB's or Megab's of the BIG memory machines. The same may be true of laser printers discussed in the March issue of the same Journal. Since none of the articles mentioned anything about compatibility with ANY TI product (even the PRO) one may be very wary about buying one. Of the latter, are they compatible with EPSON commands in both text and graphics mode? I haven't heard or seen anything written to substantiate it. I'm sure the GENEVE IS! At least it gives the TI 99/4a the memory to handle them. My queries in these columns have not been answered, perhaps not even picked up by anyone, yet.

Again, in the March issue, is a critique on a whole new generation of printers, besides the lasers. Many of them are EPSON compatibles, thus TI compatible. No, I won't even think of lasers until the prices come down to half. Meanwhile, one could get near laser quality with a 24 pin printer. I've seen them in action producing such a fine quality of print, both text and graphic, to rival lasers. I've seen the Panasonic 1524, Star, Epson, Citizen, and a few others. All are excellent, and almost all have, to some extent,

multifonts built in. Some have multifont cartridges. Of the ones mentioned above the Panasonic has so many built in who needs cartridges?

This magazine, along with MICROPHOTUM, still carries articles on the TI, though the latter is exclusive. Thanks to Frank Filice's frequent indexing for us or we would hardly know it.

Oops! I've tried to do it and it didn't work. Following the instructions of two professional WP's on my IBM clone on the TI, though the latter is I followed to a 't' each instruction to format a page, reformat, columnize, save, recall, edit and reedit, I still came up dry. The programs I used DO NOT do what they say, that is, without more manipulation. Thank God I didn't give up this beastie! There's only one thing they can do that the TIW can't. It can hold more text in memory, but, even with 64K, believe it or not, only 10 times more per file than my 48K TI. Shame on you IBM programmers! It seems like the 'better' the program the less data it can hold in RAM.

Little did I realize it until I tried it. Double columnizing 80, yes 80, column texts, (though without a margin) on my Star MX-1000! Hear that, Bill? That's 20 READABLE col's, guys! Gotta try a fix on Tom Freeman's QUADCOL program to get it done on this beastie. This printer came in handy when I tried to save paper and printing costs successfully while making up a monthly church bulletin on four pages.

Star, you did well! Hey, Tom F., can you help us out with that old faithful program of yours? Note, it uses Epson LX code, and seems to work well with FX as well, though not entirely.

As for other uses with TIW, it seems very compatible, except when using .TL commands. Some are different, and when using QUADCOL I get some strange results and the fix eludes me, so far! Otherwise, it works well with TIW generally.

Getting back to printers for a moment, we must consider the fact that it's the programs that REALLY run them. They are STUPID, yet OBEDIENT beasts, these printers. The older type had even less talent. The NEW crop have some additional features built in. Most important of these talents is extra fonts, accessible through programs designed for them, or better yet, through membrane touch controls, dip

switches, and in some cases, extra cartridges designed for them. Those that boast near letter quality, for the most part, do letter quality, for all practical purposes. You couldn't tell them apart from the output of a GOOD typewriter. Further, they have proportional printing capabilities that once made the old style printers out of range for the ordinary user. My MX-1000 has extra fonts, proportional printing, and, if needed, 160 characters per line of print. Readable, too! The only drawback is that the ribbons use up ink too fast and the ribbon cartridges cost more than most others in its line. Of course I reink my own. Maybe a little uneven sometimes, but it sure saves a lot considering the amount I use it.

For use with the TI though, I still go with my SG-10. The latter, however, isn't quite as prolific, but I haven't really hooked it up for any serious work, yet, though when tested it worked very well except with Tom Freeman's QUADCOL program. In printouts I get a strange result in that a line of type appears in the first line, first column, instead of where it should be, on the last line, first column.

I think the fix may be to eliminate one of the blank lines made by the FORMATTER TIW program. Gotta try it sometime.

NEWSBYTES

By Henry

What? You haven't read April's Computer Shopper? There you can get an idea of what's available for the TI from two sources ON DISK for only a small fee of one or two dollars. The LA 99ers just released a list ON DISK of 718 sectors listing SHAREWARE and PubDom programs from different sources in their library available to YOU! again, for a modest copying/mailing fee. The disk is being distributed soon among you, I hope, before April's meeting date. Listed are the most up to date programs available to us as well as some of the better oldies you may not have heard of.

Jim Peterson sent us a sampling of his many routines which, when MERGED with some of your XB programs, provide the latter with some tricks for games, video enhancements, sound, music, speech, keyboard manipulations and MORE. This is only a sample! Imagine if you

had all of his NUTS AND BOLTS!

He also included three pages of his latest "TIPS FROM THE TIGERCUB" columns which once was featured here some time back. Jim Peterson also includes an extensive listing of shareware and pubdom available to us which he will provide you, on request, for a copying fee. He also indexed his 'TIPS' columns for you to pick and choose which volume(s) you would like to have. Why not ALL?

EDITORIAL

It's absolutely amazing how users volunteer to do an amazing amount of work to keep our little beastie alive and well as a viable utilitarian device for home and professional use. The LA 99ers put together a great catalog. Jim Peterson still serves us, though he tries to keep it a well deserved livelihood. The two others mentioned in April's Computer Shopper also deserve praise for their efforts. Besides the software, the enhancement hardware some have developed in user workshops are available to us. However, some of the latter have been precipitously dropping out of the market. The GRANKRACKER went its way more than two years ago. The cheaper SUPERCARTS have replaced them. GENEVE is still going but believed just making even. RWDISKS, double, and quad density fixes for drives, mini and hard drives are now available. The TI seems to have everything available a viable computer needs to do what YOU want it to do. Upgrades are here, and the folks making them are giving up for lack of customers. Can all of us be happy with what we have or are we giving up?

NOT TOO PERSONAL

Walt: Sorry for not answering your note sooner, Walt. Your problem may be in the program's PRINT statement. Looks like you have a nice high-speed Appointment Calendar program. Have you demo'd it to the club? P.S., if your ribbon is weak why not setting your dip switch to WLO for extra clarity, or the PRINT command, after saving original program aside for safety, for overstrike mode? If ribbons are hard to come by, try my reinking method I wrote about a

few months back.

Frank: Thanks for your GLEANINGS. Just completed an article on the stuff you sent. Hope it gets published. No, NOT computer stuff, professor! Just professor stuff! When are you getting your Double Sided drive? Two half heights can fit into your Pbox, y'now!

John B.: Will try to fill your disk and return soon. Any more goodies? Anything special you like for TI or IBM? Keep in touch.

Bill S.: Still have your six blank disks. Will fill, SOON!

Jim O: Thanks for the Minutes: Is your portable an IBM or clone. How does it do graphics? Does it have EGA or CGA? Keep in touch!

Jim Peterson: Many thanks for your catalog and TIPS sampler. I'm still encouraging the club to BUY! Your stuff IS really worth it!

LA 99ers: Wow! What a CAT! Now our club KNOWS what they're missing! Many thanks, and hugs and kisses!

Dan Rosenkis: WELCOME BACK! I'm out of back issues but will try to make a couple for you! I've got a lousy hard copy file! Be patient, and keep TIing.

Art Byers: Thanks for your TAX ESTIMATE program for 88. Hoping our Congress doesn't change its mind for next year. Looks good!

Sorry about the TICOFF, folks. I guess they couldn't get the P.A. working to announce the events. I know that Bob Guellnitz worked hard to get everything together. Even the best intentions can be foiled. Nevertheless, I think it was a success, from what I hear.

Gleanings from Micropendium

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Gleanings from Micropendium

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cards

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READING GLEANINGS

By Henry Hein

NOTE: It is a tough assignment for me to catch up on reading items in our exchange NLS for excerpting. Many articles are small and hard to cut and paste because of the various sizes and type faces the articles use. To get them into this NLS requires a lot of time spent determining what is appropriate and best. It's a judgment call and I'm afraid I may have been remiss in the past in serving club members. But when they do not communicate with me about what they'd like to see I feel I have to be sole Judge and Jury as to what I feel is worthy for editing and reprinting. It does take a lot of my time, what little I have, and typing them out even more!

FIRST- The funny stuff!

An article signed with the pseudonym of Ted E. Bear of Pipe Dreams, Ltd. appeared in the NW Ohio 99er titled NEW LANGUAGES for the 99/4A:

FIFTH- This is a precise mathematical language in which data types refer to quantities. The data types range: from CC, CLINCE, SHOT and JIGGER to FIFTH, (hence, the name of the language), LITER, MAGNUM, and BLOTTO.

Commands refer to ingredients such as:

CHABLIS, CABERNET, GTN, VERMOUTH, VODKA, SCOTCH, BOURBON, COORS, BUD, and WHAT EVER IS AROUND.

Rumor has it that this is the 99/4A owner's favorite of all the 99/4A languages and it has even been dumped into GRAPHACKERS. You get loaded faster that way.

DOG0- Developed at NIOT (Massachusetts Institute of Obedience Training). DOG0 heralds a new era of computer literate pets. DOG0 commands include: SIT, HEEL, STAY, PLAY_DEAD, and ROLL_OVER. An innovative feature of DOG0 is the 'puppy' graphics. This is a small Cocker Spaniel that occasionally leaves 'deposits' as it travels across the screen.

VALGOL- From its modest beginnings in Southern California's San Fernando Valley, VALGOL is enjoying a dramatic surge in popularity across the country. It has been adopted by many of the more youthful 99/4A programmers. VALGOL commands include: REALLY, LIKE, WELL, and Y*KNOW. Variables are assigned with the =LIKE and =TOTALLY operators. Other operators include the California

Booleans, AX and NOWAY. Repetitions of code are handled in FOR - SURE loops.

Here is a sample program:

```
LIKE, Y*KNOW (I MEAN) START IF PIZZA
*LIKE BITCHEN AND GUY *LIKE TUBULAR AND
VALLEY GIRL *LIKE GRODY**MAX
```

THEN

```
FOR I *LIKE I TO OH**MAYBE 100
```

```
DOMAH - (DITTY**2)
```

```
BARF(1) =TOTALLY GROSS OUT
```

SURE

```
LIKE BAG THIS PROGRAM
```

REALLY

```
LIKE TOTALLY (Y*KNOW)
```

IM*SURE

GO TO THE MALL

VALGOL is characterized by its unfriendly error messages. For example, when the user makes a syntax error, the interpreter displays the message:

GAG ME WITH A SPOON!

REAGAN- This language was developed in California, but is now widely used in Washington, D.C. It is the current subset of the international bureaucratic language known as DOUBLESPEAK. Commands include: REVENUE ENHANCEMENT,

CAP WEINBERGER, CABINET, CHOP WOOD AND SCENARIO. WATT and BUFORD have been removed from the commands while there is a current effort to add NEESE.

The Operating System used is NEW RIGHT and the designated memory is THE_RANCH. The compiler SCENARIO is a compile with NANCY, followed by a link with BONZO, resulting in a SNOOZE. Program bugs, called COMPIES, are removed with the GRAMADA command. A program written in REAGAN commences with a LANDSLIDE and terminates with SENILITY.

(On the REAGAN language, above, I might have been taken aback! But I can laugh. That grand old guy from the GOP was on top even after serving us for 8 years. Even I wish I could get some work done while sleeping! ED)

The OZARK 99er editor offers some hints to avoid eyestrain, stress, and headaches when working with computers. One is to blink often! Others are to keep the terminal at eye level or slightly downward, sitting upright, with both feet on the floor. Next, when 'typing' do NOT rest the heel of your palm at the edge of the keyboard. Elbow and arm bend should be approximate 90 degrees.

Jean Hall of Columbus, Ohio wrote a brief review of 1000WORDS program. Dena'd a few months ago to our group and not too well received should read this

excerpted review. It may have more to offer than we thought.

She wrote: "1000 WORDS is a utility program to use with TI-WRITER to convert picture files from TI-ARTIST to D/V 80. In this way you can then print graphics and text by using the Text Formatter of TI-WRITER. It is written in assembly and very fast.

"You will need TIW and TIARTIST programs to utilize 1000WORDS. The program is menu driven and if you go step by step through the documentation you can get the results you desire on the first try. Norman (Rokke, the author) includes some demo files for you to try.

"When you only use one file, it will be centered on the page for you. When using two files to create a full page of graphics you use the CREATE OVERLAP FILE and create the left side of the picture first. Then with the create overlay feature (that allows you to see about 1/2 inch of the picture you created for the left side) you line up the picture for the right side so you can get your designs even. This is done with TIARTIST. At this point you return to 1000WORDS and it will produce a TIW file in about one minute.

"You are also allowed to insert an (.IF DSKN) when you do your conversion. This enables you to run your graphics files and text files one right after the other. Neat!!

"Norman has written a wonderful convert program and it is fairware. Please send him \$10 for this neat program. Thanks Norman for 1000WORDS, another great contribution to the TI world. This program can be had from the author at 231 Woodridge Dr. Apt. B 29A, Wintersville, OH 43952."

This endorsement by Jean Hall may be significant for those who are interested in making their TIs do some DTP, on a fun level, at least. ED.

GENEALOGY, or setting up a family tree is another pastime of computer users. Getting a family tree together for posterity may be a challenge to start out with but more and more people of 'traditional' families, having a pride in them, can do well in gathering data, at their leisure and adding new discoveries of the past to update their records. It could be as interesting as stamp collecting, or other kind of hobbies which involve some research. Programs like this have been available for some time for other computers and now for TI

in E/As fast data manipulations. Check your disk catalogs sent to us from LA or Jim Peterson. Bill Berendts of the Ozark 99ers says it is a must for those Tiers who like this sort of thing.

MORE HUMOR: About a year ago February Earl Raguse, a frequent contributor to the ROM NL, a California TI UG, wrote this list of proverbs under the title, TECHNOSPEAK. Though a critique of verbosity, or use of superfluity in verbal communications by bureaucrats, he gives ample examples of overstatement. Here goes: (With my translations, ED)

1) Avian species of identical plumage congregate (Birds of a feather flock together)

2) Freedom from encrustations of noxious substances is contiguous to conformity with divine prescription (cleanliness is next to Godliness)

3) Pulchritude possesses solely cutaneous profundity (beauty is only skin deep)

4) Ululate not, over precipitated lactea secretion (don't cry over spilt milk)

5) All that coruscates with resplendence will not assay auriferous (all that glitters is not gold)

6) The existence of visible vapors from ignited carbonaceous materials confirms conflagration (where there's smoke there's fire)

7) A superannuated canine is immune to indoctrination in innovative maneuvers (you can't teach an old dog new tricks)

8) Mendicants are interdicted from elective receptiency (beggars can't be choosers)

9) Male cadavers are unyielding of fallacious testimony (dead men can't lie)

10) Inhabitants of vitreous edifices ill-advisedly catapult petrous projectiles (people in glass houses should not throw stones)

11) Probity gratifies reflexively (ask and you shall receive)

12) Ergonomia exclusive of diversion renders John a hebetudinous progeny (all work and no play make John a dull fellow)

13) He who cachinates ultimately, cachinates optimally (he who laughs last, laughs best)

14) Abstention from speculative undertaking precludes attainment (nothing ventured, nothing gained)

15) Missiles of ligneous and nonmetallic consistency have potential for fracturing an osseous structure, but

malicious appellations are eternally innocuous (sticks and stones will break my bones but words will never hurt me)
Enough of this vocabulary lesson!

ON NYARC's Geneva: More and more praise given to this 99 4/A upgrade is coming from all over. Also for RAMDISK, Hard drives, and Quad Density Controller. Otherwise, some compatibility with existing 99/AA programs have shown up, but minimally.

ON REINKING Ribbons and Cartridges: Julie Knott & Dave Porchow, quoted in a column printed by QB 99ers, do not think that my remedy of using stamp pad ink is a good one since it lacks a lubricant printheads need. I wonder! I've done it over and over and few use a printer as much as I do. I think a \$30 printhead is cheaper than using \$100 worth of ribbons/cartridges should it come to pass. What say! hey! Using WD-40 is not a good idea, I agree with that, and it can be messy!

My STAR SG10 is still going strong after 5 1/2 years now. The roller, is beginning to slip a bit. Any idea to rejuvenate the rubber, anyone? I believe alcohol won't do since it is a universal solvent which will enhance evaporation of the oils in rubber. Though I use it in friction feed most of the time I think I can still bank on the tractor should I need it to do the work I do.

RE-RUNS: There are so many of reiterated, though still useful, lists of TIV formatting and transliterate tables that could be useful to those members who lost them. Printing them here would be redundant and take too much space from news items. If anyone needs them he/she should seek out a fellow member with back copies of this NL and borrow, I mean borrow, and make copies of these pages in your office, public library, or wherever.

TIV tutorials are everywhere! Useful ideas, but hashed out over and over. If folks who haven't learned after six years in the orphanage it's either because they are scared to try or they have a learning disability. Lots of factors are involved, I admit, like making your printer accept .TLs and special character codes. Listings are repetitive, but not for every kind of printer. It's up to you to know what YOUR printer can do.

Some facts you probably didn't know about TIV files I'll give a mention, though. I forgot where I saw it but TIV can handle about 84 disk sectors of 40 column text in the buffer if formatting controls are used and somewhat more than 100 without. It's funny, too, that I wrote a long time ago saving text in 40 column mode uses less disk space than in 80. Dunno why! Besides, when text buffer becomes full erase your last line, type in an .IF DSK.FILENAME command, save what you've got, and start a new file with your new FILENAME. Your formatting commands will not change unless you change them in your new file. Simple!

FROM FRONT RANGER 99ers: Some TI trivia: Did you know-

-that Tom Freeman, author of DISKassembler and other great programs is a pediatrician by profession?

-that the three most famous father/son teams in 99dom history are Doyle and Don Bynum, Dennis and Chris Faherty, and Will and Tony McGovern?

-that more than 100 books have been published on the TI 99/AA.

-assembly language wizard John Phillips, who has yet to reach the age of 30, authored HOPPER, MOONLINE and WORD RADAR, wrote on BURGERTIME, DEMON ATTACK, MUNCHMOBILE, JAWBREAKER, FACEMAKER, TREASURE ISLAND, ANGLER DAWGLER, the LINE-BY-LINE assembler for MINIMEMORY and SLYNDIUS while at Texas Instruments?

-Richard Mitchell, ed of the SMART PROGRAMMER, is now writing legal information bases for IBM computers

-Craig Miller, founder of SMART PROGRAMMER, and author of many TI game and productivity programs, now writing custom software for IBM.

-To date there have been more than 100 books published on TI 99/AA use, but only four that I (unsigned) am aware of since 1985; TI INTERN by Heiner Martin, TECHNICAL DRIVE by Monty Schmidt, CRACKING THE TI by Brian Prothro, and HARDWARE MANUAL FOR THE TI 99/AA HOME COMPUTER by Micheal Dunyard?

This is not all. Just enough to see the this little beastie had a lot going for it before some of the above disappeared from the scene. Don't forget to support those who keep us afloat!

Have no more time to read for this month! Will try to do a bigger job next time. Henry

minicomputer. Some directives one would only find on a minicomputer exist in the editor/assembler package, but were dormant in the 99/4A. The debugger board was designed to bring the 99/4A closer to a minicomputer's environment. The DEBUG program, included with the editor/assembler package, has several features that cannot be used without this piece of hardware. In fact, the editor/assembler looks as if it was taken direct from a 990 itself. The only added features were the GROM utilities, such as VMBW, DSRLNK, LOADER, etc. that didn't support the features that a 990 could handle. It's too bad that TI wishes to keep the plans for this card on ice, it would be a dream to program with. It allowed multiple breakpoints by using the XOP 3 opcode, which would allow you to step your program through and look for errors or miscalculations. Although we can do this through software, the debugger board used a hardware approach. The design of this board, and what it contained, are up for grabs. If anybody knows, I'd appreciate you sharing with the rest of us. Send me a letter. Still another rare peripheral was the GROM library peripheral. It essentially was a super-widget that could access ALL of the GROM in the cartridges. This would be handy for TI BASIC, since TI BASIC searches external GROM for subprograms. TI extended BASIC does this too, but doesn't search DSR ROM when a program is running. Modules like TE II, personal record keeping, and extended BASIC could all be plugged in and the CALL routines could be accessible to BASIC. BASIC could use the commands it wished to whatever, and all you had to do is plug your favorite "flavor" modules into the library peripheral to get the necessary language expansion. Imagine a GROM cartridge giving advanced graphics to TI BASIC, another for print spooling, still another for expansion, memory control, others for high speed cassette routines, etc. so the language could expand by adding cartridges. It's the same technique used with the peripherals: the computer never becomes obsolete, because it automatically responds to any new device attached. This is true of the library peripheral. This is another device I would LOVE to see.

Soms of us have the HEX-BUS controller. In the days of the 99/2, the CC40, and the 99/8, the hex-bus controller was introduced for the 99/4A to allow compatibility with these devices. Essentially, they were designed like the commodore 64's peripheral system, where a slow serial transfer was appropriate for the hex-bus devices, a disk drive wouldn't be feasible. So TI never considered the HEX-BUS disk drive. The Wafertape drive, the CAT modem, the RS232/parallel interface, and the 4-color printer, were all developed. All were battery operated and could fit in a briefcase, as did the CC40. For the 99/4A, it was an inexpensive means to expand. The hex-bus controller was a small device containing a DSR ROM that controlled the I/O drivers which "spoke" to the hex-bus peripherals. Since the main use was for the CC40, it wasn't pushed for the 99/4A. The 99/8 could also

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My eyes caught the following article while scanning the NLS recently forwarded. It gives a lot of history of our 99 4/A, some technological developments of add-on. As editor of TI-dings I thought of adding it to our NL, Editor.

TECHTALK
by Mike Maksimik

Some of you may have followed TI's developments in the time that the 99/4A was at it's childhood. All sorts of plans, marvels, new things for the home computer that "was ahead of it's time." There were several peripherals developed by TI but were only released in tiny quantities, mostly to the TI employees that got the pick of the crop. Some of these never made it to the production lines, but only a few prototypes survived.

The modem card, which essentially was a Novation Cat 300 baud modem, was placed on a peripheral card, and a DSR ROM was given it to control very low-level functions, such as modem-to-vdp RAM interrupt routine, powerup routine, etc. It would work with a command module, like TE II just as the disk manager module works with the low-level routines in the disk controller to perform the DOS functions. Only a very few of these survived. Another little known card was the IEEE 488 bus controller card. It contained the TMS9914 GPIB (general purpose interface bus) that allowed the lab and mechanical equipment that used GPIB to interface to the TI. One could access the GPIB like a file device. This same standard is found in unexpected places. Any of you have a commodore 64? The communications bus used to connect it's ring-style bus of peripherals is a modified GPIB, one of commodore's own design. The SCSI interface (small computer systems interface) is essentially a multi-GPIB, allowing very fast buffered serial transfer between storage devices. SCSI also has interrupt lines to alert the host that data is waiting to be read or written. The VCR controller, a \$500.00 range peripheral, along with support software, was introduced as a means to combine video from a VCR and the video from a TI. The card would control playback, hold, framing, and other functions. Digital Research created a similar product to control videodisks that attached to an apple or a commodore 64, although much later than TI's development. The debugger card, a little known device, was in existence when the 99/4A was born. In fact, it's design can be rooted to the support hardware in the 990 minicomputer series. Essentially, the TMS9900 is a minicomputer on a chip. The editor/assembler GROM was a virtual image of the DX16 assembler used on the 990

but it has a distinct advantage over others in it's class, even the intel 80386. Those processors rely on expanded address lines and increased instructions to increase throughput. There was a deeper approach, one that TI envisioned in the 9995. A pipeline microprocessor is one that incorporates special hardware that allows it to have more than one part of the microprocessor running at the same time. These CONCURRENT functions provide that while one instruction is being decoded inside the chip, another is being fetched from memory. Still another is being executed after it has been decoded. At best, with top-down code, and very little jumps, the microprocessor can achieve a throughput 3 times, or more, depending on the level of pipelining, over a regular processor running at that speed. For example, if we put test code into a 9995 and a 9900 running at 12 MHz, the worst case is that the pre-fetch and But the 9995 can pipeline, and with it's running 16, 20, or post-store the 9995 can LOOK like it's running 16, 20, or even 24 MHz. And with the reduced instruction set in the control ROM, the 9995 has a distinct advantage over an 80386, it's MUCH cheaper to produce. The control ROM is a hard-wired design, while the 80386 has to be programmed externally. It is an easy device to interface to a memory system, and with no-wait state static RAM, the memory-9995 combination (up to 4 megabytes) can be phenomenal.

Currently, I am working on a software project. It's a new DOS for the TI, somewhat reminiscent of COMMAND DOS that byte data released some years ago. However, there is no image file required because the DOS I have resides in a E/A supercart, and the utilities that it needs are extracted from the E/A GROM--that way, I can restore the lower memory expansion to a defined state very quickly without reading from a disk drive. The DOS is completely self contained, and will provide a choice for you on the master title screen. I am a college student, doing projects to complete my final years of undergraduate study in computer science. This project was inspired by a need for a better operating environment for the TI as well as a need for me to see if it could be done. Well, I have succeeded! The DOS uses the DSRLAK utility to attach to the low level device drivers. It gives you the familiar A> DOS prompt, and will mimic DOS to a degree, but with one delightful exception--the DOS is being written by me, and I can have it do whatever I want it to! I will no longer be a slave to incomplete DOS commands or ambiguous and useless syntax, often the product of overpaid software developers. The commands are clear and precise, and the DOS is very short, only about 5k at this writing. Since most of the DOS is already present in our machines, in places like the E/A GROM, the disk controller ROM, the RS232 interrupt routine--all of these put together with the right glue can make a great DOS, and all I did was to provide the necessary glue for the parts, and it works! It has a batch file load and execute, D/F 80 loader (compressed/uncompressed), program file loader, dos

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rely on the PE BOX for it's devices. It had it's own special FLEX CABLE card, which used some special control lines to expand it's own capabilities. Since the 99/8 used a TMS9995, the same as the GENEVE, it could use the extra 3 address lines in the PE BOX, giving a total address space of 2 to the 19th power, or 512 k of directly addressable memory. Since some of these banks were probably switched, the address space grew to a total of 4096 k, which is sufficient for MOST of my needs. The speed of this processor was greater, and it's throughput was even greater, but more on that later. Some other control lines were used, some to indicate a 9900 or a 9995 present in the system, some to allow multi-level interrupts, still others to initiate HOLD sequences, which are found on the mainframes, and large multi-user systems as a way to deal with wasteful processing, and interrupt idling. TI had a HARD DISK controller in the plans, probably MYARC's, but the technical data I have is 1982. I own a rare card. Some of you may remember a company called A/D electronics, out of Sacramento, California. They produced a control card which allowed sampling of environmental data through an 8-bit analog-to-digital controller. This device allowed hookups of many items, such as temperature probes, light transducers, etc. and was mainly used as a scientific device. Some possible uses included home control, because it also contained a real-time battery backed clock. Plus, there were separate digital inputs and outputs, for switches and relays, respectively. My main use for the A/D card, FIRST ADE, is a mouse. The RADIO SHACK color mouse contains two potentiometers turned by a rolling motion of the mouse. The potentiometers, when interfaced with the ADC0809 chip, (two channels, x and y) gives me mouse control with TI ARTIST. I wrote the DSR myself, and have been using this device for about a year and a half. The MRP clock card is a similar device, although it does not contain a digital input or output array. The ADE card, however, could also switch external relays, or sample data on 16 lines (8 in, 8 out). If timing was correct, an 8-bit parallel interface was possible. I still use this card, and the clock is handy for keeping my P-system master disk up-to date. The FORTI music card was a device which allowed one to produce sound on not one but 4 extra TMS9919 sound generators. By arranging the frequencies on the 12 music channels available, different waveforms were possible. Now, with the FORTI, sounds even a c-64 owner could envy were possible. And, there were 4 percussion channels independent of each other. I can imagine "AXEL-P" running on this card!! And of course, we all know of the more common peripherals, the triple tech, the disk controllers, the 32k cards, the rs232 cards. Even these make our computers sophisticated enough to meet TI's long dead expectations. I also own the p-code card, and another article is devoted to THAT!

I mentioned the TMS9995 earlier. Just what exactly is a pipeline microprocessor? Well, the 9995 is not only fast,

utilities (FORMAT, COPY, RENAME, DELETE, ASSIGN) and screen control commands (WAIT, BEEP, CLS, GOTOKY, PRINT, ECHO ON/OFF) and "smart" control keys, as well as a 255 character input queue for type-ahead. Many of the commands are internal, and they reside only in the supercart. Other commands can be created from object code, which you can create from any one of the compiling languages, or the assembler (I prefer the assembler) and by simply typing the name of the file at the command prompt, the file will be loaded and executed.

I hope to have some sort of language compiler for DOS, such as a basic/pascal compiler, to facilitate creation of programs and utilities. My plans include a file transfer utility (terminal emulator), windowing, an 80-column editor, and multiprogramming. If for no other reason, then to gain experience and to enjoy doing it on my \$49.99 TI99/4A. Of course, I wouldn't dream of charging anyone for this DOS, and I've had some interesting suggestions for names. "F-DOS" by our own editor, BOB DENETER, for FROGMAN-DOS, since my "other" hobby is SCUBA DIVING. "XIOS" for extended Input Output System, and whatever...I am using version 1.24, which is relatively complete. I would just like to add the bells and whistles, plus write a manual on it's use.

Now for some more Techtalk. If you are confused as to why computers like the C-64 and the apple all have DOS commands built in...well, the designers of those computers anticipated a disk system, and available to most users, so the operating system and BASIC language all had the DOS commands either in the disk unit itself, or in a disk BASIC which loaded in on powerup. Since TI did things a little differently, they preferred to make DOS a separate thing, with a disk manager module to handle disk tests and formatting. It seemed a little annoying that in order to rename a file from BASIC, you had to either load the program and save it under another name, or if it was a DATA file, you had to OPEN it and read all of the data, then re-save the data to disk under another OPENED file name. This could be terribly inconvenient to users, but consider what the others have...the C-64 must send all of it's DOS commands through a command channel, and the disk drive will run itself. It essentially is another computer, a 6502 based one, to be exact, that only accepts commands from a serial line and performs all of the disk commands. Imagine... a computer so STUPID that you need TWO computers to run any disk software...and you would be paying for TWO computers also. Commodore doesn't tell the average users that they are essentially using TWO computers instead of one. Apple computers are also based on the 6502 series of microprocessors. Apple used an old method of running it's computers...just write a DOS and put it on disk, and when the computer is powered up, the DOS is loaded. Funny thing, though. Although Apple boasts of 64k of RAM, much of that is used to hold the resident DOS, and BASIC. If you want to load a program which needs the space allocated by DOS, you

are out of luck, since your program might make DOS calls to perform disk functions. And if DOS were overwritten, then when your program is finished, it must go back and load it all over again. And 6502 is not exactly the processor I would waste terribly expensive memory on, since it has a very limited instruction set, and things I take for granted now, like memory-to-memory word moves, multiplication, division, and subroutine branching would be terrible to implement on an apple of comodore 64. I just don't know how they have survived this long...

Our little TI, on the other hand, has a wonderful method for handling new devices. The GROM header, present on all ROM in the expansion box, and all command modules, is the link between the unknown and the known. It allows us to plug in new devices at any time in the future, and the operating system will immediately recognize the device, as if it were there from the beginning. This is what will keep our TI computers alive. The method of access is very similar to the IBM PC method. Each peripheral card has a certain address in the serial addressing fields. The operating system can turn on a card singly, look at what occupies a pre-defined memory area (>4000 to >5FFF for us) and can determine if the device exists. With the IBM, certain logical names are assigned to a physical device address, such as COM1:, TTY:, A:, LPT1:, and so on, and can be changed according to the user's wishes. This requires a small modification to DOS to accommodate the new device, and from then on, a new sub-version to dos is created. If the device is removed, an error will be issued since DOS can no longer locate the installed device.

The GROM header in the TI provides a standard table for finding a device quickly and efficiently. All of the devices use a pre-decoded 8k block of memory, and 8k is plenty for most devices. Since we are not limited to 64k of total address space (via memory paging in the MYARC or HORIZON ram cards), larger programs may occupy that memory and give our TI's a greater running capability. The IBM uses a segment register that is pre-decoded to page in banks of memory, which is essentially the same way the HRD or MYARC does it, so memory expansion is no problem. The safe area in the TI is the first ROM bank, which is the invaluable interrupt routine and powerup routines. the SUPERCART is the only save RAM alternative for a kernel or DOS, since it is battery backed and it remembers all the changes you have made to DOS. In the CRU, the only area you could use for your own bit-twiddling is the >400 to >1000 area, which is not decoded presently and could be wired to something (I will let you imagine that). It would not be a difficult task to interface an IBM card to the TI, provided you had the correct cross-wiring, and a ROM to control the new device. A few of us in the Chicago users group will attempt this. The price of IBM cards is falling like a rock, and I don't see any interfacing pitfalls.

Things P.9

IMPACT/99

BY JACK SUGRUE
Box 459
EAST DOUGLAS, MA 01516

IMPACT/99 BLUE RIBBON WINNER

IF THIS ANNUAL AWARD COULD BE GIVEN TO THE SAME COMPANY TWO YEARS IN A ROW, ASGARO SOFTWARE (WITH ITS INCREDIBLY VARIED AND IMPRESSIVE CATALOG) WOULD CERTAINLY BE VERY MUCH IN CONTENTION AGAIN. SO I'M GLAD I DON'T HAVE TO MAKE THAT DECISION THIS YEAR.

INSTEAD, IT WAS A CLEAR CHOICE: MYARC IS THE WINNER OF THE 1989 IMPACT/99 BLUE RIBBON AWARD. MYARC IS ONE OF THE FEW COMPANIES STILL MAKING ANTIZING FOR TI OWNERS IN A STEADY MANNER. BUT IT ISN'T JUST MAKING THAT THEY ARE MAKING; THEY HAVE GIVEN US THE MOST POWERFUL HARDWARE AND SOFTWARE THAT EXISTS FOR US. THEY JUST PROVIDED ENHANCEMENTS; THEY HAVE GIVEN US A FUTURE!

MYARC (THE VISION, THE DREAM, OF FORMER TI EMPLOYEE LOU PHILLIPS) HAS BEEN AROUND A LONG TIME. SINCE 1982, ACTUALLY, WHEN LOU DEVELOPED WINCHESTER HARD-DISK CAPABILITIES WHICH SOLD BETTER IN OTHER COUNTRIES THAN HERE (AS WE WERE MOSTLY ALL FLEDGLINGS AT THE TIME). LATER HE PRODUCED A NOT-VERY-SUCCESSFUL COMPETITION TO THE TI PE BOX (STILL FLOODING THE INTERESTED MARKET AT THE TIME). SO HE MOVED INTO THE CARD DEVELOPMENT. AND THERE MYARC (WHICH IS A MUTILLATED ACRONYM FOR "MICROCOMPUTER ARCHITECTURE'S") BEGAN TO EMERGE.

FROM A PERSONAL VIEWPOINT (AS THIS COLUMN HAS ALWAYS BEEN - FOR BETTER OR WORSE), MYARC AND I HAVE A PERFECT FRIENDSHIP. I OWN MOST OF THEIR PRODUCTS, AND I HAVE NEVER HAD TO SPEAK TO OR WRITE TO ANYONE ABOUT THEM. THEY MAKE IT SO EASY TO USE AND HAVE NEVER BROKEN DOWN. AND THEY HAVE MADE MY COMPUTING LIFE MUCH RICHER.

A FEW YEARS AGO MY TI DISK CONTROLLER CARD WAS BEHAVING ERRATICALLY. ONE OF MY FRIENDS RECOMMENDED THE MYARC CARD. SO IT.

LOVED IT FROM THE MOMENT I PULLED OUT MY OLD CARD AND PLUGGED IN THE NEW. IT IMMEDIATELY MADE MY MISERIAL SCHEDULE INTO A PLEASANT ONE, SO I DOUBLED MY POTENTIAL IN EVERY DISK AND NO LONGER HAD TO "FLOPPY" ANTIZING. NOT ONLY DID THE MYARC CONTROLLER WORK SMOOTHLY, BUT IT WAS FASTER THAN MY OLD CONTROLLER, AND IT WAS JUSTICE A WHOLE LOT BETTER THAN THE DISK CATALOGUES WHICH COULD BE ACCESSED FROM ANYWHERE BY CALL BITBIT. I FORGET HOW NUMEROUS THIS IS UNTIL I GOT TO SOMEONE ELSE'S NON-MYARC TI.

SO IT WAS MYARC'S LEGENDARY DISK MANAGEMENT SYSTEM. STILL MY FIRST CHOICE AMONG A PILE OF EXCELLENT SYSTEMS AND THAT REMAINS CONSTANTLY CONFIRMED IN FURNISHED ON MY BANK (BUT I'M GETTING A BIT AHEAD OF MYSELF.) LOTS OF OWNERS LEARNED A LOT OF TECHNIQUES FROM THIS ONE, BUT FEW UNDERSTAND IT AS WELL AS I DO. PARTICULARLY WITH ITS INTUITIONISTIC UTILITY MENU.

HOW MY DRIVE WAS OLD, SO I THOUGHT I'D GET A NEW 8500 ONE AND A POWER SUPPLY FOR MY OLD ONE. I DID. ACTUALLY, THE CONTROLLER TOOK EVERYTHING IN STRIDE. SWITCHES FROM ONE CARD TO ANOTHER WITH NO HEAVY BRAGGING.

AS MY COMPUTER ADDRESS WHEN I GAVE IT TO MY NEIGHBOR WITH MY TI (I'M GETTING A BIT AHEAD OF MYSELF.) LOTS OF PEOPLE WITH THEIR 512 CARD TO GO ALONG WITH THEIR 256 AND 128 CARDS.

AS I AND SUCH GREAT FORTUNE WITH MYARC, I BOUGHT THEIR 512. TOOK OUT MY 32K CARD, PLUGGED IN THE NEW. JUST LIKE THE CONTROLLER, IT WORKED PERFECTLY FROM THAT MOMENT.

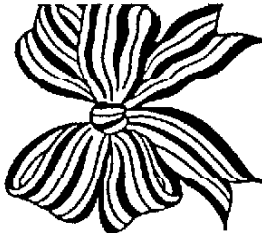
I HAD A LARGE HARDISK THAT I COULD PARTITION AS A BUFFER FOR MY PRINTER AND HAVE LOTS OF OPTIONS AVAILABLE. BUT DID I REALLY NEED ALL THAT SPACE? I DON'T THINK SO AT THE TIME. I WONDERED WHY I HADN'T PURCHASED THE SMALLER CARDS WITH MY HARD-EARNED PENNIES.

HOWEVER, WITHIN A COUPLE WEEKS, I HAD ALL THE FILED AND PLUS FILES I USE REGULARLY (AND SOME OTHER VERY SPECIFIC UTILITIES AND GAMES) ALL ON A HARD LOAD WITH AN AUTOMATIC ONE SET ASIDE FOR BUFFER (WHICH TURNED OUT TO BE ONE OF THE GREATEST ENHANCEMENTS I EVER ADDED TO MY TI).

THE HARD PARTITION IS WONDERFUL TO OPERATE. EVERYTHING I NEED IS THERE AT THE MOMENT I WANT IT. ALL THE GOOD PROCESSING TOOLS. ALL THE ASSEMBLY TOOLS. ALL THE UTILITIES. IN SHORT, THAT I ALWAYS USED TO LOAD ONE-BY-ONE AS I NEEDED. IN THOSE DAYS THE TRICK WAS TO TRY TO GET THE TRICKS I NEEDED MOST AT ANY GIVEN TIME.

AND MY CONTROLLER? WELL, I JUST DESIGNATED MY 512 CARD AS DRIVE 3, AND IT WENT ABOUT ITS BUSINESS AS IF I HAD SIMPLY GIVEN IT AN ADULT TASK. ITS "M-MMM" MANAGER SHOWED ME THAT THE DESIGN OF THE THING WAS INCREDIBLE. NO PRESS. NO BOTHER. I LIKE THINKING THAT WAY.

NOW, HERE I WAS WITH A MYARC-STUFFED FULL-BLOOM SYSTEM WHEN MY EXTRA 5550 ORIGINAL DRIVE (IN THE POWER-SUPPLY BOX) BEGAN AFTER MUCH FAITHFUL SERVICE. SIX YEARS IS A LONG TIME, I'VE BEEN TOLD. PARTICULARLY FOR THE KIND OF USE I GIVE THE DRIVES. SO I BOUGHT A COUPLE 6500 HALF-HEIGHTS ON SALE, PUT THEM IN THE P-BOX, PUT THE 8500 FROM THE BOX INTO THE



ADDED POWER SUPPLY, AND RAN MY SOFTWARE. BUT ALL MY SOFTWARE HAD BEEN DESIGNED TO HANDLE DRIVE 3 AS MY HARDWARE. MY CONTROLLER WINKED AT ME. "CALL THE EXTRA DRIVE DRIVE 4," IT SAID. "AND KEEP THE RAM AT 3." I TOOK IT'S ADVICE. FOR I HAVE ALL FOUR DRIVES (WITH 512 AT 3) OPERATING QUICKLY AND FLEMESSELY AND WONDERED HOW I EVER DID WITH THREE DRIVES OR TWO. CAN I EVEN IMAGINE HOW I SURVIVED WITH ONE.

(THERE'S SOMETHING VERY OBSSIVE ABOUT THIS KIND OF BEHAVIOR.) ALTHOUGH I AM THE ULTIMATE NON-TECHIE, EVEN I CAN PLUG IN CARDS AND (AS A LAST RESORT) READ MANUALS. MYARC MAKES IT SO EASY, YOU DON'T HAVE TO READ THE MANUALS IN MOST CASES, THOUGH THEY WARN THE USER NEVER TO DO ANYTHING WITHOUT FIRST READING THE MANUAL COMPLETELY.

AFTER A FEW YEARS OF BLISS WITH MYARC, I WAS PLEASED AS PUNCH TO LEARN THAT THEY WERE DEVELOPING A NEW COMPUTER THAT WOULD BE COMPATIBLE WITH THE TI. NOT JUST AN UPGRADE. BUT A NEW COMPUTER. WELL, LIFE ALL (WITHOUT EXCEPTION) NEW PRODUCTS IN THE COMPUTER INDUSTRY WOULD WIDE, THE IMPROVEMENTS OF ITS WORKING BEHIND ME AND ON. BUT EACH STAGE WAS PUBLICIZED TO THE POINT OF ANNOYANCE. PROBABLY WOULD WAS MOST ANNOYING WERE THE HOBBYISTS. THEY DUMPED ALL OVER MYARC FOR THE DELAYS. IT'S TOO BAD, REALLY. THE KINDS OF STUFF COMING OUT OF STILL-MANUFACTURED COMPANIES DOES NOT RAISE THE BAR WITH THE UNBLESSED DELAYS BECAUSE THERE IS SO MUCH ELSE BEING MANUFACTURED AND RELEASED. WITH MYARC, IT WAS THE ONLY SHOW IN TOWN. SO IT GOT SPOTLIGHTED. AND, IN SOME PEOPLE'S MINDS, GOT A BAD REP. NOT DESERVED. NOT DESERVED AT ALL.

IF YOU BE THE ONLY COMPANY MAKING A COMPATIBLE UPGRADE FOR AN OBTAINED COMPUTER, YOU ARE TAKING A GREAT RISK TO BEGIN WITH. YOU GET NO SUPPORT TO CONTINUE WITH. AND YOU GET TO LIVE WITH WHAT YOU MADE CREATED TO END WITH.

WHAT MYARC EMERGED WITH IS A MINOR MIRACLE. THE GENIE (8540) COSTS ABOUT TWICE WHAT THE 8500S SOLD SEPARATELY COSTS. LESS THAN THREE TIMES WHAT THE DIFFERENT HARDWARE COSTS. FOR UNDER \$5000 SOMEONE CAN NOW BUY A COMPUTER THAT WAS LARGELY INCOMPATIBLE WITH EVERY PIECE OF SOFTWARE THEY OWN. IT WAS BARE BUILT IN. IT WAS A FULL-SIZE ENHANCED KEYBOARD. CAN PARTITION A WHOLE DRIVE FOR THOSE WHOSE OF THEM. IT WAS THE BEST GRAPHIC RESOLUTION IN THE BUSINESS. IT COMES WITH SOME VERY IMPRESSIVE SOFTWARE AND PARTS FOR UPS, PRINTER, POWER, ETC.

THE GENIE IS THE ONLY ANSWER FOR TI UPGRADE. THINK YOURSELF IT'S A GREAT ANSWER. IN ADDITION TO THE POWERFUL DOS, THE SOFTWARE INCLUDES MYWORD (AN EXCELLENT 81-COLUMN PROCESSOR), ADVANCED BASIC (THAT DOES FAR BETTER EXTENDED BASIC), PASCAL, C++, AND A CARTRIDGE CONTROLLER.

EARLY OWNERS (LIKE MYSELF) HAVE BEEN RECEIVING UPDATES OF ALL THE SOFTWARE FREE. SO OUR MACHINE KEEPS GETTING BETTER AND BETTER. AS A MATTER OF FACT, THERE IS ANOTHER WHOLE PACKAGE BEING SENT OUT BY MYARC THIS MONTH. I CAN'T WAIT. WHAT A SERVICE THIS IS!

THIS COMPUTER WAS SO MUCH BETTER THAN THE ONE I HAD TO GET MOST SOFTWARE ON SLOWER MODES IN ORDER TO HANDLE THE DIFFERENCE.

AND, LIKE ALL THE OTHER STUFF FROM MYARC, THIS COMPUTER IS ON A CARD THAT JUST PLUGS RIGHT INTO OUR P-BOX. (THE MANUAL IS HUGE AND INCLUDES WHOLE A SECTION ON THE SUPER ADVANCED BASIC.) IT WILL TAKE ABOUT A BIT OF TIME AND EFFORT ON THE USER'S PART TO USE THE GENIE TO ITS FULL POTENTIAL (IF ONE CAN EVER REACH THE FULL POTENTIAL OF ANY COMPUTER). THERE ARE ALSO MANY OPTIONS (SUCH AS A 512 CARD) THAT CAN BE ADDED TO THE GENIE. THERE IS ALSO A GROWING SOFTWARE SUPPORT. THAT IS A HOUSE-BUILT, HIGH-RESOLUTION PACKAGE. MOST TI SOFTWARE MAKERS ARE CREATING GENIE COMPATIBLE SOFTWARE RIGHT AT THE START.

AND, NOW!! BEFORE I EVER GET A CHANCE TO START TO MASTER THE GENIE, MYARC HAS DONE IT AGAIN! THEY HAVE JUST RELEASED THE FIRST HARD AND FLOPPY DISK CONTROLLER WITH STREAMER TAPE BACKUP SUPPORT WITH MYARC DR-7. THE MOST INTUITIVE DR ON THE MARKET.

THE CONTROLLER INCLUDES A REAL BUILT-IN TIME CLOCK FOR FILE STAMPING; INTERFACES WITH STANDARD FLOPPY, HARD AND STREAMER DRIVES; SUPPORT OF UP TO FOUR 5 1/4 AND/OR 3 1/2 DRIVES IN ANY CONFIGURATION; PROVIDES HARDISK SPEED OF A HARD-DRIVE TRANSFER RATE OF 5MBIT PER SECOND. AND SO ON.

I HAVE NO PLANS IN THE IMMEDIATE FUTURE FOR HARD-DRIVING, BUT IT SEEMS TO ME TO KNOW THAT MYARC IS PROVIDING THE OPTIONS IF I DO. IT IS ALSO WISE TO KNOW THAT SOME OF THE BEST MINDS IN THE TI WORLD COMMUNITY HAVE PARTICIPATED IN THE CREATION OF THESE GREAT MYARC ADVANCES.

IT IS A REAL PLEASURE TO PRESENT THIS ANNUAL AWARD TO A COMPANY THAT HAS THE TI OWNERS IN MIND AND WHO HAS BROUGHT US INTO THE 80-TECH AGE EMPLOYED BY SO MANY OTHER COMPANIES. THEIR CONTINUED SUPPORT IN THE FACE OF A LOT OF ADVERSE PRESSURE IS NOT APPRECIABLE BUT ASTONISHING. MYARC DOESN'T DESERVE THE AWARD GIVEN TO IT BY THE LONG (BUT FORTUNATELY SMALL IN NUMBER) COMPANIES WHO SHOULD BE GIVEN A STAPLE FOR THEIR OWN SELF ESTEEM.

CONGRATULATIONS, MYARC! YOU'RE BEING A GREAT ONE, LOU! EEE! IT W.

